DRAFT FOR PUBLIC CONSULTATION: Dementia Clinical Practice Guidelines and Principles of Care

Main editor

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Australian Dementia Clinical Practice Guidelines

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https://www.monash.edu/medicine/dementia-guidelines

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1. Publication and acknowledgments

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External Interest Holder Organisations engaged in the update to the Dementia Clinical Practice Guidelines
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Advanced Care Planning Australia
Advanced Pharmacy Australia (AdPha)
Aged and Community Care Providers Association (ACCPA)
Aged Care Quality and Safety Commission
Australasian Cognitive Neurology Association
Australian & New Zealand Society for Geriatric Medicine (ANZSGM)
Australian association of Gerontology (AAG)
Australian Association of Social Workers (AASW)
Australian College of Nursing

External Interest Holder Organisations engaged in the update to the Dementia Clinical Practice Guidelines
Australian College of Rural and Remote Medicine (ACCRM)
Australian Commission on Safety and Quality in Health Care
Australian Nursing and Midwifery Federation (ANMF)
Australian Physiotherapy Association
Australian Primary Health Care Nurses Association (APNA)
Brightwater Group
Carers Australia
Centre for Cultural Diversity in Ageing (CCDA)
Council on the Ageing (COTA) Victoria
Dementia Australia
Dementia Support Australia
Dementia Training Australia
Federation of Ethnic Communities' Council of Australia (FECCA)
Gerontological Alliance of Nurses Australia (GANA)
Hammond Care
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National Aboriginal Community Controlled Health Organisation (NACCHO)
National Disability Insurance Agency (NDIA)
Occupational Therapy Australia
Older persons Advocacy Network (OPAN)
Palliative Care Australia
Partners in Culturally Appropriate Care (PICAC)
Pharmaceutical Society of Australia
Royal Australian & NZ College of Psychiatrists (RANZCP)
Royal Australian College of General Practitioners (RACGP)
Speech Pathology Australia

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2. Executive summary

Clinical Practice Guidelines for dementia are intended to improve the consistency and quality of care for people living with dementia. This review and update to the Australian Dementia Clinical Practice Guidelines provides evidence-based recommendations to help health professionals understand and use current evidence about risk reduction, diagnosis, therapies, and post-diagnostic care of dementia in their practice. It is also intended to support people living with dementia and carers in making informed decisions about dementia.

Recommendations and Good Practice Statements

The development of the Guidelines was conducted by a group of interdisciplinary experts from across the country working with a strong team of people with living/lived experience on dementia, supported by a GRADE methodological expert. The Guidelines include 15 conditional recommendations, and 13 good practice statements.

Conditional recommendations were made when there was uncertainty about the balance of benefits and harms of an intervention after a systematic review of the evidence, due to imprecision, uncertainty in the evidence, or differences in how outcomes are valued by people.

Good practice statements were made when benefits of an intervention outweigh harms despite evidence being indirect, and a full evidence review is considered unnecessary. They are grounded in ethics and good care, where the alternative approach would be inappropriate, and usually focus on how care is delivered.

In this executive summary, information is presented in the following order:

- recommendation(s) for each topic
- remarks that qualify the recommendation(s)
- the rationale used by the Guideline Development Group to arrive at the recommendation
- practical information to support implementation of the recommendation
- good practice statement(s), if relevant for the topic.

The reader is encouraged to read carefully through all these sections to understand the nuances relevant to the recommendations.

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Risk reduction of dementia

Multi-domain interventions in people with mild cognitive impairment

Recommendation 1
For people living with mild cognitive impairment (MCI), consider offering multidomain interventions to optimise global cognitive function.
Conditional recommendation for, low certainty evidence

Remarks
In the evidence reviewed, multidomain interventions involved at least three components, such as physical activity, dietary modification, cognitive training or stimulation, and management of cardiometabolic risk factors, delivered through education or coaching to support behaviour change. Additional components may be included based on an individual's needs, preferences and risk profile. These may include, for example, hearing and vision assessment and management, mental health support (e.g., management of stress), social engagement activities, smoking cessation or alcohol reduction.

Multidomain interventions were delivered individually and in group settings.

Interventions addressing fewer than three domains were outside the scope of the evidence review and as such, this Guideline does not make recommendations regarding single-domain or dual-domain interventions.

Incident dementia was prioritised as a critical outcome by both the Guideline Development Group and the Living/Lived Experience Advisory Group. However, dementia typically develops over long timeframes, often spanning decades, and trials were not of sufficient duration to measure this outcome directly. Instead, trials relied on intermediate outcomes, such as cognitive performance. The absence of evidence for incident dementia should therefore not be interpreted as evidence of no effect.

Rationale
The Guideline Development Group judged that:

- Multidomain interventions resulted in trivial desirable effects and trivial undesirable effects, with low certainty evidence, in people with mild cognitive impairment (MCI). Although no direct evidence was available for the effect of such on incident dementia, the Group noted that absence of evidence does not imply absence of effect.

- A small but potentially important effect on global cognition was observed over short follow-up periods, which may signal a meaningful benefit over longer timeframes. This may be particularly relevant in people with MCI who already have reduced cognitive ability.
- There was possibly important variability in how much people living with MCI value the desirable and undesirable effects, and that the balance of effects probably favoured multidomain interventions.
- Multidomain interventions were associated with moderate resource requirements, and their impact on equity was considered to be uncertain, with the potential to either increase or reduce equity depending on implementation settings.
- Multidomain interventions were probably acceptable and feasible in people living with MCI.

Taking all these factors into account, and noting the absence of identified harms, the Group agreed on a conditional recommendation in favour of multidomain interventions in people living with MCI.

Practical information
Multidomain interventions to reduce dementia risk are heterogeneous and some components may not be suitable or acceptable for all individuals. Use shared decision making to determine personalised goals, discuss potential benefits, limitations, costs and practical considerations, and align intervention choices with the individual's preferences and circumstances.

Encourage and support individuals to engage in self-directed activities between structured sessions, as this may reinforce behavioural change and improve adherence.

Multidomain interventions require coordination of interventions delivered by trained health professionals with various expertise. Some of these components may be accessible through existing care pathways.

Good practice statement 1
Before commencing a multidomain intervention in people living with MCI, conduct a comprehensive assessment to identify and manage relevant medical conditions that may limit participation or require caution or adaptation. Interventions should be tailored to the individual and appropriately supervised to ensure safety and maximise engagement.

Multi-domain interventions in people who are cognitively healthy or are cognitively healthy and at risk of dementia

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Recommendation 2
For people who are cognitively healthy or are cognitively healthy and at risk of dementia, the use of multi-domain interventions is not routinely recommended solely for the purpose of reducing the risk of dementia.
Conditional recommendation against, moderate certainty evidence

Remarks
In the evidence reviewed, multidomain interventions involved at least three components, such as physical activity, dietary modification, cognitive training or stimulation, and management of cardiometabolic risk factors, delivered through education or coaching to support behaviour change. Additional components may be included based on an individual's needs, preferences and risk profile.

There are limitations in the available evidence for multidomain interventions including short follow-up periods and the lack of information about some outcomes (such as change in dementia risk score).

It remains important to consider management of modifiable conditions that are associated with an increased risk of dementia such as cardiovascular and metabolic factors using established strategies, in alignment with the health needs, goals and preferences of the individual.

Rationale
The Guideline Development Group judged that:

- Multidomain interventions resulted in trivial desirable effects and trivial undesirable effects, with moderate certainty evidence, for cognitively healthy people. The Group noted that measurable changes in cognition would be unlikely over the relatively short follow-up periods of the trials, and the potential importance of considering change in dementia risk scores as a future relevant outcome in a cognitively healthy population.
- There was possibly important variability in how much cognitively healthy people value the desirable and undesirable effects, and the balance of effects probably favoured the comparison (to not use multidomain interventions).
- Multidomain interventions were associated with moderate resource requirements, and their impact on equity was considered to be uncertain, with the potential to either increase or reduce equity depending on implementation settings.
- Multidomain interventions were probably acceptable and feasible in cognitively healthy people.

Considering all judgments together, and acknowledging the limitations in the available evidence, the Group agreed on a conditional recommendation against multidomain intervention in this population. The Group recognised that this is a rapidly evolving area and will be impacted by emerging

Australian-based research.

Practical information
Multidomain interventions to reduce dementia risk are heterogeneous and some components may not be suitable or acceptable for all individuals. If considering such interventions in cognitively healthy individuals, use shared decision making to determine personalised goals, discuss potential benefits, limitations, costs and practical considerations, and align intervention choices with the individual's preferences and circumstances.

Diagnosis and therapies

Blood-based biomarkers in the diagnostic workup of a person with suspected Alzheimer's Disease dementia

Recommendation 3
Consider using a blood-based biomarker test with sensitivity ≥90% and specificity ≥75% as a triaging test to determine the presence or absence of Alzheimer's disease pathology in the brain during specialist diagnostic workup of individuals with mild cognitive impairment or dementia.
Conditional recommendation for, low certainty evidence

Recommendation 4
Consider using a blood-based biomarker test with sensitivity ≥90% and specificity ≥90% as a confirmatory test to determine the presence or absence of Alzheimer's disease pathology in the brain during specialist diagnostic workup of individuals with mild cognitive impairment or dementia.
Conditional recommendation for, low certainty evidence

Remarks
Blood-based biomarker tests should only be used as an adjunct to comprehensive clinical evaluation, including detailed history taking, neurobehavioural assessment, cognitive testing, and brain imaging.

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A triaging blood-based biomarker test refers to a test in which a negative result rules out Alzheimer's disease pathology in the brain with high probability, whereas a positive result should be confirmed using another method, such as cerebrospinal fluid (CSF) analysis or amyloid-PET scans.

A confirmatory blood-based biomarker test refers to a test in which a negative test rules out Alzheimer's disease pathology in the brain and a positive test confirms Alzheimer's disease pathology, with a high probability.

The diagnostic accuracy thresholds for a blood-based biomarker test refer to the performance of each specific assay against recognised reference standards. Results should not be extrapolated across different assays or platforms without validation.

The diagnostic value of blood-based biomarkers varies according to the clinical context, and may be greater in specific scenarios when diagnostic uncertainty remains after standard evaluation and the result is expected to influence clinical management. For example, confirmation of Alzheimer's disease pathology may be required prior to treatment initiation of disease modifying therapy or inclusion in a clinical trial.

In the following clinical scenarios, a blood-based biomarker test may not be appropriate or should be interpreted with extra caution. These are based on the Alzheimer's Association Clinical Practice Guideline on the use of blood-based biomarkers in the diagnostic workup of mild cognitive impairment and dementia within specialised care settings.

- When knowing whether Alzheimer's disease pathology is present would not impact decision making.
- In patients with obvious modifiable or temporary conditions likely to explain cognitive impairment.
- In patients with limited life expectancy, when the clinical significance and prognostic value of Alzheimer's disease pathology is uncertain.
- In patients with a history of other brain conditions that may influence biomarker levels but are poorly studied, such as human immunodeficiency virus infection, neurocysticercosis, prior chemotherapy or radiation, or chronic traumatic encephalopathy.
- In patients with medical conditions that may affect biomarker levels, such as acute brain injury, severe chronic kidney disease, or amyotrophic lateral sclerosis.
- In patients taking medications that may alter biomarker levels, such as neprilysin inhibitors for heart failure or drugs that disrupt the blood–brain barrier.

Rationale
The Guideline Development Group judged that:

- Blood-based biomarkers were accurate tests against established reference standards (CSF, amyloid-PET, or neuropathology), for triaging and confirming the presence of Alzheimer's disease pathology in the brain (brain amyloid and tau) in individuals with clinically diagnosed mild cognitive impairment or dementia
- Blood-based biomarkers resulted in moderate desirable effects and small undesirable effects, with low certainty evidence.
- There was probably no important variability in how people valued the desirable and undesirable effects of using blood-based biomarkers, and the balance of effects favoured using blood-based biomarkers.

- Blood-based biomarkers may be associated with moderate savings and probably cost-effective.
- Blood-based biomarkers may increase health equity, they are probably acceptable to people living with dementia, and implementation of blood-based biomarkers is probably feasible in practice.

The Group agreed on conditional recommendations to use a blood-based biomarker as a triaging test and as a confirmatory test for Alzheimer's disease pathology in people with cognitive impairment or dementia in a specialist setting.

The conditional recommendations reflect the very low certainty of the evidence, the limited evidence specific to the Australian context, and uncertainty about the costs of testing and the current feasibility of implementation. It was also noted that this is a rapidly evolving area and will be impacted by emerging research.

Practical information
Use shared or supported decision-making with the person undergoing assessment, and if appropriate their carer, when considering use of blood-based biomarkers in the diagnostic processes, discussing the potential benefits, limitations, costs, and implications of results.

Check that the blood-based biomarker test has received regulatory approval and can be analysed by an appropriately certified laboratory.

18-Fluoro-deoxy glucose Positron Emission Tomography (FDG-PET) in the diagnostic workup of a person with suspected dementia or dementia subtype

Recommendation 5
Consider using FDG-PET imaging to clarify the diagnosis of dementia or dementia subtype during specialist assessment of an individual with suspected diagnosis of dementia, when uncertainty persists after comprehensive clinical assessment that includes a detailed history, neurobehavioural assessment, cognitive testing and structural brain imaging.
Conditional recommendation for, very low certainty evidence

Remarks
The utility of FDG-PET varies across diagnostic comparisons, and this variation may inform the clinical context in which FDG-PET is requested:

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- A positive FDG-PET result was perceived to provide a large increase in diagnostic probability for distinguishing Alzheimer's disease dementia (ADD) from no dementia, for distinguishing Dementia due to Lewy Bodies (DLB) from non-DLB, and Frontotemporal Dementia (FTD) from non-FTD.
- For distinguishing ADD from non-ADD or other dementias, a positive result provides a moderate increase in diagnostic probability.
- However, for distinguishing between some dementia subtypes (e.g., ADD versus DLB), the change in diagnostic probability was considered small, uncertain, or not meaningful.

When considering whether to use FDG-PET, clinicians should be aware that:

- Most of the included studies in the evidence review addressed ADD, with fewer and smaller studies for FTD and DLB.
- The reference standard in most comparisons of diagnostic accuracy of FDG-PET was expert clinical diagnosis rather than the 'gold standard' of neuropathological confirmation.
- The studies informing this recommendation were conducted in specialist memory clinic settings and usually excluded people with advanced dementia, significant frailty, or multiple serious comorbidities.

Rationale
The Guideline Development Group judged that:

- FDG-PET was an accurate test against clinically diagnosed dementia or neuropathology, with moderate desirable effects and small undesirable effects, based on very low certainty evidence.
- There was possibly important variability in how individuals valued the desirable and undesirable effects of using FDG-PET, and the balance of effects probably favoured the use of FDG-PET.
- FDG-PET was associated with moderate resource requirements, and cost-effectiveness probably favoured FDG-PET, while recognising that some cost considerations related to health system factors.
- The impact on equity was uncertain, with the potential for equity to be increased in some circumstances and reduced in others, particularly due to geographic access.
- FDG-PET was probably acceptable and probably feasible to implement in specialist settings.

Considering all judgments together, the Group agreed that while most factors favour FDG-PET, the very low certainty of the evidence did not support a strong recommendation, and that a conditional recommendation was more appropriate.

Practical information
Use shared or supported decision-making with the person undergoing assessment, and their carer if appropriate, when considering use of FDG-PET in the diagnostic processes. Discuss the potential benefits, limitations, costs, and implications of results.

Explain or provide information about the scan process in advance to the person living with dementia, and their carer as appropriate.

Repeat FDG-PET scans are generally not indicated within 12 months of a prior scan without clear clinical justification because of cumulative radiation exposure.

FDG-PET is available at most PET centres at tertiary and many regional hospitals. However, FDG-PET may not be available in remote areas. Expertise in conducting and reporting on FDG-PET brain scans for dementia may not be available at all sites with FDG-PET capability.

FDG-PET brain imaging for the diagnosis of Alzheimer's disease is reimbursable under the Medicare Benefits Schedule (MBS) item number 61560.

Amyloid Positron Emission Tomography (PET) in the diagnostic workup of a person with suspected Alzheimer's Disease dementia

Recommendation 6
During specialist assessment, do not routinely use amyloid-PET for diagnosing dementia subtype in people with suspected Alzheimer's disease dementia.
Conditional recommendation against, very low certainty evidence

Remarks
Comprehensive clinical evaluation of the person by a specialist with expertise in dementia is required, including detailed history, neurobehavioural assessment, cognitive testing, laboratory investigations to exclude reversible causes, and other brain imaging.

The diagnostic value of amyloid-PET varies according to the clinical context, and may be greater in specific scenarios when diagnostic uncertainty remains after standard evaluation and the result is expected to influence clinical treatment or prognosis, including:

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- Evaluating for anti-amyloid disease-modifying therapy, when confirmation of amyloid pathology is required prior to treatment initiation or inclusion in clinical trials.
- Clarifying the diagnosis in a person with younger onset dementia with an atypical clinical presentation, when the differential diagnosis includes non-Alzheimer neurodegenerative disorders such as frontotemporal dementia (FTD).

When considering whether to use amyloid-PET, clinicians should be aware that:

- The reference standard in studies included in the evidence review was clinical diagnosis rather than the 'gold standard' of neuropathological confirmation.
- A positive amyloid-PET in the absence of a comprehensive clinical evaluation does not by itself confirm Alzheimer's disease dementia, as amyloid may be present in other types of dementia and also in some cognitively unimpaired individuals.
- A negative amyloid-PET reduces the likelihood of Alzheimer's disease pathology and may be useful in excluding AD as the primary cause of dementia.

Amyloid-PET should not be used:

- As a screening test in asymptomatic individuals or those with subjective cognitive complaints alone.
- When the clinical diagnosis is already clear and the result is unlikely to alter management.
- For prognostic purposes or disease staging.

Rationale
The Guideline Development Group judged that:

- Amyloid-PET had low accuracy against clinically diagnosed Alzheimer's Disease dementia, with moderate desirable effects and trivial undesirable effects, based on very low certainty evidence. The Group acknowledged that clinical diagnosis is an imperfect reference standard and focuses on the syndrome of dementia, while amyloid-PET measures amyloid in the brain, and this may affect the concordance between them.
- There was possibly important variability in how individuals valued the desirable and undesirable effects of using amyloid-PET, and the balance of effects probably favoured not routinely using amyloid-PET.
- Amyloid-PET was associated with large resource requirements, and its use probably reduces equity due to differences in access across regions and services.
- Although amyloid-PET is probably acceptable, implementation at scale is probably not feasible within the current health system.

Considering all judgments together, the Group agreed on a conditional recommendation against the routine use of amyloid-PET to diagnose Alzheimer's disease dementia in a specialist setting. However, the Group noted that there may be specific clinical circumstances when the test may be considered, such as confirming amyloid pathology to support eligibility for anti-amyloid therapies, or in atypical clinical presentations and consequent diagnostic uncertainty that requires clarification.

Practical information
Use shared or supported decision-making with the person undergoing assessment when considering use of amyloid-PET in the diagnostic processes, discussing the potential benefits, limitations, costs, and implications of results.

Explain the scan process in advance to the person living with dementia, and their carer if appropriate.

If considering a repeat amyloid-PET scan, discuss cumulative radiation exposure and document clinical justification.

Amyloid-PET is not funded by the Medicare Benefits Scheme, and access is limited and varies across Australia. Amyloid-PET is primarily available through specialist nuclear medicine services or clinical trials in metropolitan centres.

Discuss the relative advantages, disadvantages, and costs of alternative biomarkers with patients when such options are available (e.g., cerebrospinal fluid, blood-based).

Disease modifying therapies: Donanemab

Recommendation 7
The use of donanemab is not routinely recommended for people diagnosed with mild cognitive impairment or mild dementia due to Alzheimer's disease pathology.
Conditional recommendation against, moderate certainty evidence

Remarks
The clinical effect was deemed not to exceed the minimum important difference for the critical outcomes of cognitive function and functional ability.

There is an increased risk of Amyloid-related imaging abnormalities (ARIA), including ARIA-Edema (ARIA-E) and ARIA-Haemorrhage (ARIA-H), in people receiving donanemab. The risk is higher in people with APOE4 homozygous state. APOE4 genotyping is required before treatment to inform eligibility discussions and risk-benefit discussions as part of gaining informed consent.

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Confirming treatment eligibility and follow up monitoring requires sophisticated procedures and systems including amyloid-PET imaging, MRI scans, blood tests, APOE4 testing, genetic counselling, infusion delivery capability, and pathways for urgent assessment of new neurological symptoms during the course of therapy.

Rationale
The Guideline Development Group judged that:

- Although donanemab reduced brain amyloid, there was insufficient evidence that donanemab benefits cognition and there was a large increase in the incidence of Amyloid-Related Imaging Abnormalities (ARIA). Therefore, donanemab resulted in trivial desirable effects and moderate undesirable effects, with low certainty evidence.
- There was important variability in how people living with dementia valued the desirable and undesirable effects of donanemab, and the balance of effects probably favoured the comparison, to not use donanemab.
- Successful implementation and monitoring of donanemab requires large resources, and use of donanemab probably reduces equity.
- Acceptability of donanemab was variable, and donanemab therapy is probably not feasible to implement.

Considering all judgments together, the Group agreed on a conditional recommendation against the routine use of donanemab for people with mild cognitive impairment or mild dementia due to Alzheimer's disease. The Group noted that a conditional recommendation against the intervention does not preclude treatment. If the use of donanemab is considered, the decision should be informed by careful discussion of potential benefits and harms, as well as cost and feasibility considerations. It was also noted that the evidence base is rapidly evolving, and will be impacted by emerging research.

Practical information
Use shared or supported decision making to explain the potential benefits, risks, substantial out of pocket costs, procedures and logistical requirements associated with donanemab treatment to the person, and their carer where appropriate. For example, as of March 2026, APOE4 testing, MRI monitoring and amyloid-PET scans for anti-amyloid therapy are not subsidised on the Medicare Benefits Scheme.

Donanamab was approved by the Therapeutic Goods Administration (TGA) in May 2025 for use in people with mild cognitive impairment or mild dementia due to Alzheimer's disease who are APOE4 heterozygotes or non-carriers. As of March 2026, donanemab is not subsidised on the Pharmaceutical Benefits Scheme (PBS).

Treatment with donanemab requires amyloid-PET, CSF and blood tests, including APOE4 testing before treatment, regular intravenous infusions (every 4 weeks), MRI monitoring and ongoing clinical follow-up, which may represent a substantial treatment burden for both the person and carer.

Infusion-related reactions may occur during administration of donanemab and should be monitored and managed according to institutional infusion protocols. People receiving donanemab require urgent medical assessment if new neurological symptoms occur (e.g, headache, confusion, visual symptoms, dizziness, focal deficits or seizures) as these may indicate ARIA.

Disease modifying therapies: Lecanemab

Recommendation 8
The use of lecanemab is not routinely recommended for people diagnosed with mild cognitive impairment or mild dementia due to Alzheimer's disease pathology.
Conditional recommendation against, low certainty evidence

Remarks
The clinical effect was deemed not to exceed the minimum important difference for the critical outcomes of cognitive function and functional ability.

There is an increased risk of Amyloid-related imaging abnormalities (ARIA), including ARIA-Edema (ARIA-E) and ARIA-Haemorrhage (ARIA-H) in people receiving lecanemab. The risk is higher in people with APOE4 homozygous state. APOE4 genotyping is required before treatment to inform eligibility discussions and risk-benefit discussions as part of gaining informed consent.

Confirming treatment eligibility and follow up monitoring requires sophisticated procedures and systems including amyloid-PET imaging, MRI scans, blood tests, APOE4 testing, genetic counselling, infusion delivery capability, and pathways for urgent assessment of new neurological symptoms during the course of therapy.

Rationale
The Guideline Development Group judged that:

- Although lecanemab reduced brain amyloid, there was insufficient evidence that lecanemab benefits cognition, and there was a large increase in the incidence of Amyloid-Related Imaging Abnormalities (ARIA) and infusion reactions. Therefore, lecanemab resulted in trivial desirable effects and moderate undesirable effects, with low certainty evidence.
- There was important variability in how people living with dementia valued the desirable and undesirable effects of lecanemab, and the balance of effects probably favoured the comparison, to not use lecanemab.
- Successful implementation and monitoring of lecanemab requires large resource requirements, and use of lecanemab probably reduces equity.
- Acceptability of lecanemab was variable, and use of lecanemab is probably not feasible to implement.

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Considering all judgments together, the Group agreed on a conditional recommendation against the routine use of lecanemab for people with mild cognitive impairment or mild dementia due to Alzheimer's disease. The Group noted that a conditional recommendation against the intervention does not preclude treatment. If the use of lecanemab is considered, the decision should be informed by careful discussion of potential benefits and harms, as well as cost and feasibility considerations. It was also noted that the evidence base is rapidly evolving and will be impacted by emerging research.

Practical information
Use shared or supported decision making to explain the potential benefits, risks, substantial out of pocket costs, procedures and logistical requirements associated with lecanemab treatment to the person, and their carer where appropriate. For example, as of March 2026, APOE4 testing, MRI monitoring and amyloid-PET scans for anti-amyloid therapy are not subsidised on the Medicare Benefits Scheme.

Lecanemab was approved by the Therapeutic Goods Administration (TGA) in September 2025 for use in people with mild cognitive impairment or mild dementia due to Alzheimer's disease who are APOE4 heterozygotes or non-carriers. As of March 2026, lecanemab is not subsidised on the Pharmaceutical Benefits Scheme (PBS).

Treatment with lecanemab requires amyloid-PET, CSF and blood tests, including APOE4 testing before treatment, regular intravenous infusions (every 2 weeks), MRI monitoring and ongoing clinical follow-up, which may involve a substantial treatment burden for both the person and their carer.

Infusion-related reactions may occur during administration of lecanemab and should be monitored and managed according to institutional infusion protocols. People receiving lecanemab require urgent medical assessment if new neurological symptoms occur (e.g, headache, confusion, dizziness, visual disturbance or focal neurological symptoms), as these may indicate ARIA.

Referral for a practical driving assessment at the time of diagnosis of dementia

Recommendation 9

Consider immediate referral for a practical driving assessment at the time of diagnosis in people diagnosed with dementia.
Conditional recommendation for, very low certainty evidence

Remarks
The recommendation provides guidance for medical practitioners at the time of making a dementia diagnosis. The recommendation does not apply when the medical practitioner is certain the person is not safe to continue driving. This recommendation does not apply to when an individual diagnosed with dementia chooses to fully retire from driving.

It is important to balance contextual factors while assessing fitness to drive. If a wait and watch approach is adopted, regular monitoring (e.g., 3-monthly) of cognition and assessment of fitness to drive should be undertaken, ideally by the same medical practitioner. Austroads includes advice on assessing whether a person with dementia can continue to drive.

Integrated care within Aboriginal and Torres Strait Islander health services supports culturally safe care and equitable access to fitness-to-drive assessments, including associated referrals for practical assessment.

Rationale
The Guideline Development Group judged that:

- Immediate referral for practical assessment would likely result in moderate to large desirable effects and small to moderate undesirable effects, with very low certainty evidence.
- There may be serious downstream consequences of Motor Vehicle Crashes that may be prevented by immediate referral for a practical driving assessment.
- Immediate referral may lead to other desirable effects such as increased awareness of risk of driving in both people living with dementia and their carers, and improved quality of life for the carer through reduced psychological stress.
- Immediate practical referral may also lead to the undesirable effects of loss of mobility, functional ability and independence, low mood and depression for the person living with dementia.
- There was possibly important variability in how much people living with dementia valued the desirable and undesirable effects of immediate referral, and this may be influenced by individual contexts. Overall, the balance of effects probably favoured immediate referral.
- Immediate referral for practical assessment was associated with moderate costs with variability across states and territories, and immediate referral probably reduces equity
- There may be variability in acceptability that may be influenced by geographic location, but overall immediate referral was probably acceptable.
- Feasibility was unknown and likely to vary across states and territories, as well as urban, rural, and remote areas.

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Considering all judgements together, and in the absence of an accurate or validated office-based test of safety to continue driving, the Group agreed on a conditional recommendation for immediate referral for practical assessment.

Practical information
Legal obligations

Medical practitioners should be aware of the current advice provided by Austroads on driving and dementia. As of March 2026, Austroads (2022 edition) advises that a person with dementia may not hold an unconditional license or commercial license, but may hold a conditional license subject to periodic review.

Medical practitioners should also familiarise themselves with current legal requirements in states or territories where they practice:

- As of March 2026, except in South Australia and the Northern Territory, it is a legal responsibility of the person diagnosed with dementia to notify the driver licensing authority of the dementia diagnosis. Medical practitioners advise people diagnosed with dementia (and their carers, if appropriate) of the legal obligation.
- In South Australia and the Northern Territory, it is the medical practitioner's legal responsibility to notify the licensing authority that the diagnosis has been made and that the person can no longer hold an unconditional license.

When a medical practitioner determines that an individual with dementia poses a safety risk on the road, they may report the individual to the relevant licensing authority without the individual's consent in the interests of public safety.

Having the conversation

Use shared decision-making with the person, and their carer if appropriate, to support planning for driving cessation, including discussion about the risks and myths of safe driving. Resources are available to help people plan their retirement from driving.

Discussions about driving can be challenging and emotive for a person diagnosed with dementia, as well as their carers. The language used in these discussions needs to be considered and appropriate. When communicating the referral for a practical assessment, it is important to be aware of related social, cultural and family factors.

Accessing practical assessments

Practical assessment may be accessed by referring either to the Driver Licensing Authority or an Occupational Therapy Driving Assessor, depending on the availability of these services. There may be variability in access to services across Australia.

The cost of practical assessment incurred by the individual may vary widely. As of March 2026, practical assessment is not a reimbursed item on the Medicare Benefits Scheme.

If a person diagnosed with dementia has concerns about undertaking an on-road practical assessment, a driving lesson or refresher course can help them gain confidence, or, conversely, help people with dementia self-determine whether it is time to retire from driving.

Post-diagnostic care

Physical rehabilitation for people living with dementia

Recommendation 10
Consider offering physical rehabilitation to people living with dementia in order to optimise physical function and independence.
Conditional recommendation for, very low certainty evidence

Remarks
People living with dementia living in the community or residential aged care facilities may benefit from physical rehabilitation.

People living with mild, moderate or severe dementia may benefit from physical rehabilitation.

Physical rehabilitation interventions considered in the evidence review included:

- activities of daily living / functional training
- aerobic / cardiorespiratory training
- multimodal exercise
- neuromotor / balance / gait training
- resistance / strength training.

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Rationale
The Guideline Development Group judged that:

- Physical rehabilitation resulted in small desirable effects and trivial undesirable effects, with very low certainty evidence.
- There was possibly important variability in how much people living with dementia valued the desirable and undesirable effects of using physical rehabilitation, and the balance effects probably favoured use of physical rehabilitation
- Physical rehabilitation is associated with moderate costs, but probably increases equity.
- Physical rehabilitation is probably acceptable and probably feasible.

The Group agreed that the Evidence to Decision framework factors all favoured physical rehabilitation, except for costs. Given the variability in values of people living with dementia, and the very low certainty of the evidence for physical rehabilitation, the Group agreed to make a conditional recommendation for physical rehabilitation.

Practical information
Use shared or supported decision-making to carry out a holistic assessment and determine personalised goals in partnership with the person living with dementia, and their carer if appropriate.

Where appropriate, begin physical rehabilitation early after diagnosis of dementia or after an injury or medical event to maximise function.

Involve carers in physical rehabilitation when possible and appropriate, to support the person living with dementia in practicing the physical rehabilitation interventions. For those without a carer, ensure other supports are in place (e.g., increase frequency, allied health assistant support, paid carer involvement).

Reassess function and personal goals of the person living with dementia on a regular basis to meet the needs of the person living with dementia, using standardised and functional outcome measures (e.g., Timed up and Go, Short Physical Performance Battery, Barthel Index).

Take into account that people living with dementia are at a higher risk of falls. Adjust physical rehabilitation to suit the capacity of the person living with dementia.

Physical rehabilitation is usually delivered by a physiotherapist or exercise physiologist, in collaboration with other health professionals (e.g. nurses, speech pathologists, physicians), support workers, or carers can support, as well as promote and maintain functional and social independence.

Ideally, staff delivering physical rehabilitation should be consistent over time.

Good practice statement 2
Before undertaking physical rehabilitation with people living with dementia, conduct a comprehensive assessment to identify and manage relevant and medically reversible conditions that may present barriers (e.g., untreated medical problems, adverse drug reactions, delirium, vision/hearing impairments).

Good practice statement 3
For people living with dementia, physical rehabilitation may be used in conjunction with other rehabilitation interventions such as cognitive rehabilitation or cognitive stimulation therapy, to achieve personal goals, based on individualised assessment and consideration of personal preferences.

Cognitive rehabilitation for people living with dementia

Recommendation 11
Consider offering cognitive rehabilitation to people living with mild to moderate dementia to optimise ability to engage in and carry out activities that are meaningful and important.
Conditional recommendation for, low certainty evidence

Remarks
People living with mild to moderate dementia may benefit from cognitive rehabilitation. It is unknown if cognitive rehabilitation is beneficial for people with severe dementia, but the Guideline Development Group noted anecdotally that some people may benefit.

Cognitive rehabilitation interventions considered in the evidence review included:

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- Devising personally relevant goals
- Problem solving strategies
- Environmental adaptations and prompts
- Compensatory memory aids, such as prompt cards, diaries and white boards, clock, post-it-notes, pen and notepad, calendar
- Procedural learning of relevant skills
- Errorless learning, and spaced retrieval
- Supported learning of important new information and restorative learning methods to reactivate prior knowledge
- Care partner training.

Rationale
The Guideline Development Group judged that:

- cognitive rehabilitation resulted in moderate desirable effects and trivial undesirable effects, with low certainty evidence.
- There was possibly important variability in how much people living with dementia valued the desirable and undesirable effects, and the balance effects probably favoured use of cognitive rehabilitation
- Cognitive rehabilitation is associated with moderate costs, but probably increases equity.
- Cognitive rehabilitation is probably acceptable and probably feasible.

The Group agreed that the Evidence to Decision framework factors all favoured cognitive rehabilitation, except for costs. Given the variability of values of people living with dementia, and the low certainty of the evidence for cognitive rehabilitation, the Group agreed to make a conditional recommendation for cognitive rehabilitation.

Practical information
Use shared or supported decision making to carry out a holistic assessment and determine personalised goals in partnership with the person living with dementia, and their carers as appropriate.

Where appropriate, begin cognitive rehabilitation early after diagnosis of dementia to maximise function.

Discuss the limitations and potential benefits of cognitive rehabilitation with the person living with dementia, and when appropriate their carers, at the initiation and throughout treatment.

Reassess function and personal goals on a regular basis to meet the needs of the individual, using standardised and functional outcome measures (e.g., Goal Attainment Scale, Canadian Occupational Performance Measure, Bangor Goal-Setting Interview (BGSI) – attainment score)

Cognitive rehabilitation is usually offered as an individual intervention, rather than in group formats. Involve carers in the delivery where appropriate. For those without a carer, ensure other supports are in place (e.g., increase frequency, allied health assistant support, paid carer involvement).

If possible, deliver cognitive rehabilitation in the person's own environment to fit with their individual goal(s).

Cognitive rehabilitation is usually delivered by an occupational therapist or psychologist, in collaboration with other health professionals (e.g., nurses, speech pathologists, physicians), support workers, or carers can support as well as promote and maintain functional and social independence.

Ideally, staff delivering cognitive rehabilitation should be consistent over time.

Good practice statement 4
Before undertaking cognitive rehabilitation with people living with mild to moderate dementia, conduct a comprehensive assessment to identify and manage relevant and medically reversible conditions (e.g. untreated medical problems, adverse drug reactions, delirium, vision/hearing impairments).

Good practice statement 5
For people living with mild to moderate dementia, cognitive rehabilitation may be used in conjunction with other rehabilitation interventions such as cognitive stimulation and physical rehabilitation to achieve personal goals, based on individualised assessment and consideration of personal preferences.

Interventions supporting interpersonal communication about end of life care

Recommendation 12
Consider using interventions to support interpersonal end of life care communication for a person living with dementia, based on the value placed on planning for end-of-life care.
Conditional recommendation for, very low certainty evidence

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Remarks
Structured interventions for end of life care are ideally considered early during the course of dementia, and revisited often as the person's needs and preferences change.

End of life care communication interventions considered in the evidence review included:

- facilitated case conferencing
- question prompt lists
- tailored communication guides
- general communication guides
- structured advance care planning.

Clinical expertise is required to inform the decision of whether the use of end of life care communication is appropriate for a person living with dementia.

Be aware that people may have different understanding, priorities and expectations of end of life care.

Simple tools (e.g., question prompt lists) may be less resource intensive to apply in practice and may be more easily adapted to different contexts (e.g., translated into different languages to support communication with people from culturally and linguistically diverse backgrounds).

Rationale
The Guideline Development Group judged that:

- Interpersonal communication interventions resulted in small desirable effects and trivial undesirable effects, with very low certainty evidence.
- There was possibly important variability in how much people living with dementia valued the desirable and undesirable effects of interpersonal communication interventions for end of life care discussions, and the balance of effects probably favoured use of the interventions.
- End of life care communication interventions require a variable range of resources, and there is variable impact on health equity.
- Interpersonal communication interventions for end of life care discussions are probably acceptable to people living with dementia.

Considering all judgements together, the Group agreed on a conditional recommendation for interpersonal end of life care communication interventions. The Group noted that the majority of evidence available is for people with life-limiting conditions other than dementia, and there is a need for further research about which specific interventions to use in people living with dementia and integrate into routine care.

Practical information
Ensure the person living with dementia, and where appropriate their carer, is ready, willing and supported to engage in end of life care discussions tailored to their understanding, expectations and priorities.
Encourage the person living with dementia to be involved in shared decision-making as much as they wish to be, and depending on a person's preference and needs, involve carers and other healthcare providers.

Non-pharmacological therapies for distress, changed behaviours and behavioural symptoms in people living with dementia

Recommendation 13
Consider offering structured and targeted interventions with a focus on activity, participation, and interpersonal relationship-building for people living with dementia to alleviate behavioural and psychological symptoms of dementia (BPSD) that cause distress to the person or carers.
Conditional recommendation for, low certainty evidence

Remarks
The term "behavioural and psychological symptoms of dementia" (BPSD) is used in this recommendation to remain consistent with existing clinical and research literature within the evidence review. People living with dementia and their carers may prefer alternative terms such as responsive behaviours, unmet needs, or changed behaviours. Clinicians are encouraged to use language that is respectful and acceptable to the individual and carers.

Structured and targeted interventions with a focus on activity, participation, and interpersonal relationship-building may be beneficial for people living with all types and severity of dementia, in both people living in the community and in residential aged care settings.

Structured and targeted interventions should be contextualised to the individual person and care setting. Examples of interventions may include:

- multi-component exercise programs
- personalised activity programs
- occupational therapy
- reminiscence therapy
- music therapy
- dance therapy
- psychosocial programs.

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Rationale
The Guideline Development Group judged that:

- Structured and targeted interventions focussing on activity, participation, and interpersonal relationship-building resulted in small desirable effects and trivial undesirable effects, with low certainty evidence.
- There was possibly important variability in how much people living with dementia valued the desirable and undesirable effects, and the balance of effects probably favoured use of the interventions.
- Structured and targeted interventions were associated with moderate costs, but were probably cost-effective.
- The impact on equity varies, and the use of the interventions was acceptable and probably feasible.

Considering all judgements together, the Group agreed to make a conditional recommendation for structured and targeted non-pharmacological interventions.

Practical information
Consider developing a Behaviour Support Plan (BSP) for the person living with dementia including information about preferences and abilities, ways to manage things that may cause distress (e.g., physical and/or social environmental modifications), ways to meet needs, and ways to support the person if behaviours occur, including steps to take if the situation becomes unsafe.

Good practice statement 6
Offer a comprehensive assessment of the person living with dementia with symptoms as early as possible by a health professional skilled in BPSD assessment and management. If appropriate, involve the person's carer, with consideration of the person's consent and capacity.

- Analyse behavioural symptoms using the ABC (antecedent, behaviour, consequence) approach, including frequency, timing, and presentation, recognising that behaviour is often a form of communication and may reflect unmet needs.
- Review the underlying aetiology and stage of dementia, and use objective measurement tools with strong psychometric properties.

Good practice statement 7
Incorporate the information needs, values, goals of care, and advance wishes of the person living with dementia into the assessment, planning of

interventions and management for BPSD. Consider the individuals' cultural background, spiritual beliefs, language, gender, sexual orientation, and trauma history.

Good practice statement 8
Identify, monitor, and address environmental, physical health, and psychosocial factors that may contribute to or exacerbate BPSD, recognising these may change at any given time for different symptoms.

- Physical health factors may include pain, hunger, toileting needs, medication side effects, and intercurrent illness.
- Psychosocial factors may include lack of privacy, lack of meaningful activities, overwhelm (e.g., in loud or busy environments), and stress responses in people around.

Good practice statement 9
Develop an individualised care plan for a person living with dementia experiencing BPSD, if appropriate in partnership with the person's carer and interdisciplinary team, tailored to the specific preferences, skills, abilities and needs of the person, including strategies for anticipating, managing and de-escalating behaviours such as agitation or aggression. Where relevant, involve and communicate the person's care plan to the carer and interdisciplinary team.

Good practice statement 10
Regularly evaluate the care plan, adapting, changing, or discontinuing strategies as appropriate.

Good practice statement 11
Use non-pharmacological strategies first-line for BPSD. If psychotropic medications are considered, they should complement and not replace non-pharmacological approaches, and be regularly reviewed.

Deprescribing of cholinesterase inhibitors and memantine

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Recommendation 14
Consider deprescribing (discontinuation) of cholinesterase inhibitors and memantine when the benefits no longer outweigh potential harms, or the benefits are uncertain.
Conditional recommendation for, very low certainty evidence

Remarks
Situations in which to consider deprescribing (discontinuation) of cholinesterase inhibitors and memantine may include when:

- Deprescribing is preferred by the person living with dementia, or when the substitute decision maker believes this would align with the individual's preferences.
- There is no demonstrated improvement, stabilisation, or decreased rate of decline of quality of life, cognition, function or behavioural symptoms after the initial six months of treatment.
- Quality of life, cognition, function or behavioural symptoms have worsened more than expected over the past six months.
- The medication is causing adverse events or the person is at high risk of an adverse event (e.g., falls), or clinically important drug-drug or drug-disease interactions.
- The individual's condition has progressed to advanced dementia, such as when the person has limited life expectancy, requires support in most activities of daily living, or is unable to respond to the environment.
- Goals of care have changed, such as when the individual has limited life expectancy due to a non-dementia terminal illness.
- Used for indications other than Alzheimer's disease dementia, dementia of Parkinson's disease or Lewy body dementia (licensed indications), e.g., mild cognitive impairment (unlicensed indication).
- There is non-adherence that cannot be resolved.
- The person cannot swallow (when prescribed an oral preparation).

Regular review of ongoing treatment with cholinesterase inhibitors and memantine is important as goals of care, benefits, and harms may change over time.

Rationale
The Guideline Development Group judged that:

- When treatment benefits no longer outweigh the risks, deprescribing resulted in small desirable effects and trivial undesirable effects, with very low certainty evidence.
- There was possibly important variability in how people living with dementia and carers valued the desirable and undesirable effects of deprescribing, and the balance of effects probably favoured deprescribing. The Group noted that preferences may vary depending on disease stage, perceived benefit, and individual circumstances, and that shared decision making was essential.

- Deprescribing probably had no impact on equity.
- Deprescribing is probably acceptable to people living with dementia, and is probably feasible to implement.

Considering all judgments together, the Group agreed on a conditional recommendation for deprescribing cholinesterase inhibitors and memantine.

Practical information
Use shared or supported decision making to carry out a holistic assessment and determine personalised goals of care in partnership with the person living with dementia, and their carer if appropriate, considering information needs, values, preferences, and experiences with the medication. Written information and decision-support tools may assist shared decision-making.

Use empathetic and person-centred communication to:

- explain the rationale for deprescribing including the potential benefits and harms
- address common concerns, such as fear of deterioration, the perception that deprescribing may represent a withdrawal of care,
- discuss the uncertainty of an individual's response
- explain the plan for monitoring and that the medication can be restarted if appropriate.

Discussions about deprescribing cholinesterase inhibitors and memantine may be well placed within a broader review of the individual's medication regimen.

If deprescribing of cholinesterase inhibitors or memantine is considered appropriate, plan for the tapering and discontinuation process to occur when there is opportunity for monitoring and scheduled follow up (e.g., at each dose reduction and 4 weeks after discontinuation).

Provide the person living with dementia, and their carer if appropriate, with advice on symptoms to self-monitor for and what to do if they occur.

The presentation and timing of adverse events during or following deprescribing cholinesterase inhibitors or memantine indicate the likely cause and appropriate action:

- Physiological adverse drug withdrawal reactions (i.e., agitation, aggression, hallucinations, or reduced consciousness) within one week of discontinuation (very rare). Exclude other acute causes, treat symptoms and consider restarting medication at the previous minimum effective dose. Deprescribing may be considered again with a slower tapering rate.
- Re-emergence of symptoms of dementia (i.e., worsening of cognition, function or behavioural or psychological symptoms) 2-6 weeks after discontinuation. Consider restarting medication at the previous minimum effective dose.
- Progression of dementia (i.e., worsening of cognition, function or behavioural or psychological symptoms) more than 6 weeks after discontinuation. Do not restart previous medication.

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Good practice statement 12
When deprescribing cholinesterase inhibitors and memantine:

- Consider tapering the dose by reducing the dose by half (or stepping down through available dose formulations) every 4 weeks to the lowest available dose, followed by discontinuation.
- Abrupt discontinuation may be appropriate where the individual is experiencing harm or is at high risk of harm from continued use.
- Ensure there is a monitoring plan that includes scheduled follow-up (e.g., at each dose reduction and 4 weeks after discontinuation), with advice on what symptoms to self-monitor for and what to do if they occur.
- Re-initiate the medication at the previous minimum effective dose if the individual's condition worsens after withdrawal and alternative causes have been excluded.

Opioids for the treatment of chronic non-cancer pain in people living with dementia

Recommendation 15
Do not routinely use opioids for the treatment of chronic non-cancer pain in people living with dementia.
Conditional recommendation against, low certainty evidence

Remarks
Before considering an opioid analgesic, a comprehensive re-assessment of pain is required, particularly for new contributing factors, cancer pain, or pain at the end of life, which requires a different management approach.

In the setting of chronic non-cancer pain that is significantly impacting on a person's quality of life and is refractory to non-pharmacological and non-opioid analgesics, if an opioid analgesic is to be used it should be a time-limited trial with careful consideration of the risk of adverse effects.

If an opioid analgesic is used, there should be a plan for regular and structured review of efficacy and signs and symptoms suggestive of adverse events, and to withdraw if the opioid is ineffective or when no longer required.

Rationale
The Guideline Development Group judged that:

- Use of opioids in people living with dementia resulted in uncertain or trivial desirable effects, and small undesirable effects, with very low certainty evidence.
- There was important variability in how much people living with dementia valued the desirable and undesirable effects, and the balance of effects probably favoured not routinely using opioids.
- The impact of using opioids on equity for people living with dementia was uncertain.

The Group did not achieve consensus on whether use of opioids is associated with costs or savings, recognising that some costs may be associated with adjunct non-pharmacological approaches.

The Group agreed on a conditional recommendation against the use of opioid analgesics based on the balance of effects, and variability in values, preferences and acceptability for people living with dementia. There is insufficient direct evidence of harms in people living with dementia that would justify a strong recommendation against using opioids.

Practical information
Optimise use of non-opioids (e.g., paracetamol, non-steroidal anti-inflammatory drugs) before considering a trial of an opioid analgesic.

Use shared or supported decision-making with the person living with dementia when considering the use of an opioid analgesic for chronic non-cancer pain, which informs them of the potential benefits and harms, with agreement of the goals of therapy, method for measuring outcomes, and decision-making for ongoing use.

Regularly assess the individual's pain and pain management, monitoring for benefits and harms.

Take into account that some people living with moderate to severe dementia may be unable to express their experience of pain and will require alternative approaches for pain assessment other than self-report, and that people living with dementia are likely to be more susceptible to adverse events associated with opioid analgesics.

If a time-limited trial of an opioid analgesic is considered:

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- tailor therapy to the individual's circumstances including comorbidities, age, concomitant medications and falls risk
- use a stepwise approach, with the lowest effective dose for a defined period of time
- consider dose reduction or cessation (via tapering) on each review
- establish a clear plan for discontinuation if the treatment goals are not met.

Good practice statement 13
Pharmacological approaches should not replace non-pharmacological approaches for pain management in people living with dementia who have chronic non-cancer pain, while acknowledging that some people living with dementia may have limited ability to engage with many non-pharmacological pain therapies or may require them to be adapted.

3. Plain language summary

What are the Guidelines about?

The Dementia Clinical Practice Guidelines and Principles of Care (hereafter Guidelines) has been developed to support evidence-based care for people living with dementia. The Guidelines provide recommendations, good practice statements and practical information based on the best available evidence.

What do the Guidelines address?

The Guidelines provide recommendations to help health professionals understand and use current evidence about risk reduction, diagnosis, therapies, and post-diagnostic care of dementia in their practice.

What does this update address?

This is a review and update of the 2016 Guidelines published by the Cognitive Decline Partnership Centre. This update focuses on a highly prioritised list of clinical questions that were considered most important to be reviewed and updated. The recommendations that are unchanged from the 2016 guidelines can continue to be accessed here.

Who are the Guidelines for?

The Guidelines are primarily for clinicians, including general practitioners, nurses, pharmacists, allied health professionals, psychiatrists, neurologists, geriatricians, and other health and care professionals involved in the care of people living with dementia across community, hospital and aged care settings. People living with dementia, their carers, and organisations providing services for people with dementia may also find the Guidelines useful in making informed decisions about dementia. Companion resources will also be developed for people living with dementia, their carers and family members.

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How were the Guidelines developed?

The Guidelines are informed by evidence arising from a systematic search of published literature, considering 15 clinical questions across three themes: risk reduction, diagnosis and therapies, and post-diagnostic care of dementia. The Guidelines have been developed using the standardised Grading of Recommendations, Assessment, Development and Evaluation (GRADE)-ADOLOPMENT methods to efficiently use and update the evidence from a combination of sources including recent high quality international clinical practice guidelines, recent high quality systematic reviews, and primary studies.

A multidisciplinary Guideline Development Group was formed to ensure there was appropriate expertise to consider each question. A Living/Lived Experience Advisory Group, including people from priority populations, was established to inform the development of recommendations that are fit-for-purpose and implementable into practice and policy. People with this group were involved in each stage of guideline development, from scoping to the discussion of evidence and the development of recommendations.

While developing the recommendations, the Guideline Development Group considered the benefits and harms of interventions, certainty of evidence, values and preferences, resources, equity, acceptability, and feasibility.

How will the Guidelines be kept up to date?

The NHMRC recommends that Guidelines should be reviewed and updated after five years. Some questions may need to be updated earlier if new evidence becomes available that could change current recommendations.

4. Introduction

About dementia

Dementia is a major national public health priority. A recent report published by the Australian Institute of Health and Welfare (AIHW) indicates that there were around 425,000 Australians living with dementia in 2024 *(63)*. This is equivalent to around 16 people with dementia per 1,000 Australians overall, and around 84 people with dementia per 1,000 Australians aged 65 and over. Around two-thirds of Australians with dementia are women. The number of Australians living with dementia may increase to over 1.1 million by 2065 due to population ageing. The emotional and physical impact on those caring for people with dementia is also substantial. In 2024, it is estimated that there were around 102,000 carers for people with dementia, 75% of whom were women. Around $4.7 billion of health and aged care spending in 2022-2023 was attributable to dementia care, spread across aged care, hospital and community sectors. The associated indirect costs from lost income for people with dementia and their carers were estimated to be around $5.6 billion in 2017, and expected to increase to around $9 billion by 2036 *(1394)*.

Dementia manifests as a collection of symptoms usually caused by progressive disorders affecting the brain, including cognitive difficulties with memory, thinking, behaviour, language, and reduced ability to perform everyday tasks. While dementia is more common in older people, it is not a normal part of ageing. Mild cognitive impairment (MCI) refers to cognitive loss greater than can be expected with ageing alone but with largely preserved daily functioning. Although the presence of MCI increases the risk of dementia, not all people with MCI will go on to develop dementia.

People with dementia can have one or more types of brain pathology contributing to the condition. These commonly include Alzheimer's disease pathology (amyloid plaques and tau tangles), cerebrovascular disease (clinical and subclinical), Lewy bodies, or abnormal accumulations of other proteins (e.g., tTau, TDP-43). As a result, the type of dementia may be regarded as Mixed dementia, Alzheimer's disease dementia, Vascular dementia, Dementia with Lewy Bodies, Frontotemporal dementia, and Limbic-predominant age-related TDP-43 encephalopathy (LATE). There is evidence to show that there is often a mixture of such pathologies in the brain of a person with dementia *(1392)*. There are several known risk factors for dementia that may be non-modifiable (e.g. age, genes) or modifiable (e.g. vascular, metabolic and lifestyle-related factors, head trauma, hearing and vision impairment, vascular and lifestyle risk factors) *(732)*.

No two people experience dementia in the same way, depending upon the underlying causes, other health conditions and variations in cognitive functioning. With increasing severity, dementia can profoundly affect a person's independence, daily activities, relationships, and ability to participate in their community. In mild dementia, usually in its earlier stage, the difficulties with memory loss and other cognitive functions such as language (word finding difficulties) and executive function (planning/problem solving) are less severe, with lesser impact on function. In later stages, with progression of the disease and greater cognitive decline, people may suffer from greater impact on daily function *(1393)*. In a recent systematic review, it was found that the average life expectancy of people with dementia at the time of diagnosis ranged from 5.7 years at age 65 to 2.2 years at age 85 in men, and from 8 years at age 65 to 4.5 years at age 85 in women.

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Purpose of this update

Clinical Practice Guidelines for dementia are intended to improve the consistency and quality of care for people living with dementia. This update to the Australian Dementia Clinical Practice Guidelines provides evidence-based recommendations to help health professionals understand and use current evidence about risk reduction, diagnosis, therapies, and post-diagnostic care of dementia in their practice. It is also intended to support people living with dementia and carers in making informed decisions about dementia.

The Dementia Clinical Practice Guidelines were first published in 2016 by the Cognitive Decline Partnership Centre *(525)*, providing recommendations and practice points for optimal management across a range of topics in diagnosis, treatment and post-diagnostic care. This update to the 2016 Guidelines was commissioned by the Commonwealth Department of Health, Disability and Ageing in May 2024.

Target audience

The Guidelines are primarily for clinicians, including general practitioners, nurses, pharmacists, allied health professionals, geriatricians, neurologists, psychiatrists, and other health and care professionals involved in the care of people living with dementia across community, hospital and aged care settings. People living with dementia, their carers, and organisations providing services for people with dementia may also find the Guidelines useful. Companion resources will also be developed for people living with dementia, their carers and family members.

Scope of the update to the Guidelines

The update to the Guidelines addresses three themes, including risk reduction, diagnosis and therapies, and post-diagnostic care. The population to whom this update is relevant includes adults of all ages with dementia. Evidence relevant to priority population groups was considered during guideline development, including Aboriginal and Torres Strait Islander peoples, people from culturally and linguistically diverse backgrounds, LGBTQIA+ people, people living with younger onset dementia, people living with disability, and people living outside major cities. Childhood dementia is not addressed in this update and represents a unique population requiring specific types of expertise.

Prioritisation of topics and questions occurred through a process of survey, ranking and consensus involving the Guideline development team and external interest holder organisations, based on an exhaustive list of questions derived from the 2016 Australian Guidelines, the 2018 UK National

Institute for Health and Care Excellence (NICE) Guidelines, as well as the 2024 Italian Dementia Guidelines. Through this process, a final highly prioritised list of questions that were considered to be most important for review and update was chosen.

Not all questions addressed in the 2016 Guidelines were considered in this update, either because the relevant recommendations are still relevant to current context or because other questions were prioritised higher. The recommendations from the 2016 Guidelines can continue to be accessed here.

Guideline development process

The Guidelines have been developed using the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) process and in accordance with requirements of Australia's National Health and Medical Research Council. The Guidelines are informed by systematic reviews of evidence for 15 questions across three themes: risk reduction, diagnosis and therapies, and post-diagnostic care of dementia. GRADE-ADOLOPMENT methods were used to efficiently update the evidence from a combination of sources including recent high quality international clinical practice guidelines, recent high quality systematic reviews, and primary studies. Detailed information about the methods and processes used to develop new and updated recommendations for these Guidelines is described in the Technical Report.

The multidisciplinary Guideline Development Group was composed to ensure there was appropriate expertise to consider each question. The Group considered the benefits and harms, certainty of evidence, values and preferences, resources, equity, acceptability, and feasibility related to prioritised questions for risk reduction, diagnosis and therapies and post-diagnostic care. Evidence was considered regarding particular risks, treatment considerations or sociocultural factors for priority populations.

A Living/Lived Experience Advisory Group was established to inform the development of guideline recommendations that are relevant and implementable into practice and policy. People with living or lived experience of dementia were involved in each stage of guideline development, from scoping to the development of recommendations at the Guideline Development Group meetings, and priority populations were represented in this group. There was strong and meaningful collaboration between the Living/Lived Experience Advisory Group and the Guideline Development Group to ensure that views were captured well and integrated into the guidelines and the development of companion resources.

A wide range of external interest holder organisations expected to apply, implement, or be otherwise affected by the update of the Guidelines have been involved in the project, including 36 government agencies, professional colleges, dementia specific organisations, healthcare organisations, and academic institutions. Regular engagement occurred through monthly email updates on guideline activities, feasibility surveys exploring proposed interventions, and bi-annual meetings to provide updates and seek feedback on the process of engagement.

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Recommendations and Good Practice Statements

The Grading of Recommendations, Assessment, Development and Evaluation (GRADE) approach has been used to develop this Guideline *(59)*. The development of the Guideline was supported by a GRADE methodological expert. The Guidelines include 15 conditional recommendations, and 13 good practice statements.

Conditional recommendations are appropriate when there is uncertainty about the net effect of an intervention compared with the alternative *(1405)*. This uncertainty may arise from imprecision or limitations in the evidence on effects, uncertainty about how people value the relevant outcomes, or both. An implication for a conditional recommendation is that shared decision making is required and requires consideration of the values and preferences of the individual.

Good practice statements were made by the Guideline Development Group when there was a need to provide guidance about an intervention or practice for which there is high certainty that the desirable consequences clearly outweigh the undesirable consequence, but the body of supportive evidence is indirect and conducting an evidence review would be a poor use of the Guideline Development Group's time *(1404)*. In line with GRADE guidance, our good practice statements are grounded in ethics, human rights, and essential principles, practices and protocols. The hallmark of such statements is that "the opposite course of action would be inappropriate". Most are about how care is provided, rather than which interventions are the most effective.

Governance

Information about our governance structure, member organisations and panel membership is available in our Administrative Report.

Conflicts of interest

Information about how we manage conflicts of interest and the template used for collecting the declarations of interest from our contributors can be found in our Administrative report.

Public consultation

The public consultation period runs from 11 May to 6 July 2026 (8 weeks). We welcome feedback and suggestions. Comments can be submitted by completing this survey or by emailing dementia.guidelines@monash.edu.

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5. Principles of care

These Guidelines are underpinned by the following principles:

- The human rights of people living with dementia and their carers are protected and upheld, aligning with the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD).

- The needs of priority populations at a higher risk of developing dementia are explicitly considered in designing actions, including:
  - Aboriginal and Torres Strait Islander peoples
  - People from culturally and linguistically diverse backgrounds
  - LGBTQIA+ people
  - People living with younger onset dementia
  - People living with disability
  - People living outside major cities.

- People living with dementia are active partners in actions arising from the guidelines to enable equitable expression of their living experience.

- Action on dementia is collaborative, coordinated, integrated, planned and responsive to need.

- Services and supports for people living with dementia and their carers are:
  - holistic and strengths-based, supporting people living with dementia in all aspects of their life, including a focus on wellness and maintaining independence
  - person centred and relationship-based, driven by the preferences of people living with dementia and their carers
  - evidence-based, outcomes focused and maximise quality of life for people living with dementia and their carers
  - appropriate, trauma informed, accessible and culturally safe for all people
  - co-designed and delivered in partnership with local communities where possible, including Aboriginal and Torres Strait Islander peoples, people from culturally and linguistically diverse communities, LGBTQIA+ people, people with younger onset dementia, people living with disability, and people living outside major cities.

- People living with dementia and carers should expect dignity in care:
  1. Zero tolerance of all forms of abuse.
  2. Support people with the same respect you would want for yourself or a member of your family.
  3. Treat each person as an individual by offering a personalised service.
  4. Enable people to maintain the maximum possible level of independence, choice and control.
  5. Listen and support to express needs and wants.
  6. Respect people's privacy.
  7. Ensure people feel able to complain without fear of retribution.
  8. Engage with family members and carers as care partners.
  9. Assist people to maintain confidence and a positive self-esteem.
  10. Act to alleviate people's loneliness and isolation.

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These principles are based on the principles that underpin the National Dementia Action Plan 2024 - 2034 *(68)* and the principles of dignity of care stated in the 2016 Clinical Practice Guidelines and Principles of Care for People with Dementia. These principles were updated in consultation with the Living / Lived Experience Advisory Group for the update to the Dementia Clinical Practice Guidelines.

6. Health equity considerations for priority populations

What is health inequity?

Health inequity can be defined as "systematic, plausibly avoidable health differences" *(1398)*, whereby the burden and severity of disease, and access to timely and appropriate quality care, is not randomly distributed, but arises from "intentional, systematic and structured discrimination" *(1399)* against groups and communities who are excluded from social, [economic] and political power *(1400)*. Health inequities are based on imposed hierarchies and changing intersections of social identities and group belonging.

Health inequities are mediated through social determinants of health, such as housing, employment, education, exposure to obesogenic environments. In the Australian context, the enduring and ongoing impacts of colonisation and racism contribute to an inequitable exposure to health risk factors for Aboriginal and Torres Strait Islander peoples, leading to an increased prevalence and burden of ill health, which is compounded by the lack of access to culturally safe and appropriate healthcare *(1118)*.

Why consider health inequity in guideline development?

In the Australian context, health inequity impacts the exposure to the risk factors for dementia, dementia prevalence and burden, and access to appropriate, timely and quality dementia assessment, treatment and care. It is important for Guidelines to consider health equity at all stages of guideline planning, evidence review, development of recommendations and implementation *(721)(1059)(87)*.

Priority populations in the Update of the Australian Dementia Clinical Practice Guidelines

- Aboriginal and Torres Strait Islander peoples
- People from culturally and linguistically diverse backgrounds
- LGBTQIA+ people
- People living with younger onset dementia
- People living with disability
- People living outside major cities.

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Overarching equity considerations for priority populations

Common factors may affect all priority groups, and many individuals may identify with more than one priority group. Person-centred care tailored to the needs and preferences of the individual is required to consider social determinants of health, such as:

- Health literacy
- Language and culture, and understanding of dementia in diverse cultural contexts
- The need for interpreters
- Rurality
- Trauma-informed care
- Racism
- Discrimination.

Aboriginal and Torres Strait Islander peoples

Culturally safe and trauma-informed care

Equity of access to care is a particular issue for Aboriginal and Torres Strait Islander peoples. The experience of systemic and interpersonal racism can lead to unequal or inappropriate health service provision, undermine equitable access to care and contribute to higher rates of early discharge from services. Aboriginal and Torres Strait Islander peoples' access to health and support services is influenced by the cultural appropriateness of those services *(940)*. While the support required by communities varies, the consistent need for trauma-informed care remains a fundamental consideration across all contexts.

Resources such as the Good Spirit Good Life framework, and Lets Chat-Dementia provide guidance on what is important to this community with respect to quality of life, maintain function and maximise comfort in dementia care *(191)(985)*.

Many older Aboriginal and Torres Strait Islander peoples have been directly impacted by historical forced removal from family, Country and culture, and this may have implications for their care in relation to dementia and cognitive impairment *(191)*. Survivors of the Stolen Generation have unique wellbeing needs requiring trauma-informed approaches to care *(191)(734)*.

Health literacy

There is variation amongst Aboriginal and Torres Strait Islander peoples in knowledge and explanations for the impact of ageing and dementia, that may reflect different culturally informed understandings and health literacy *(191)*. Promoting health literacy is important to raise awareness and understanding about dementia, to support the dignity, self-worth and respect for Elders living with dementia *(979)*.

Strengths-based approach

Collaboration and coordination across services to provide a strengths-based approach recognises the importance of connection to Country, the right to health equity and access, and to deliver culturally respectful and safe care *(508)*.

Access to health and aged care services

Aboriginal and Torres Strait Islander peoples living with dementia, their families and carers often have difficulties accessing evidence-based health and aged care services, which can result in delayed diagnosis and lack of support. Individuals and their carers may not feel comfortable accessing and attending mainstream aged care support and services *(979)*.

Aboriginal and Torres Strait Islander peoples may become eligible for aged care services at 50 years of age *(1401)*, but do not currently access aged care at a rate that is commensurate with their level of need. Barriers for accessing aged care services may include:

- difficulty navigating the system
- a lack of service providers near home
- a lack of culturally appropriate and/or trauma-informed provision of care
- experiences of racism and distrust of institutional care *(68)*.

Aboriginal and Torres Strait Islander peoples are more likely to access healthcare services that are culturally safe and trauma-informed. Involving Aboriginal and Torres Strait Islander health workers and practitioners in a person's care, building rapport, and ensuring continuity of care are important elements of culturally safe care *(191)*.

People living outside major cities

Rates of dementia for Aboriginal and Torres Strait Islander peoples in remote and rural communities are among the highest in the world *(63)*. Aboriginal and Torres Strait Islander peoples living in remote and regional communities are less likely to engage with Aged Care and National Disability Insurance Scheme providers because of reluctance to move away from Country. Availability, appropriateness of, and access to services is variable across urban, rural and remote settings *(191)(1087)*.

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People from culturally and linguistically diverse backgrounds

One third of people who receive aged care services were born outside of Australia, and two-thirds of these people were born in non-English speaking country *(1402)*. People living with dementia from culturally and linguistically diverse backgrounds may lose their English language skills and revert to the language of their country of origin as the disease progresses and social isolation increases *(1149)*. A systematic review of the experiences of older immigrants living with dementia and carers in a range of high-income settings also found that "language barriers impeded provision of care services for older immigrants living with dementia and their families" *(302)*. A study of barriers and enablers to help-seeking noted that older Asian people living with dementia in Melbourne are under-diagnosed and diagnosed at a later stage. Reasons for this may be related to lack of culturally appropriate diagnostic tools and services, lack of GP training and skills, viewing cognitive decline as a part of normal ageing, dementia-related shame and discrimination and family care compensating for functional and cognitive changes. After diagnosis, older Asian people living with dementia may have poorer access to treatment and services. Additional reasons for this may be the challenge of navigating unfamiliar and complex health and aged care systems and previous negative experiences in accessing and using health and aged care services *(538)*.

Culturally and linguistically diverse communities are often underrepresented in research trials, with most studies involving participants who are proficient in English. While people living with dementia and their carers from culturally and linguistically diverse backgrounds may speak English well, they may lack confidence to participate in research if approached *(231)*.

It is important to consider the use of interpreters in the setting of dementia assessment and care. Trauma-informed care may be important in migrants from war torn countries.

LGBTQIA+ people

The Guidelines uses the LGBTQIA+ initialism to refer to the diverse priority population of interest in the development of this guideline - people who are lesbian, gay, bisexual, transgender, queer or other gender, sex or bodily diverse, and including people with variations of sex characteristics (intersex) and asexual people. Identity and experiences may change over time for some people. The initialisms used in the Guidelines reflect those used in the reported research. There is very limited evidence on cognitive impairment among people with variations of sex characteristics (intersex) and asexual people, although these groups are sometimes included in research using the LGBT+ or LGBTQ+ initialism.

Some groups of LGBTQIA+ people appear to have higher overlapping exposure to modifiable dementia risk factors. For lesbian, gay, bisexual and transgender (LGBT) people these include poorer mental and physical health, elevated stress and social isolation often resulting from discrimination *(458)(479)(1022)*. While evidence is still emerging, population-based research in the United States indicates that transgender and gender

nonbinary older people report higher rates of subjective cognitive decline compared to cisgender adults *(689)* and lesbian, gay and bisexual (LGB) older adults exhibit higher levels of cognitive impairment compared to their heterosexual counterparts *(579)*. In particular, depression—more common among LGBT people and people living with dementia *(458)*—has emerged as one potential contributor to this prevalence disparity *(479)(579)*.

Some LGBTQIA+ older people face challenges in accessing support, which may present obstacles to the provision of high-quality care to people living with dementia. Many LGBT people have had negative experiences engaging with the healthcare system, including discriminatory behaviour, provision of inferior healthcare, or denial of healthcare *(479)(1089)*. As a result, some people may be less willing to access and engage with health and aged care providers *(1089)*. Due to rejection, some LGBT people may have less access to support and care from their family of origin *(184)*. Nonetheless, a strength of many LGBT people is developing support networks of care and communities outside of their families of origin: families of choice *(1089)*. However, as demonstrated in relation to LGB people *(479)*, these relationships may not be recognised by healthcare providers, particularly for healthcare decision-making and may have implications for health care advocacy, caregiving, and availability of financial resources.

As LGBT+ people living with dementia experience increasing cognitive decline, they may fear being no longer able to recall who they can safely disclose their sexual orientation and/or gender identity to *(184)(774)*. Bringing formal care into the home may place LGBT+ people in a situation that exposes their sexual orientation and/or gender identity and forces them to decide whether to come out or not, creating stress, anxiety and feelings of isolation *(184)(796)*. There are many gaps in knowledge about LGBTQIA+ people living with dementia, particularly with respect to transgender, gender nonbinary, intersex and asexual people. While more evidence is needed from population-based research and research trials, LGBTQIA+ people's lived experience of dementia is also an essential source of knowledge *(1089)*.

People living with younger onset dementia

Diagnosis of younger onset dementia prompts a change to the family system, with stigma and loss. It is challenging because people do not expect dementia to occur in people who are in their 40s and 50s, and spouses often have to change to a carer position. There is anticipatory grief in all dementia, and in younger onset dementia this can be particularly complicated *(993)* and amplified by loss of identity and roles *(1259)*. People diagnosed with younger onset dementia often experience loss of earnings before diagnosis, and early diagnosis and robust social support systems are vital to alleviate the financial and professional challenges faced by individuals with dementia under the age of 65. People living with younger onset dementia may be carers themselves, and need to navigate how to remain in employment, and how to access NDIS services *(635)*.

Impact of supporting a person with dementia

Carers of people with younger onset dementia are particularly vulnerable to the impact of supporting a person with dementia. They may be overlooked by clinicians as dementia services are generally designed for older people *(635)*.

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Carers of people with younger onset dementia may experience adverse mental health due to diagnostic delay, role changes, social isolation and lack of appropriate support. Research shows that the impact of caring for a person with dementia is similar across sub-types of dementia. Increased impact on carers of people with younger onset dementia has been attributed to the exacerbation of financial and life stressors on the carer, the increased length of time in the caring role, and strain on the family system. The consequences of high carer impact may subsequently accelerate placement of younger people living with dementia into an aged care system that is ill-equipped for their specific needs *(636)*.

Caregivers of people with younger onset dementia also have greater perceived difficulties due to patient behavioural disturbances than the caregivers of people with later onset dementia *(107)*. Future research is required to assess the efficacy of interventions to support carers of people living with dementia *(658)*.

People who live outside major cities

People who live in rural and remote areas with younger onset dementia are more likely to receive care from primary care physicians, suggesting that clinician training or consultative guidance to primary care clinicians may be needed to overcome specialist (including neurology) workforce deficiencies in rural areas *(1281)*.

People living with disability

People with intellectual disability are at a higher risk of developing dementia than the general Australian population, with the onset of dementia on average 10 years younger than the general population *(155)*. Dementia is also a disability in itself. Equity of healthcare may be affected for individuals with additional significant disability on top of dementia *(747)*. People living with dementia and disability in Australia face heightened and intersecting barriers across health, social care, and community participation systems. These may include fragmented service navigation between aged care and the National Disability Insurance Scheme (NDIS), and limited dementia-specific expertise within disability services *(1403)*, compounded by inequities in access for culturally and linguistically diverse populations, people living in rural and remote areas, and Aboriginal and Torres Straits Islander peoples. These issues magnify the barriers faced by carers of people with disability who shoulder much of the informal care required for their support.

People living outside major cities

Significant health inequities persist between rural and metropolitan communities that must be prioritised in endeavours to promote equitable

dementia diagnosis, management, and care. Strategies to address disparities are vital to mitigate the impact of rurality, particularly as clinical practice evolves with research advancements in dementia *(526)*. Service planning should consider travel burden, continuity of monitoring, cultural safety, and support needs for carers and families.

Epidemiological data

Epidemiological data for priority population groups are included in the table below. It is recognised there is a compounding effect when there is an intersection of risk across social categories and hierarchies *(79)*.

Priority population groups	Prevalence and burden
Aboriginal and Torres Strait Islander peoples	**Risk factors for dementia** In Australia, 38.2% of dementia is attributable to 11 risk factors across all population groups. For Aboriginal and Torres Strait Islander peoples, this rises to 44.9% of dementia *(154)*. Aboriginal and Torres Strait Islander peoples have more prolonged and more intense exposure to the risk factors that lead to dementia. This reflects the enduring and ongoing impacts of colonisation and racism and the resulting upstream social, political, environmental and economic causes *(154)(952)(1118)*. The highest potential for dementia risk prevention is in Aboriginal and Torres Strait Islander peoples. Addressing dementia risk factors in Aboriginal and Torres Strait Islander peoples will lead to improved health and a reduction in existing health inequity *(1145)*. **Prevalence of dementia** There are no national-level estimates of the number of Aboriginal and Torres Strait Islander peoples living with dementia. However, individual studies examining different communities have consistently found that dementia prevalence rates are 3 to 5 times as high as rates for Australia overall. Rates of dementia for Aboriginal and Torres Strait Islander peoples in remote and rural communities are among the highest in the world. Aboriginal and Torres Strait Islander peoples have a younger age of onset of dementia, with a median age of 72 years compared with a median age of 79 years among non-Indigenous Australians *(154)*. **Mortality due to dementia** A nationwide study of mortality data between 2006–2014 showed that deaths due to dementia were 57% higher among Aboriginal and Torres Strait Islander peoples compared to non-Indigenous Australians *(1215)*.
People from culturally and linguistically diverse backgrounds	According to the 2021 Census, there were ~5.6 million (~22% population) in Australia born in a non-English speaking country (Australian Bureau of Statistics 2022), with around 25% of people in Australia living with dementia were born in a non-English speaking country. Almost a third of primary carers of people living with dementia born in non-English speaking countries report speaking a language other than English to the person they care for *(143)*.
LGBTQIA+ people	Some groups of LGBTQIA+ people have higher overlapping exposure to some dementia risk factors, such as poorer mental and physical health, elevated stress and social isolation resulting from discrimination and violence *(458)(479)(1022)*. US research indicates that transgender and gender nonbinary older people report higher rates of subjective cognitive decline compared to cisgender adults *(689)*, and lesbian, gay and bisexual (LGB) older adults exhibit higher levels of cognitive impairment compared to their heterosexual counterparts *(579)*. Dementia poses a disproportionately high risk to lesbian, gay, bisexual and trans plus (LGBT+)/gender and sexuality diverse people. Despite this, little research has explored the lived experience of LGBT+ people living with dementia or their care partners *(1089)*.
People living with younger onset dementia	In Australia, there are around 28,000 people living with younger onset dementia *(738)*. People with younger onset dementia contend with delays in diagnosis and difficulty navigating the complex

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Priority population groups	Prevalence and burden
	health, aged and disability care systems, while often also caring for or supporting children or young people. Improved access to assessment, timely diagnosis, and appropriate post-diagnosis care can have important benefits for improving function and quality of life.
People living with disability (e.g., intellectual, physical, health-related)	**Risk factors for dementia** While the strongest risk factor for dementia in people living with intellectual disability is having Down syndrome, other factors found to increase the risk of dementia include: • poor physical and mental health, in particular depression and epilepsy • poor cardiovascular health, which can be common in this population • a high rate of sensory impairments, including vision and hearing loss, and undiagnosed impairments *(442)(937)*. **Prevalence of dementia** Rates of dementia are higher among people with a learning disability than people without, and the age of onset of dementia is often younger. As people with intellectual disability are living longer due to advances in health care and knowledge, the prevalence of dementia in this population group is increasing. Up to 75% of people with Down Syndrome over 50 develop dementia (particularly Alzheimer's disease) *(155)*. **Medication-related harm** People with intellectual disability may be susceptible to medication-related harm from lack of treatment monitoring, challenges self-reporting adverse drug events, high doses and long duration of psychotropic medications *(1397)(1396)*.
People living outside major cities	Dementia is of particular concern in regional, rural and remote areas where around 30% of Australians live. Risk factors for dementia are more prevalent in both non-Indigenous and Indigenous people living in such areas compared with urban communities, and greater in the latter than in the former *(404)*.

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7. Risk reduction

What is risk reduction?

Dementia risk reduction refers to strategies and actions that aim to lower the likelihood of developing dementia or delay its onset. Risk factors for dementia can be broadly categorised as non-modifiable, modifiable at the societal or community level or modifiable with intervention at the individual level *(226)*. Non-modifiable factors include age and genetic susceptibility. Some factors may be modifiable through societal or environmental change, for example, educational attainment or exposure to air pollution, whereas others may be addressed through individual health behaviours and clinical management, such as physical inactivity, hearing loss, smoking, or depressive symptoms.

Importantly, the classification of risk factor as "modifiable" does not necessarily imply that all individuals have equal opportunity or capacity to modify that risk. Structural, socioeconomic, cultural, and health literacy barriers may influence an individual's ability to engage in risk-reduction strategies *(942)(1262)*.

A large body of epidemiological research has identified multiple modifiable risk factors associated with dementia. These include maintaining regular physical activity, consuming a balanced diet, managing cardiovascular risk factors such as hypertension and cholesterol, maintaining social engagement, reducing exposure to harmful substances (including smoking and excessive alcohol), treating conditions such as depression, hearing loss, and preventing traumatic brain injury. The Lancet Commission on Dementia Prevention, Intervention and Care estimated that approximately 45% of dementia cases worldwide could potentially be prevented or delayed course *(732)*.

Evidence supporting dementia risk reduction is further supported by the observations that dementia incidence has declined in several high-income countries over recent decades *(991)*. These trends are thought to reflect improvements in education, cardiovascular health management, reductions in smoking and alcohol consumption, and greater awareness of lifestyle factors that influence brain health *(991)*. These findings highlight the potential impact of population-level strategies and public health initiatives targeting modifiable dementia risk factors.

What are multidomain interventions?

In the context of dementia risk reduction, multi-domain interventions are programs designed to address multiple dementia risk factors simultaneously, rather than focusing on a single intervention such as physical activity or diet alone *(1007)*.

These approaches are based on the understanding that dementia arises from complex interaction of biological, lifestyle, and psychosocial factors. Addressing several risk factors concurrently may therefore produce greater benefit than targeting a single risk factor in isolation *(176) (175)(1094)(1109)*.

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Typical multi-domain interventions may include components targeting physical activity, nutrition, cognitive engagement, vascular risk management, sleep and mental wellbeing. Before commencing a multidomain intervention, a comprehensive assessment is conducted to identify and manage relevant medical conditions that may limit participation or require caution or adaptation *(1365)(1364)(1367)(1366)*.

The efficacy of multi-domain interventions on delaying or preventing cognitive decline have been evaluated in several large international trials *(171) (854)*. These programs are often tailored to an individual's risk profile and health status, which may increase engagement and long-term adherence.

Methodological considerations in prevention research

There are important biological and methodological considerations when interpreting evidence related to dementia risk reduction and multidomain interventions. Dementia typically develops across a prolonged preclinical period during which neuropathological processes accumulate without overt symptoms. Biomarker and autopsy studies report that pathological changes associated with Alzheimer's disease may begin 15–20 years, and in some cases more than two decades, before clinical symptoms become apparent *(1198)*.

Even among individuals with MCI, annual progression rates to dementia are relatively low (approximately 10%) and many individuals remain free of a dementia diagnosis for at least 5 years. Some individuals may remain stable or even revert to normal cognitive function during follow up *(818)(1008)*. Rates of progression are influenced by a range of factors such as age, biomarker status, vascular burden, and cognitive reserve.

These characteristics present major implications for prevention trials. Multidomain interventions targeting cardiovascular health, lifestyle behaviours, and psychosocial engagement may need to be implemented many years before the expected onset of dementia in order to influence long term disease risk. Demonstrating an effect on incident dementia would therefore require very large samples, and extended follow-up periods (e.g., minimum 5 years of follow-up in individuals with MCI), particularly in younger or cognitively healthy populations.

Long duration trials of this nature are costly and logistically complex, and are vulnerable to participant attrition, changes in intervention adherence over time, and contamination of control groups. Consequently, many prevention trials rely on intermediate outcomes such as cognitive performance, functional measures, neuroimaging biomarkers, or validated dementia risk scores.

While these outcomes may be sensitive to changes within the 2-to-5-year timeframe typical of many clinical trials and may be sensitive to change in this time period, their relationship to long-term dementia incidence is indirect. As a result, lack of demonstrated effect on incident dementia in shorter trials may reflect limitations in study duration or statistical power rather than absence of true intervention effect.

These methodological constraints should be considered when evaluating the available evidence and when developing recommendations related to dementia risk reduction.

Question 1

For adults with mild cognitive impairment, should multidomain interventions be used for reducing the risk of cognitive decline and/or dementia?

Question 2

For adults who are cognitively healthy or are cognitively healthy and at increased risk of cognitive decline and/or dementia, should multidomain interventions be used for reducing the risk of cognitive decline and/or dementia?

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7.1 Multi-domain interventions in people with mild cognitive impairment

Conditional recommendation for , Low certainty evidence

Recommendation 1

For people living with mild cognitive impairment (MCI), consider offering multidomain interventions to optimise global cognitive function.

Remarks

In the evidence reviewed, multidomain interventions involved at least three components, such as physical activity, dietary modification, cognitive training or stimulation, and management of cardiometabolic risk factors, delivered through education or coaching to support behaviour change. Additional components may be included based on an individual's needs, preferences and risk profile. These may include, for example, hearing and vision assessment and management, mental health support (e.g., management of stress), social engagement activities, smoking cessation or alcohol reduction.

Multidomain interventions were delivered individually and in group settings.

Interventions addressing fewer than three domains were outside the scope of the evidence review and as such, this Guideline does not make recommendations regarding single-domain or dual-domain interventions.

Incident dementia was prioritised as a critical outcome by both the Guideline Development Group and the Living/Lived Experience Advisory Group. However, dementia typically develops over long timeframes, often spanning decades, and trials were not of sufficient duration to measure this outcome directly. Instead, trials relied on intermediate outcomes, such as cognitive performance. The absence of evidence for incident dementia should therefore not be interpreted as evidence of no effect.

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Practical info

Multidomain interventions to reduce dementia risk are heterogeneous and some components may not be suitable or acceptable for all individuals. Use shared decision making to determine personalised goals, discuss potential benefits, limitations, costs and practical considerations, and align intervention choices with the individual's preferences and circumstances.

Encourage and support individuals to engage in self-directed activities between structured sessions, as this may reinforce behavioural change and improve adherence.

Multidomain interventions require coordination of interventions delivered by trained health professionals with various expertise. Some of these components may be accessible through existing care pathways.

Evidence to decision

Benefits and harms

Small net benefit, or little difference between alternatives

Research evidence

Desirable effects (benefits)

Multidomain interventions compared to usual care, no intervention or low intensity intervention results in small improvement in:

- Global cognitive function (assessed using composite score) [critical outcome]

Multidomain interventions compared to usual care, no intervention or low intensity intervention has little to no (trivial) effect on:

- Clinical dementia rating sum of boxes [critical outcome]

- Global cognitive function (assessed using screening tools such as MMSE) [critical outcome]
- Memory [critical outcome]
- Processing speed [critical outcome]
- Attention [critical outcome]
- Executive function [critical outcome]
- Language/verbal fluency [critical outcome]

The results are too inconsistent to interpret the combined effect estimate for:

- visuospatial skills [critical outcome]

No data were available on:

- Long-term incidence of dementia (5-10 years) [critical outcome]
- Short-term incidence of dementia (less than 5 years) [critical outcome]
- Longer term follow-up of other outcomes (5-10 years)

The following outcomes were not considered in the source (WHO) evidence review

- Functional ability and participation - overall [important outcome]
- Functional ability - physical - specific [important outcome]
- Health-related quality of life [important outcome]

Undesirable effects (harms)

None of the studies that reported on the safety aspect of the intervention (32/44) found any serious adverse event in relation to the intervention. The adverse events reported in relation to the intervention were infrequent and typically mild such as transient exercise- related musculoskeletal pain.

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Summary

Balance of effects: Guideline Development Group judgement and discussion

To decide on the balance of effects, the Guideline Development Group initially considered and made separate judgements about:

- Size of desirable anticipated effects (benefits) – **trivial**
- Size of undesirable anticipated effects (harms) – **trivial**
- Overall certainty of the evidence for critical outcomes – **low certainty**
- Variability (or uncertainty) in how people value the main outcomes – **possibly important uncertainty or variability.**

Based on these considerations, the Group judged that the balance of effects **probably favours multidomain intervention.**

Prior to voting, the methodologist clarified the available response options for the balance of effects judgement. The option "favouring neither intervention" was not included because the comparison under consideration was between an intervention and no intervention, rather than between two competing interventions. The option "don't know" was also discouraged, as it would not meaningfully contribute to the judgment process. Group members were therefore encouraged to indicate whether the balance of effects favoured the intervention or no intervention.

Several contextual considerations were highlighted to assist interpretation of the available evidence. Specifically, it was noted that the included trials primarily assessed global cognition, measured using composite scores, which combined multiple individual cognitive tests. Although changes in individual tests may be small or not statistically significant, composite scores may capture broader changes in cognitive performance.

It was also noted that dementia risk reduction interventions are typically intended to have population level effects over extended timeframes. The follow-up periods in the available trials were relatively short compared with the long preclinical phase of dementia. As such, even small effects observed during these trials could potentially translate into meaningful long-term benefits over time, particularly among individuals with mild cognitive impairment (MCI).

Some Group members asked whether broader contextual considerations and additional evidence beyond the included trials could inform their judgments. The Group agreed that this was appropriate, given the limitations of the available evidence, particularly with respect to follow-up duration. The methodologist clarified that these contextual points were intended to assist interpretation of the balance of effects rather than to influence voting.

The Group conducted two rounds of voting. In the first round, majority voted in favour of the intervention, but there are others who voted in favour of no intervention. The chair invited discussion to explore the reasoning underlying both positions.

Group members who voted in favour of no intervention noted that, although they were sympathetic to the rationale for multidomain interventions, they considered the current evidence insufficient to justify favouring the intervention. Some indicated that they would prefer an option indicating neutrality (i.e., "favour neither the intervention nor the control"). Members also emphasized the importance of clearly documenting the rationale for any judgement favouring the intervention given that the evidence suggested only trivial desirable and undesirable effects.

Members who voted in favour of the intervention highlighted the evidence suggesting small but potentially important effect on global cognition, as measured by cognitive composite scores. They noted that global cognition was the primary outcome in the included trials and therefore represented the most relevant outcome for interpreting the available evidence. It was also emphasised that no clear harms associated with the intervention had been identified.

During the discussion, the chair drew attention to incident dementia, which represents a critical clinical outcome but was not measured in the included trials. It was noted that prevention trials designed to detect differences in incident dementia would require very long follow-up periods, often five to ten years or longer, which may be difficult to achieve in practice. Requiring such evidence before making a judgement could therefore prevent any recommendation from being made. It was also noted that changes in global cognition may represent earlier indicators of intervention effects that could ultimately influence dementia risk over longer timeframes. The Group further emphasized that the absence of evidence should not be interpreted as evidence of no effect. The methodologist also clarified that the balance of effects judgement represents only one component of the overall recommendation process, and additional considerations would also be taken into account.

Following the discussion, a second round of voting was conducted. In this round, majority of the Group members voted in favour of the intervention.

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Desirable effects (benefits): Guideline Development Group judgement and discussion

The Guideline Development Group judged that multidomain intervention result in **trivial** desirable anticipated effects in people with MCI.

Two rounds of voting were conducted. The initial vote resulted in an even split between trivial and small effects. During the discussion following the first vote, Group members who rated the effects as small cite several considerations including their broader knowledge of evidence supporting individual components of multidomain interventions, the possibility that a small effect observed in short term trials could translate into meaningful benefits at the population level over longer periods, and the view that even modest improvements may be meaningful in people with MCI.

Other members sought clarification regarding the distinction between trivial and small effects. The methodologist clarified the definitions and reminded the Group that judgement about the magnitude of desirable effects should be based on the evidence presented. Consideration of broader contextual factors or extrapolation beyond the available evidence, it was noted, would be more appropriately addressed when assessing the balance of effects or when formulating the final recommendation.

A second round of voting was subsequently conducted, and majority of the Group members rated the desirable effects of multidomain interventions as trivial.

Undesirable effects (harms): Guideline Development Group judgement and discussion

The Guideline Development Group unanimously judged the undesirable effects of multidomain interventions in people with MCI to be **trivial**. There was no additional discussion for this EtD criterion.

Certainty of the evidence

Low

Research evidence

The overall certainty of the body of evidence is determined by the lowest certainty rating of all the critical outcomes.

High certainty:

- Global cognition (screening tools)

- CDR sum of boxes
- Memory
- Processing speed
- Attention

Moderate certainty:

- Executive function
- Language/verbal fluency

Low certainty:

- Global cognition (composite score)

Very low certainty

- Visuospatial skills

No studies reported on the long (5-10 years) and short term (less than 5 years) incident dementia and longer-term follow-up of other outcomes (5-10 years)

The outcome functional ability and participation-overall was not considered in the WHO evidence review.

Summary
The overall certainty of the body of evidence for this question is **low**. This judgement was supported by the methodologist, who considered that the only outcome rated as very low certainty (visuospatial skills) was unlikely to meaningfully affect the overall certainty of the body of evidence.

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Values and preferences

Substantial variability is expected or uncertain

Research evidence
General considerations

Two qualitative studies conducted in the UK and US *(395) (1235)* explored outcomes that matter to people living with, or at risk of, Alzheimer's disease dementias, as well as to healthy volunteers, and health and social care professionals. These studies included people with subjective cognitive impairment, self-identified or diagnosed mild cognitive impairment (MCI), mild Alzheimer's dementia, unimpaired cognition but with evidence of AD pathology, and MCI with evidence of AD pathology.

One study *(1235)* identified five key domains that were considered important in everyday life by people at risk of AD:

- Everyday functioning, including activities of daily living
- Relationships and social connections
- Enjoyment of life, including the ability to continue hobbies and meaningful activities
- Maintaining sense of Identity
- Alleviation of symptoms, including memory and behavioural changes

Maintaining everyday functioning and the ability to continue hobbies were recognised as important indicators of intervention effectiveness by people at risk of dementia, healthy volunteers, and health and social care professionals. The importance of preserving relationships, social connections, and a sense of identity was more strongly emphasised by people with existing memory problems and by health and social care professionals *(1235)*. The same study also found that people with memory problems placed importance on addressing behavioural changes, whereas health and social care professionals did not prioritise improvement in memory as a key indicator of intervention effectiveness.

The second study *(395)*, which examined treatment-related outcomes across the AD spectrum, including those at risk of AD, found that individuals at risk most commonly valued interventions that would:

- Improve/restore memory (58.3%-75%)

- Stop AD progression (50%-66.7%)
- Slow AD progression (33.3%-50%)
- Improve functioning and ability to perform activities of daily living (33.3%)
- Improve short-term memory (25%).

These findings suggest that people at-risk of AD dementia value outcomes that preserve independence, maintain meaningful roles and relationships, and delay decline. Dementia has also been identified as the second most feared condition among Australian health service consumers, and the most feared among Australians 65 years and older *(1236)*. This suggests that many people may place high value on interventions that could reduce dementia risk or delay onset.

Considerations for Aboriginal and Torres Strait Islander peoples

For Aboriginal and Torres Strait Islander peoples, health and wellbeing are closely connected to Country, cultural expression, self-determination, knowledge systems, family, and kinship *(126)*. Knowledge of dementia risk factors among Aboriginal and Torres Strait Islander peoples appears to be variable, and awareness of opportunities for risk reduction may be limited *(245)* *(94)*. Some First Nations peoples may view dementia as a natural part of ageing or life, rather than as a medical condition that may be preventable or modifiable *(94)*. These perspectives may influence how the outcomes of dementia risk reduction interventions are understood and valued.

Considerations for people from culturally and linguistically diverse (CALD) backgrounds

For people from culturally and linguistically diverse (CALD) backgrounds, language barriers, limited awareness of dementia, and stigma in some communities may affect understanding of dementia risk and the perceived value related to the interventions *(899)*. These factors may contribute to uncertainty or variability in how the outcomes of dementia risk reduction are understood and prioritised.

Considerations for LGBTQIA+ people

No studies were identified that directly examined the values and preferences of LGBTQIA+ people in relation to dementia risk reduction outcomes.

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Considerations for people with disability

No studies were identified that directly examined the values and preferences of people with disability in relation to dementia risk reduction outcomes.

Considerations for people living outside major cities

For people in regional, rural, and remote areas, health priorities may be shaped by service accessibility, perceived effectiveness, and whether benefits are observable and relevant in everyday life *(1272)*. These factors may influence how dementia risk reduction interventions outcomes are valued.

Additional considerations

Input from the Living/Lived Experience Advisory Group

The Living/Lived Experienced Advisory Group provided important perspectives on how dementia risk and risk reduction are understood and valued:

- Members emphasised that while certain factors are associated with increased dementia risk, not all individuals with these risk factors develop dementia, and some individuals who lead healthy lifestyles still go on to develop dementia. It was noted that messaging around “modifiable risk factors” may be perceived as blaming individuals living with dementia and should therefore be communicated carefully.
- Functional ability was identified as a highly important outcome, alongside cognition.
- Members emphasised that, at an individual level, quality of life may be prioritised over participation in risk reduction interventions.
- Nutrition was highlighted as an important factor by several members, with questions raised about its inclusion within risk reduction frameworks. Childhood trauma was also raised as a potentially relevant factor warranting further consideration.
- Environmental factors, such as air pollution, were noted to affect individuals across the life course, and may be challenging to modify. Members questioned why air pollution was listed as a risk factor later in life.
- One member highlighted the personal benefit of adaptations for hearing loss, reinforcing the value of addressing modifiable risk factors where feasible.

Summary

Key points

- No studies were identified that directly assessed outcome priorities for dementia risk reduction interventions across all types of dementia.
- Available evidence suggests that people with MCI values outcomes related to maintaining independence, relationships, identity and quality of life *(1235)*.
- There may be variability in how individuals value outcomes, particularly given the long-time horizon and uncertainty of dementia prevention *(1235)* *(395)*.
- Perspective on risk reduction and their outcomes may be influenced by cultural, social, and personal factors, including concerns about stigma and perceived responsibility *(94)* *(899)*.

Guideline Development Group judgement and discussion

The Guideline Development Group judged that there is **possibly important uncertainty or variability** in how people value the outcomes associated with multidomain interventions.

Two rounds of voting were conducted. Following the initial vote, there was a wide range of responses. During the subsequent discussion, some Group members indicated uncertainty about the intent of the question and whether their initial responses accurately reflected their views.

The Chair sought clarification from the methodologist, who explained that the question was intended to assess whether, based on the evidence across all outcomes, most individuals seeking to reduce their risk of dementia would choose to undertake the multidomain intervention, or whether some might decline the intervention given the magnitude and nature of the expected effects.

A second round of vote was conducted, and the majority voted "possibly important variability". There was no additional discussion for this EtD criterion after the second vote.

Resources

Important issues, or potential issues not investigated

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Research evidence

General considerations

Evidence from multidomain dementia risk reduction trials indicates that these interventions require a multidisciplinary team, including nurses, physicians, physiotherapists, exercise physiologists, dietitians, and psychologists, to support design and delivery *(854)*. Staff may require additional training to ensure interventions are delivered consistently and in accordance with established protocols *(1176)*.

Implementation of multidomain interventions also requires supporting infrastructure, including IT systems (e.g., web-based platforms), participant devices (e.g., computers, mobile phones), and exercise equipment. In addition, participants are required to commit a substantial amount of time to intervention components such as physical activity, cognitive training, and clinical monitoring *(854)*.

Considerations for Aboriginal and Torres Strait Islander peoples

Culturally safe programs targeting modifiable risk factors are important to reduce dementia burden among Aboriginal and Torres Strait Islander peoples *(687)*. Key resource considerations include (1) culturally respectful approaches, (2) leadership and ownership by Aboriginal and Torres Strait Islander researchers and communities, (3) access to appropriate exercise facilities and equipment, (4) delivery in culturally safe environments (e.g., Aboriginal and Torres Strait Islander peoples-controlled organisations), and (5) provision of transport and other practical supports.

Considerations for people from culturally and linguistically diverse backgrounds

Additional resources may be required to support implementation in CALD communities, including (1) use of accredited interpreters and bicultural workers, (2) culturally adapted materials and delivery approaches, (3) engagement with community leaders *(899)*, (4) audio-visual resources for people with low literacy, and (5) delivery in trusted community settings (e.g., community or religious centres).

Considerations for LGBTQIA+ people

No evidence was identified regarding the specific resource implications of multidomain dementia risk reduction interventions for LGBTQIA+ people.

Considerations for people with disability

People with disabilities may require additional resources, including staff (support workers), adaptive equipment, accessible materials and environments, individualised support, and flexible delivery models.

Considerations for people living outside major cities

There may be fewer services and trained multidisciplinary staff to deliver multidomain dementia risk reduction interventions in regional, rural, and remote areas. Remoteness may reduce opportunities for social engagement and attending group sessions. Gyms and access to footpaths for physical activities may not always be available outside major cities.

Resource requirements	
Resource	Description
Staff	Multidisciplinary workforce, e.g., nurses, physicians, physiotherapists, exercise physiologists, dietitians, psychologists, and pharmacists
Training	Training to support standardised and protocol-based delivery
Equipment and infrastructure	• IT infrastructure (e.g., a website or digital platforms) for web-based interventions and for cognitive training • Participant devices (e.g., computers, smartphones) • Exercise equipment (e.g., resistance bands, weights, exercise machines, balance equipment) • Access to suitable spaces for physical activity (e.g., gyms, walking areas)
Time	Significant time investment may be required for exercise and cognitive training. For example, in the FINGER trial: • Resistance training: 30–45 minutes, 1–2 times per week, increasing to 60 minutes, 2–3 times per week over a two-year period. Aerobic exercise: 30–45 minutes, twice per week, increasing to 45–60 minutes, 3–5 times per week. • Cognitive training: Ten group sessions led by a psychologist (approximately 60–90 minutes per session) plus two independent training periods of 6 months each, during which participants train three times per week for 10–15 minutes per session (72 sessions per period). • Nutritional intervention: individual counselling sessions (3 meetings during first yet) and group sessions (6 times during first year, 1-3 times during second year). • Management of vascular and metabolic risk factors: nurse visits every 3 months during first year, every 6 months during second year. Physicians review every 6 months. • Medication review: Physician review prompted when adjustments considered necessary.
Supervision and monitoring	Interventions need to be monitored regularly to ensure compliance with protocols, progression (e.g., in the case of exercises) and adverse events monitoring.

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Cost/Cost-effectiveness

Limited evidence on cost-effectiveness was identified. A modelling study based on the Japan-Multimodal Intervention Trial (J-MINT), conducted in older adults with mild cognitive impairment (MCI), suggested that the intervention may be cost-effective over a lifetime horizon from a societal perspective *(1128)*. In the base-case analysis (35-year time horizon), the intervention was associated with cost savings of JPY 452,826 (~AUD 6,363.49) per person, and a gain of 0.08 quality-adjusted life years (QALYs) compared with usual care. However, this evidence is limited to a single study conducted in a non-Australian context and may not be directly generalisable.

Additional considerations

Input from the Living/Lived Experience Advisory Group

The Living/Lived Experience Advisory Group highlighted several important resource-related considerations:

- **Equity of access**: Availability of resources varies substantially by location, and inequities in access across Australia were emphasised.
- **Financial and time burden**: Participation may involve costs related to travel, program fees, and time commitment.
- **Need for additional support**: Individuals requiring assistance (e.g., support workers or tailored programs) may face increased costs and complexity
- **Health literacy and system navigation**: Limited awareness of available services and difficulty navigating systems may reduce access to otherwise available resources.
- **Competing personal resources**: Individuals may need to balance physical, mental, and financial resources, including managing fatigue and energy levels, which may affect their ability to engage in interventions.

Summary

Key points

- Multidomain dementia risk reduction interventions require multidisciplinary teams, supporting infrastructure, and participant time commitment *(854)*.
- Additional resources are needed to ensure culturally appropriate and accessible delivery across diverse populations, including First

Nations peoples, and CALD communities *(899) (687)* .
- Access to resources may be uneven across geographic regions, particularly outside major cities
- Individuals may face financial, time, and psychosocial barriers to participation

Guideline Development Group judgement and discussion about resources

The Guideline Development Group judged that the resources required for multidomain dementia risk reduction interventions represent a **moderate cost**.

It was noted that although these interventions involve multiple health professionals, in some settings (e.g., rural areas), practitioners may perform multiple roles, which may reduce overall costs.

Guideline Development Group judgement and discussion about cost-effectiveness

The Guideline Development Group judged that the cost-effectiveness **does not favour either the intervention or the comparator**.

Two rounds of voting were conducted. In the first round, the majority favoured the intervention. During discussion, Group members highlighted that evidence on cost-effectiveness was limited to a single non-Australian study, the magnitude of intervention effects (trivial to small) made it difficult to justify cost-effectiveness, and available evidence did not include incident dementia as an outcome in the relevant population. Some members noted that international studies suggest potential cost savings from preventing dementia; however, these findings were based on different populations and assumptions.

Following discussion, a second round of voting was conducted, with the majority of Group members concluding that cost-effectiveness "does not favour either the intervention or the comparator."

Equity

Important issues, or potential issues not investigated

Research evidence

General considerations

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No studies were identified that directly assessed the effect of multidomain dementia risk reduction interventions on health equity in people with MCI. However, a substantial body of evidence indicates that engagement in dementia risk reduction behaviours and interventions is socially patterned, and may be influenced by structural, socioeconomic, and cultural factors.

Australian data suggest that awareness of dementia risk reduction is limited. In a national survey of Australians aged 18 years and over (18–60+), only ~30% of participants reported feeling adequately informed about dementia risk reduction *(1262)*. Commonly reported barriers included low motivation, financial constraints, and lack of time. Women were more likely to report financial and motivational barriers, while younger adults more frequently reported time constraints.

Findings from the Maintain Your Brain (MYB) trial indicate that participation in multidomain dementia prevention programs is more likely among individuals with higher education, higher household income, residence in areas of lower disadvantage or major cities *(1246)*. Barriers to participation included caregiving responsibilities, speaking a language other than English at home, physical limitations, and lower self-reported quality of life.

International evidence from UK similarly highlights systemic barriers to engagement, including socioeconomic disadvantage, limited access to services, cultural and religious beliefs, low awareness, and misperceptions about prevention *(942)*.

Dementia risk itself is also unequally distributed across populations, with consistent evidence showing that lower socioeconomic status is associated with higher risk of cognitive impairment and dementia *(262) (713) (1006) (1222) (452) (660) (898) (1071)*. These findings indicate that without targeted approaches, risk reduction interventions may preferentially benefit more advantaged groups and potentially widen existing health inequities.

Given the complex relationship between dementia risk and various cultural and socioeconomic factors, and the role these factors play in driving engagement in dementia risk reduction behaviours, dementia risk reduction initiatives must consider cultural and socioeconomic factors to ensure equity and effectiveness *(662)*. Accordingly, both individual-level and population-level strategies, delivered at a scale and intensity proportionate to need, have been recommended to support equitable dementia risk reduction *(662) (1073) (1218)*.

Considerations for Aboriginal and Torres Strait Islander peoples

Cultural beliefs about changes in memory, thinking, or behaviour may influence how dementia is understood, with some individuals viewing these changes as part of normal ageing rather than a medical or health condition *(225)*.

Population attributable fractions (PAF) estimates suggest that there is substantial potential for dementia risk reduction among Aboriginal and Torres Strait Islander peoples *(1118)*. However, prevention strategies must be developed in partnership with communities and delivered in culturally appropriate ways, including through community-led and culturally safe models of care *(687) (463) (1134) (856)*.

Considerations for people from culturally and linguistically diverse (CALD) backgrounds

One third of Australians that may develop dementia in the future may be from a CALD background *(1358) (137)*, yet they remain underrepresented in research *(137) (746)*. For example, participants in the Maintain Your Brain (MYB) trial were more highly educated and more likely to be from an English-speaking background compared to the Australian general population *(1246)*.

Barriers to engagement may include language, stigma, cultural beliefs (e.g., dementia as a normal part of aging, or as a mental illness), and lack of culturally appropriate services *(1072)*. Several other factors, including the lack of culturally sensitive clinical evaluation tools, insufficient understanding of modifiable risk factors specific to different CALD communities, and limited culturally appropriate approaches for addressing modifiable dementia risk factors, such as diet, education, and physical activity, may also contribute to reduced access to and uptake of dementia risk reduction interventions in CALD communities *(899) (137) (746)*.

Considerations for LGBTQIA+ people

No direct evidence was identified regarding the impact of multidomain interventions on equity for LGBTQIA+ people.

However, some LGBTQIA+ populations may experience higher prevalence of modifiable dementia risk factors, including cardiovascular disease, depression, smoking, alcohol use, HIV and social isolation. Experiences of stigma, discrimination, and trauma may also influence engagement with health services. Risk reduction programs should therefore be inclusive, culturally safe, and responsive to the needs and experiences of LGBTQIA+ communities {480} {998}.

Considerations for people with disability

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People with disability may face barriers related to physical accessibility, caregiving responsibilities, and health status, which may limit participation in multidomain interventions {1248}.No direct evidence was identified regarding the impact of multidomain interventions on equity for LGBTQIA+ people.

However, some LGBTQIA+ populations may experience higher prevalence of modifiable dementia risk factors, including cardiovascular disease, depression, smoking, alcohol use, HIV and social isolation. Experiences of stigma, discrimination, and trauma may also influence engagement with health services. Risk reduction programs should therefore be inclusive, culturally safe, and responsive to the needs and experiences of LGBTQIA+ communities *(480) (996)*.

Considerations for people with disability

People with disability may face barriers related to physical accessibility, caregiving responsibilities, and health status, which may limit participation in multidomain interventions *(1246)*.

Considerations for people living outside major cities

People living in regional, rural, and remote areas may face additional barriers to accessing services including travel costs, limited availability of specialist services, and fewer opportunities to participate in structured interventions.

Additional considerations

Input from the Living/Lived Experience Advisory Group

The Living/Lived Experience Advisory Group highlighted several equity-related concerns:

- Fear of discrimination may deter some individuals from accessing services.
- Current ('usual care') systems were perceived as inequitable, and there was concern that multidomain interventions could further widen inequities if not implemented carefully.

Significant gaps were identified for several groups including:

- Aboriginal and Torres Strait Islander peoples
- People from CALD backgrounds
- LGBTQIA+ individuals, including experiences of stigma and lack of affirming care. One Living/Lived Experience Advisory Group member shared an example of a person who asked for a prescription for hormones, received a lecture from the GP about what hormones can do to their health, and total rejection of the person's identity.

- People with younger onset dementia and their families
- People living in regional, rural or remote regions
- Structural limitations in service availability, particularly outside major cities, may limit access even to usual care, let alone more intensive multi-domain interventions.

Summary

Key points

- No direct evidence was identified on the impact of multidomain interventions on health equity
- Engagement in dementia risk reduction is influenced by socioeconomic, cultural, and structural factors *(1262) (942) (1246)*.
- Dementia risk is unevenly distributed, with higher risk among disadvantaged populations *(262) (713) (1006) (1222) (452) (660) (898) (1071)*.
- Multidomain interventions may be more accessible to advantaged groups, with potential to widen inequities if not carefully implemented *(662)*.
- Equitable approaches require addressing structural barriers, not just individual behaviour change *(662) (1073) (1218)*.

Guideline Development Group judgement and discussion

The Guideline Development Group considered the impact of multidomain interventions on health equity and noted a range of views.

During discussion, it was suggested that responses may reflect uncertainty or variability in interpretation, including select of "varies" Or uncertainty about the available evidence. In the absence of clear consensus, and given the lack of direct evidence, the Group agreed that no definitive judgment could be made regarding the impact on health equity.

Acceptability

No important issues with the recommended alternative

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Research evidence

General considerations

Evidence from Australian and international studies suggest that multidomain interventions for dementia risk reduction are generally acceptable, although participation and completion rates vary.

Australian studies provide mixed but overall positive signals. In the Brain Boot Camp program, a baseline survey of community-dwelling older adults (>65 years) demonstrated a high level of motivation to adopt lifestyle and health behaviour changes to reduce dementia risk *(1071)*. A subsequent mixed-methods evaluation of the 3-month program reported high satisfaction among participants who completed the intervention, with most participants indicating that the resources provided were appropriate (62%), the personalised brain health profile was useful (72%), and they were committed to maintaining behaviour change (92%) *(1070)*. However, completion rates were less than 50%, suggesting potential challenges with sustained engagement.

Qualitative research among middle-aged Australians (47–65 years) with a family history of dementia found mixed attitudes towards multidomain dementia risk reduction strategies *(401)*. Participants emphasised that interventions are more acceptable when they are personalised, holistic, and structured around small, achievable changes.

International studies similarly report high acceptability. A community-adapted, 12-month multidomain intervention in Japan reported strong engagement, with ~77% of participants attending at least 60% of sessions, and a mean acceptability score of 4.4 out of 5 *(678)*. The Brain Wellness Information, Support, and Empowerment (Brain-WISE) program in the United States of America (USA) *(337)*, a short-term, group-based 'boot camp' intervention delivered over six weeks, also demonstrated high acceptability with 96% of participants reporting the program as worthwhile and sessions ratings consistently >4 out of 5.

In contrast, some evidence suggests more neutral or mixed views among healthcare professionals. In the German AgeWell.de trial, general practitioners reported neutral expectations regarding the overall effectiveness of multidomain interventions, although they expressed greater confidence in the benefits of individual risk factor modification *(639)*.

Overall, these findings suggest that while multidomain interventions are generally acceptable, particularly among participants who engage with and complete programs, acceptability may be influenced by factors such as personalisation, perceived relevance, and burden of participation.

Considerations for Aboriginal and Torres Strait Islander peoples

Acceptability is closely linked to cultural safety and trauma-informed approaches *(735)*. Risk reduction messaging should be delivered using a strengths-based approach, recognising that many Aboriginal and Torres Strait Islander peoples experience multiple dementia risk factors across the life course *(226)*. Interventions are more likely to be acceptable when developed and delivered in partnership with communities and aligned with cultural values and practices.

Considerations for people from culturally and linguistically diverse backgrounds

For people from CALD backgrounds, interventions may be more acceptable when they are culturally tailored, flexible, and socially supported, and when they incorporate clear education and feedback *(729)*.

Dietary recommendations may require adaptation to align with cultural practices and norms. For example, while elements of the Mediterranean diet may not be directly transferable, incorporating relevant components (e.g., increased used of healthy oils or vegetables) within existing cultural dietary patterns may improve acceptability. For Chinese and Vietnamese cultures, traditional diets incorporate plenty of fruits and vegetables with minimal meat. However, these diets also tend to be high in rice (carbohydrates) and salt. The social aspects and vegetable consumption of the Mediterranean diet are similar to the Southeast Asian diet.

Considerations for LGBTQIA+ people

No direct evidence was identified regarding acceptability in LGBTQIA+ populations. However, acceptability is likely to be influenced by the extent to which interventions are inclusive, affirming, and sensitive to experiences of stigma, discrimination, and diverse identities.

Considerations for people with disability

Acceptability may be enhanced when interventions are personalised, flexible, accessible, low-burden, and when they accommodate diverse functional needs of people with disability. Providing meaningful choice and appropriate support may further improve engagement.

Considerations for people who live outside major cities

For people who live in regional, rural, and remote areas, interventions may be more acceptable when they are accessible (including digitally), locally relevant, and supported by community engagement.

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Additional considerations

Input from the Living/Lived Experience Advisory Group

The Living/Lived Experience Advisory Group noted that multi-domain interventions were generally acceptable to people living with dementia and their carers, particularly as they are perceived as low-risk and unlikely to cause harm. However, concerns were raised regarding the limited evidence for effectiveness, and the importance of ensuring that interventions do not create unrealistic expectations. One Living/Lived Experience Advisory Group member emphasised that irrespective of the strength of evidence, and cost of intervention, providing access to such interventions may be important from the perspective of dignity, autonomy, and supporting individuals to take action for their health.

Summary

Key points

- Multidomain interventions are generally acceptable, particularly among participants who complete programs *(337)(1070) (678)*.
- Completion and engagement may vary, indicating potential burden or feasibility changes *(1070) (678) (337)*.
- Acceptability is enhanced by personalisation, cultural relevance, flexibility, and perceived usefulness *(735) (226) (729)*.
- Healthcare professionals may express more cautious or neutral views, particularly regarding overall effectiveness *(639)*.
- Acceptability may vary across populations depending on cultural, social, and contextual factors.

Guideline Development Group judgement and discussion

The Guideline Development Group judged that multidomain interventions for people with MCI are **probably acceptable**. There was no additional discussion for this EtD criterion.

Feasibility No important issues with the recommended alternative

Research evidence

General considerations

Evidence from Australian and international studies suggest that multidomain interventions for dementia risk reduction are feasible, with generally high retention and acceptable levels of adherence, although engagement may vary across intervention components.

An Australian study evaluating the Body, Brain, Life for Cognitive Decline (BBL-CD) program (8-week intervention with 6-month follow-up) in individuals with MCI or subjective cognitive decline demonstrated high retention rates (81%; Intervention group 84% vs. control group 77%), and strong compliance with most intervention components, particularly the educational modules, and the Mediterranean diet (MeDi) and physical activity (PA) components *(793)*. Overall, adherence was observed for dietary and cognitive engagement components, but not for physical activity, suggesting variability in engagement across domains. Overall, the intervention was considered feasible.

International evidence is consistent with these findings. A multinational study across Sweden, Finland, Germany, and France evaluating a 6-month multidomain dementia risk reduction intervention in individuals with prodromal Alzheimer's disease *(1147)* also reported good feasibility. Feasibility was evaluated by recruitment rate during a 6-month recruitment phase, overall adherence in each intervention arm, and 6-month retention rate. Overall recruitment rate was 76% (65% in the first six months), the overall six-month retention rate was 91%, and overall intervention adherence was 78% in the multimodal lifestyle intervention group and 87% in the multimodal lifestyle plus medical food group, indicating good feasibility.

Similarly, a 12-month handbook-based multidomain intervention in Japan, conducted in community-dwelling older adults with mild cognitive impairment (MCI) *(488)*, demonstrated strong feasibility, with high attendance (mean 88 ± 18%), and participant satisfaction, despite being delivered by non-professional facilitators with limited training. This suggests that multidomain interventions may be feasible across a range of delivery models, including community-based approaches.

Overall, these studies indicate that multidomain interventions can be implemented successfully, although feasibility may depend on intervention complexity, delivery model, and participant engagement with specific components.

Considerations for Aboriginal and Torres Strait Islander peoples

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Existing health system structures, such as Medicare item 715 *(135)* (annual health assessment for Aboriginal and Torres Strait Islander peoples aged 55 years and over), may provide potential entry points for integrating dementia risk reduction into routine care. However, feasibility will depend on culturally appropriate implementation and alignment with community-controlled health services.

Considerations for people from culturally and linguistically diverse backgrounds

No direct evidence was identified regarding feasibility in CALD populations; however, feasibility is likely to be influenced by language, cultural relevance, and accessibility of services.

Considerations for LGBTQIA+ people

No direct evidence was identified regarding feasibility in LGBTQIA+ populations. Feasibility may depend on the availability of inclusive and affirming services.

Considerations for people living with disability

No direct evidence was identified. Feasibility may be influenced by accessibility, need for support, and flexibility of delivery models.

Considerations for people living outside major cities

Feasibility may be reduced in regional, rural, and remote areas due to limited access to services, workforce constraints, and infrastructure gaps.

Additional considerations

Input from external interest holder organisations

Stakeholder feedback highlighted several system-level factors that may influence the feasibility of implementing multidomain dementia risk reduction interventions. Fragmentation across healthcare roles and funding structures was identified as a key barrier, limiting the sharing of resources, knowledge, and practice across professions. When care teams operate in isolation, clinicians may be unaware of the full range of interventions available within their scope, reducing opportunities to apply multidomain approaches. Siloed funding and service delivery further constrain multidisciplinary collaboration and coordinated care. Increasing opportunities for multidisciplinary case conferencing and shared care planning may help address these challenges by facilitating the exchange of expertise, skills, and insights, and supports more integrated care.

Variability in access to healthcare services across and within states was also highlighted, with stakeholders describing a 'postcode lottery' that affects whether individuals can access appropriate service needs. These challenges are particularly pronounced in rural and remote communities. A 'no wrong access' approach was recommended to improve system navigation, ensuring that individuals can enter the healthcare system through multiple pathways and still be directed to appropriate services. This would require greater system-wide awareness of care pathways, alongside strengthening primary care education on dementia risk factors and prevention, and improving public awareness of the timeframes in which prevention is most effective.

Flexible funding models were identified as critical to support multidisciplinary, multidomain approaches across primary care, public health, aged care, and allied health settings. Education and awareness efforts should prioritise key referrers, including General Practitioners, geriatricians, and cognitive assessment services, to ensure understanding of evidence-based approaches. While some intervention components require specialised training and expertise, many fall within generalist practice and could be more broadly implemented across the healthcare workforce to improve consistency, reach, and sustainability.

Summary

Key points

- Multidomain interventions are generally feasible, with high retention and moderate-to-high adherence reported in clinical trials *(793) (1147) (488)*.
- Feasibility may vary across intervention components, with some elements (e.g., cognitive training or physical activity) showing lower engagement *(793)*.
- Interventions can be delivered across various models, including community-based and non-specialist led approaches *(488)*.
- Feasibility is influenced by health system factors, including workforce capacity, service integration, and funding structures *(135)*.
- Access and implementation may be more challenging in underserved populations and regions.

Guideline Development Group judgement and discussion

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The Guideline Development Group judged that multidomain interventions are **probably feasible**. During discussion, consideration was given to the minimum duration required for meaningful implementation in clinical practice. Based on expert input from the WHO evidence review, it was agreed that interventions should be delivered for at least six months.

Rationale

The Guideline Development Group judged that:

- Multidomain interventions resulted in trivial desirable effects and trivial undesirable effects, with low certainty evidence, in people with mild cognitive impairment (MCI). Although no direct evidence was available for the effect of such on incident dementia, the Group noted that absence of evidence does not imply absence of effect.
- A small but potentially important effect on global cognition was observed over short follow-up periods, which may signal a meaningful benefit over longer timeframes. This may be particularly relevant in people with MCI who already have reduced cognitive ability.
- There was possibly important variability in how much people living with MCI value the desirable and undesirable effects, and that the balance of effects probably favoured multidomain interventions.
- Multidomain interventions were associated with moderate resource requirements, and their impact on equity was considered to be uncertain, with the potential to either increase or reduce equity depending on implementation settings.
- Multidomain interventions were probably acceptable and feasible in people living with MCI.

Taking all these factors into account, and noting the absence of identified harms, the Group agreed on a conditional recommendation in favour of multidomain interventions in people living with MCI.

Research needs

The following areas are recommended to be considered as potential future areas for research:

- Clinical trials that measure the timing of interventions during the life course, change in dementia risk scores, and long-term outcomes.
- Implementation research of culturally appropriate multidomain interventions.
- Cost-effectiveness of multidomain interventions in real world settings.

Clinical question/ PICO

Population: people with mild cognitive impairment
Intervention: multidomain interventions (addressing three or more risk factors)
Comparator: usual care

Outcome Timeframe	**Study results and measurements**	**Comparator** usual care	**Intervention** multidomain interventions (addressing three or more risk factor	**Certainty of the evidence** (Quality of evidence)	**Summary**
Global cognition 9 Critical	Measured by: validated neuropsychological tests combined in a pre-defined composite score Based on data from 1,161 participants in 3 studies. (Randomized controlled) Follow up: 1.08 years (mean).	Difference:	**SMD 0.18 higher** (CI 95% 0.01 higher — 0.34 higher)	**Low** Due to serious inconsistency, Due to serious imprecision [1]	Multidomain Interventions aimed at individuals with MCI may improve global cognition measured with composite score of validated neuropsychological test. (Threshold for a small effect: SMD 0.16)
Global cognition 9 Critical	Measured by: screening tool such as MMSE, MoCA Based on data from 800 participants in 4 studies. (Randomized controlled) Follow up: 1.04 years (mean).	Difference:	**SMD 0.02 higher** (CI 95% 0.07 lower — 0.1 higher)	**High**	Multidomain Interventions aimed at individuals with MCI have little or no effect on global cognition measured with screening tools. (Threshold for a small effect: SMD 0.16)
CDR Sum of Boxes 9 Critical	Measured by: Clinical Dementia Rating Based on data from 615 participants in 3 studies. (Randomized controlled) Follow up: 10.4 months (mean).	Difference:	**SMD 0 higher** (CI 95% 0 higher — 0 higher)	**High**	Multidomain Interventions aimed at individuals with MCI have little or no effect on CDR SoB. (Threshold for a small effect: SMD 0.16)
Memory 9 Critical	Measured by: validated neuropsychological assessment, as single tests or combined in a pre-defined composite score Based on data from 968 participants in 6 studies. (Randomized controlled) Follow up: 1.04 years (mean).	Difference:	**SMD 0.06 higher** (CI 95% 0.02 higher — 0.11 higher)	**High**	Multidomain Interventions aimed at individuals with MCI have little or no effect on memory. (Threshold for a small effect: SMD 0.16)
Executive function 9 Critical	Measured by: Executive validated neuropsychological assessment, as single tests	Difference:	**SMD 0.08 higher** (CI 95% 0 higher — 0.15 higher)	**Moderate** Due to serious imprecision [2]	Multidomain Interventions aimed at individuals with MCI likely have little or no effect on executive

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Outcome Timeframe	**Study results and measurements**	**Comparator** usual care	**Intervention** multidomain interventions (addressing three or more risk factor	**Certainty of the evidence** (Quality of evidence)	**Summary**
	or combined in a pre-defined composite score Based on data from 602 participants in 3 studies. (Randomized controlled) Follow up: 1.23 years (mean).				function. (Threshold for a small effect: SMD 0.16)
Processing speed 9 Critical	Measured by: validated neuropsychological assessment, as single tests or combined in a pre-defined composite score) Based on data from 602 participants in 3 studies. (Randomized controlled) Follow up: 1.23 Years (mean).	Difference:	**SMD 0.04 lower** (CI 95% 0.12 lower — 0.05 higher)	**High**	Multidomain Interventions aimed at individuals with MCI have little or no effect on processing speed. (Threshold for a small effect: SMD 0.16)
Attention 9 Critical	Measured by: validated neuropsychological tests Based on data from 413 participants in 2 studies. (Randomized controlled) Follow up: 6.3 months (mean).	Difference:	**SMD 0.04 higher** 0.06 lower — 0.14 higher	**High**	Multidomain Interventions aimed at individuals with MCI have little or no effect on attention. (Threshold for a small effect: SMD 0.16)
Language/Verbal fluency 9 Critical	High better Based on data from 413 participants in 2 studies. (Randomized controlled)	Difference:	**SMD 0.11 higher** 0.02 higher — 0.21 higher	**Moderate** Due to serious imprecision [3]	Multidomain Interventions aimed at individuals with MCI likely have little or no effect on language/verbal fluency. (Threshold for a small effect: SMD 0.16)
Visuospatial skills 9 Critical	High better Based on data from 469 participants in 3 studies. (Randomized controlled)	Difference:	**SMD 0.13 higher** 0.09 lower — 0.34 higher	**Very low** Due to serious inconsistency, Due to serious imprecision, Due to serious publication bias [4]	We are uncertain on the effect of Multidomain Interventions aimed at individuals with MCI on visuospatial skills. (Threshold for a small effect: SMD 0.16)
Other outcomes-not considered in the WHO evidence review 6 Important	High better Based on data from participants in 0 studies.				The outcome functional ability and participation - overall, functional ability - physical - specific and health-related quality of life were not considered in the WHO evidence review.

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Outcome Timeframe	**Study results and measurements**	**Comparator** usual care	**Intervention** multidomain interventions (addressing three or more risk factor	**Certainty of the evidence** (Quality of evidence)	**Summary**
Long-term incidence of dementia (5-10 years) 9 Critical	Based on data from 0 participants in 0 studies.			**Very low**	No studies reported on this outcome.
Longer term follow-up of other outcomes (5-10 year)s 9 Critical	Based on data from 0 participants in 0 studies.			**Very low**	No studies reported on other critical outcomes at longer term follow-up
Short-term incidence of dementia (less than 5 years) 9 Critical	Based on data from 0 participants in 0 studies.			**Very low**	No studies reported on this outcome.

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1. **Inconsistency: serious.** Moderate-Substantial heterogeneity. **Indirectness: no serious. Imprecision: serious.** Confidence interval crossed the limit for trivial effect. **Publication bias: no serious.**
2, 3. **Inconsistency: no serious. Indirectness: no serious. Imprecision: serious.** Confidence interval crossed the limit for trivial effect. **Publication bias: no serious.**
4. **Inconsistency: serious.** Moderate-Substantial heterogeneity. **Indirectness: no serious. Imprecision: serious.** Confidence interval crossed the limit for trivial effect. **Publication bias: serious.** Eggers' test $p \leq 0.05$.

Practice Statement

Good Practice Statement 1

Before commencing a multidomain intervention in people living with MCI, conduct a comprehensive assessment to identify and manage relevant medical conditions that may limit participation or require caution or adaptation. Interventions should be tailored to the individual and appropriately supervised to ensure safety and maximise engagement.

Rationale

This statement reflects standard principles of safe and person-centred care, ensuring that multidomain interventions are appropriately tailored and do not inadvertently cause harm or reduce participation.

7.2 Multi-domain interventions in people who are cognitively healthy or are cognitively healthy and at risk of dementia

Conditional recommendation against , Moderate certainty evidence

Recommendation 2

For people who are cognitively healthy or are cognitively healthy and at risk of dementia, the use of multi-domain interventions is not routinely recommended solely for the purpose of reducing the risk of dementia.

Remarks

In the evidence reviewed, multidomain interventions involved at least three components, such as physical activity, dietary modification, cognitive training or stimulation, and management of cardiometabolic risk factors, delivered through education or coaching to support behaviour change. Additional components may be included based on an individual's needs, preferences and risk profile.

There are limitations in the available evidence for multidomain interventions including short follow-up periods and the lack of information about some outcomes (such as change in dementia risk score).

It remains important to consider management of modifiable conditions that are associated with an increased risk of dementia such as cardiovascular and metabolic factors using established strategies, in alignment with the health needs, goals and preferences of the individual.

Practical info

Multidomain interventions to reduce dementia risk are heterogeneous and some components may not be suitable or acceptable for all individuals. If considering such interventions in cognitively healthy individuals, use shared decision making to determine personalised goals, discuss potential benefits, limitations, costs and practical considerations, and align intervention choices with the individual's preferences and circumstances.

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Evidence to decision

Benefits and harms

Small net benefit, or little difference between alternatives

Research evidence

Desirable effects (benefits):

Multidomain interventions compared to usual care, no intervention or low intensity intervention has little to no (trivial) effect on:

- Short term incidence of dementia (mean follow-up: 5.76 years) [critical outcome]
- Global cognitive function (assessed using composite score) [critical outcome]
- Global cognitive function (assessed using screening tool such as MMSE) [critical outcome]
- Memory [critical outcome]
- Executive function [critical outcome]
- Processing speed [critical outcome]
- Attention [critical outcome]
- Language/verbal fluency [critical outcome]

No data were available on:

- Long-term incidence of dementia (10-15 years) [critical outcome]
- Longer term follow-up of other outcomes (10-15 years)

The following outcomes were not considered in the source (WHO) evidence review

- Functional ability and participation - overall [important outcome]
- Functional ability - physical - specific [important outcome]
- Health-related quality of life [important outcome]

Our interpretation was based on a threshold for a small but important effect of 0.16-0.49 SMD and a moderate/large effect of >=0.50 SMD.

For binary outcomes (i.e., incident dementia) the threshold was: 10 per 1000 → benefit or harm; below that no meaningful effect.

Undesirable effects (harms)

None of the studies that reported on the safety aspect of the intervention (32/44) found any serious adverse event in relation to the intervention. The adverse events reported in relation to the intervention were infrequent and typically mild such as transient exercise- related musculoskeletal pain.

Summary

Balance of effects: Guideline Development Group judgement and discussion

To determine the balance of effects, the Guideline Development Group first considered the following domains:

- Size of desirable anticipated effects (benefits) – **trivial**
- Size of undesirable anticipated effects (harms) – **trivial**
- Overall certainty of the evidence for critical outcomes – **moderate**
- Variability (or uncertainty) in how people value the main outcomes – **possibly important uncertainty or variability**.

Based on these considerations, the Guideline Development Group judged that the balance of effects **probably favours no multidomain intervention**.

During the initial voting, responses were split, with some favouring no intervention, some favouring the intervention, and others selecting "don't know." This distribution was considered to reflect the ongoing uncertainty and the influence of broader discussions regarding dementia risk reduction.

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A key issue raised was the relevance of dementia risk scores as an outcome in cognitively health populations. While these were acknowledged as important in the field, they were not included as critical outcomes in the evidence review. The methodologist clarified that, within the guideline framework, such measures are generally considered surrogate outcomes, and the balance of effects should be based on the outcomes assessed in the review.

Several Group members noted that the evidence demonstrated no meaningful benefit across any critical outcomes, including cognition and incident dementia over the available follow-up period. While multidomain interventions may offer broader health benefits, these were outside the scope of the outcomes considered.

Members who selected "don't know" cited limitations in the evidence, including relatively short follow-up periods and uncertainty about long-term effects. The methodologist clarified that, in the absence of demonstrated benefit, it is generally more informative to indicate whether the balance favours the intervention or comparator rather than selecting "don't know", particularly when considering potential burden and opportunity costs.

Following discussion, a second round of voting was conducted. In this round, the majority of the members voted in favour of no intervention.

Desirable effects (benefits): Guideline Development Group judgement and discussion

The Guideline Development Group judged that multidomain interventions result in **trivial** desirable anticipated effects in adults with normal cognition.

Prior to presentation of the evidence, a question was raised regarding whether global cognitive function measured using composite scores should be prioritised as a critical outcome. This reflected similar discussions in the previous population and was raised to avoid ambiguity during voting.

It was noted that participants in this population had normal cognitive function at baseline, and measurable changes in cognition over the relatively short follow-up periods of the included trials would be unlikely. Furthermore, any observed improvements in cognitive test performance may reflect practice or training effects, rather than meaningful changes in underlying cognitive function.

Some Group members suggested that incident dementia may represent a more clinically meaningful outcome in this population; however, this was not further explored prior to voting.

Following presentation of the evidence, majority of the Group members rated the desirable effects as trivial.

During discussion, it was noted that dementia risk reduction trials in cognitively healthy populations focus on changes in dementia risk scores (e.g., ANU-ADRI) rather than cognitive outcomes. The Group acknowledged that the current question, which focused on cognitive outcomes, differs from common practice in the field, and that this distinction should be clearly explained in the final guideline.

It was also noted that the absence of measurable cognitive benefit may reflect the short duration of follow-up relative to the long preclinical phase of dementia. However, the Group was reminded that judgments should be based on the outcomes included in the evidence review, which had been selected through a formal prioritization process.

Undesirable effects (harms): Guideline Development Group judgement and discussion

The Guideline Development Group judged that multidomain interventions result in **trivial** undesirable anticipated effects.

Across the included studies, no serious adverse events related to the intervention were reported. Reported adverse events were infrequent and typically mild. The Group unanimously rated undesirable effects as trivial, and no additional discussion was required.

Certainty of the evidence

Moderate

Research evidence

The overall certainty of the body of evidence was determined based on the lowest certainty rating across all critical outcomes.

High certainty

- Short term incidence of dementia
- Memory
- Executive function
- Processing speed
- Attention
- Language/verbal fluency

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Moderate certainty

- Global cognition (composite score)
- Global cognition (screening tools)

No studies reported on the long-term incidence of dementia (10-15 years) or longer-term follow-up of other outcomes over a similar timeframe.

In addition, the outcome functional ability and participation (overall), which was considered important, was not included in the WHO evidence review.

Summary

The overall certainty of the evidence for this question was judged to be **moderate**.

Values and preferences

Substantial variability is expected or uncertain

Research evidence

No studies were identified that directly assessed outcome priorities for dementia risk reduction interventions specifically in cognitively health populations. Available evidence is therefore drawn from studies including people across the Alzheimer's spectrum, including individuals at risk, those with mild cognitive impairment, and healthy volunteers.

Two qualitative studies conducted in the UK and the US *(1235) (395)* explored outcomes that matter to people with, or at risk of, Alzheimer's dementia, as well as to healthy volunteers and health and social care professionals.

One study identified five broad domains that were important to individuals in everyday life *(1235)*:

- Everyday functioning (Activities of Daily Living)

- Relationships and social connections
- enjoyment of life, including hobbies and meaningful activities
- Maintaining sense of Identity
- alleviation of symptoms, including memory and behavioural changes

Across groups, maintaining everyday functioning and the ability to continue engaging in meaningful activities were consistently valued. Relationships, social connections and maintaining a sense of identity were more strongly emphasised by people with existing cognitive concerns and health and social care professionals *(1235)*. Behavioural changes were identified as particularly important by people with memory problems, whereas improvement in memory alone was not prioritised by health and social care professionals.

A second study examining *(395)* treatment-related outcomes across the Alzheimer's spectrum found that individuals at risk of AD most commonly prioritised outcomes related to:

- Improvement/restoration of memory (58.3%-75%)
- Stopping AD progression (50%-66.7%)
- Slowing AD progression (33.3%-50%)
- Improvement in the ability to function and perform activities of daily living (33.3%)
- Improvement in short-term memory (25%).

Dementia has also been identified as the second most feared condition among Australian health service consumers and the most feared condition among those aged 65 years and older *(1236)*. This indicates that many individuals may place high value on interventions that could reduce dementia risk, even in the absence of clear short-term benefits. However, for cognitively healthy populations, there may be greater uncertainty in how outcomes are valued, particularly given the long-time horizon of dementia risk reduction and the indirect relationship between short-term outcomes (e.g., cognition) and long-term outcomes (e.g., incident dementia).

Considerations for Aboriginal and Torres Strait Islander peoples

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For Aboriginal and Torres Strait Islander peoples, health and wellbeing are closely connected to Country, cultural expression, self-determination, knowledge systems, family, and kinship *(126)*. These factors influence how health interventions are understood and valued.

Awareness of dementia risk factors may be variable, and some individuals may view dementia as a natural part of ageing rather than a condition that can be modified *(245) (94)*. These perspectives may influence how the outcomes of risk reduction interventions are perceived and valued.

Considerations for people from culturally and linguistically diverse (CALD) backgrounds

For people from culturally and linguistically diverse (CALD) backgrounds, language barriers, stigma, and limited awareness of dementia may contribute to uncertainty in how the benefits of risk reduction interventions are understood and valued *(899)*.

Considerations for LGBTQIA+ people

No direct evidence was identified regarding the values and preferences of LGBTQIA+ people in relation to outcomes for risk reduction of dementia.

Considerations for people living outside major cities

People living outside major cities may have reduced access to dementia education and prevention services, although an increasing number of web-based information and interventions are being developed to address this. Health priorities in these settings may be influenced by accessibility, perceived effectiveness, and observable impact of interventions *(1272)*.

Additional considerations

Input from the Living/Lived Experience Advisory Group

The Living/Lived Experienced Advisory Group provided important perspectives on how dementia risk and risk reduction are understood and valued:

- Members emphasised that while certain factors are associated with increased dementia risk, not all individuals with these risk factors develop dementia, and some individuals who lead healthy lifestyles still go on to develop dementia. It was noted that messaging around "modifiable risk factors" may be perceived as blaming individuals living with dementia and should therefore be communicated carefully.
- Functional ability was identified as a highly important outcome, alongside cognition.

- Members emphasised that, at an individual level, quality of life may be prioritised over participation in risk reduction interventions.
- Nutrition was highlighted as an important factor by several members, with questions raised about its inclusion within risk reduction frameworks. Childhood trauma was also raised as a potentially relevant factor warranting further consideration.
- Environmental factors, such as air pollution, were noted to affect individuals across the life course, and may be challenging to modify. Members questioned why air pollution was listed as a risk factor later in life.
- One member highlighted the personal benefit of adaptations for hearing loss, reinforcing the value of addressing modifiable risk factors where feasible.

Summary

Key points

- No direct evidence was identified on outcome prioritise for dementia risk reduction in cognitively health populations
- Available evidence suggests that people values outcomes related to maintaining independence, relationships, identity and quality of life *(1235)*.
- There may be variability in how individuals value outcomes, particularly given the long-time horizon and uncertainty of dementia prevention
- Perspective on risk reduction and their outcomes may be influenced by cultural, social, and personal factors, including concerns about stigma and perceived responsibility *(245) (94) (899)*.

Guideline Development Group judgement and discussion

The Guideline Development Group judged that there is **possibly important uncertainty or variability** in how people value the outcomes of multidomain interventions in cognitively health populations. No additional discussion was undertaken for this EtD criterion.

Resources

Important issues, or potential issues not investigated

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Research evidence

General considerations

Evidence from multidomain dementia risk reduction trials indicates that these interventions require a multidisciplinary team, including nurses, physicians, physiotherapists, exercise physiologists, dietitians, and psychologists, to support design and delivery *(854)*. Staff may require additional training to ensure interventions are delivered consistently and in accordance with established protocols *(1176)*.

Implementation also requires supporting infrastructure, including digital platforms, participant devices (e.g., computers or mobile phones), and exercise equipment. In addition, participants are required to commit a substantial amount of time to intervention components such as physical activity, cognitive training, and cardiovascular health monitoring *(854)*.

Overall, these interventions involve moderate resource requirements, including workforce, infrastructure, and participant time investment.

Considerations for Aboriginal and Torres Strait Islander peoples

Culturally safe programs targeting modifiable risk factors are important for reducing dementia burden among Aboriginal and Torres Strait Islander peoples *(687)*. Key resource considerations include culturally appropriate delivery, leadership and ownership by Aboriginal and Torres Strait Islander communities (including researchers), access to appropriate facilities and equipment, delivery in culturally safe environments, and provision of practical supports such as transport.

Considerations for people from culturally and linguistically diverse backgrounds

Additional resources may be required to support implementation in CALD communities, including the use of interpreters, bicultural workers, culturally adapted materials, and delivery in familiar and trusted community settings *(899)*. Audio-visual resources and flexible delivery approaches may also be needed to support accessibility.

Considerations for LGBTQIA+ people

No evidence was identified regarding the specific resource implications for LGBTQIA+ populations. Resource needs are likely to relate to ensuring inclusive and culturally safe services.

Considerations for people with disability

People with disability may require additional resources, including support workers, adaptive equipment, accessible environments, and flexible delivery models tailored to individual needs.

Considerations for people living outside major cities

In regional, rural, and remote areas, there may be limited access to multidisciplinary services, facilities, and infrastructure, which may affect implementation. Remoteness may also limit opportunities for group-based activities and social engagement.

Resource requirements	
Resource	Description
Staff	Multidisciplinary workforce, e.g., nurses, physicians, physiotherapists, exercise physiologists, dietitians, psychologists, and pharmacists
Training	Training to support standardised and protocol-based delivery
Equipment and infrastructure	• IT infrastructure (e.g., a website or digital platforms) for web-based interventions and for cognitive training • Participant devices (e.g., computers, smartphones) • Exercise equipment (e.g., resistance bands, weights, exercise machines, balance equipment) • Access to suitable spaces for physical activity (e.g., gyms, walking areas)
Time	Significant time investment may be required for exercise and cognitive training. For example, in the FINGER trial: • Resistance training: 30–45 minutes, 1–2 times per week, increasing to 60 minutes, 2–3 times per week over a two-year period. Aerobic exercise: 30–45 minutes, twice per week, increasing to 45–60 minutes, 3–5 times per week. • Cognitive training: Ten group sessions led by a psychologist (approximately 60–90 minutes per session) plus two independent training periods of 6 months each, during which participants train three times per week for 10–15 minutes per session (72 sessions per period). • Nutritional intervention: individual counselling sessions (3 meetings during first yet) and group sessions (6 times during first year, 1-3 times during second year). • Management of vascular and metabolic risk factors: nurse visits every 3 months during first year, every 6 months during second year. Physicians review every 6 months. • Medication review: Physician review prompted when adjustments considered necessary.
Supervision and monitoring	Interventions need to be monitored regularly to ensure compliance with protocols, progression (e.g., in the case of exercises) and adverse events monitoring.

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Cost Effectiveness

Research Evidence

Available economic evaluations suggest that some multidomain dementia risk reduction interventions may be cost-effective, although these findings should be interpreted in light of the broader evidence base.

Australian studies have reported favourable cost-effectiveness findings for multidomain interventions. In the Maintain Your Brain (MYB) trial *(1247)*, conducted in Australians aged 55 to 77 years with at least 2 modifiable risk factors for cognitive decline or dementia, the intervention was found to be cost-effective over a 3-year time horizon from a healthcare sector perspective. The base-case incremental cost-effectiveness ratio (ICERs) were AUD $2,568 per one standard deviation improvement in global cognition composite z-score, and AUD $823 per one-point reduction in the Australian National University-Alzheimer's Disease Risk Index –short form (ANU-ADRI-SF) score *(1247)*. Overall healthcare costs did not differ significantly between the intervention and control groups *(1247)*.

Long-term modelling of Australian multidomain interventions has also suggested potential cost-effectiveness from a societal perspective. Using projected changes in dementia risk and lifetime dementia costs, and a willingness-to-pay threshold of $50,000 per QALY, the Body-Brain-Life in General Practice (BBL-GP) program *(797)* was estimated to be highly likely to be cost-effective over a lifetime horizon, provided intervention effects were at least partly sustained over time.

International studies have reported similar findings. Modelling of the Finnish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability (FINGER) program *(1264)* suggested that, compared with usual care, the intervention could generate both cost savings (approximately 16,928 Swedish Krona or ≈AUD 2,740.64) and modest QALY gains (0.043 per person), while preventing up to 1,623 dementia cases over a 30-year simulation period (based on an initial simulated cohort of 100,000 people).

In Germany, the AgeWell.de trial *(229)* reported an ICER of €17,149.23 (≈AUD 27,799.0) per QALY from a societal perspective, which was below the willingness-to-pay threshold of €50, 000 (≈AUD 81,050) *(229)*. In France, the Multidomain Alzheimer Preventive Trial (MAPT) *(349)* reported ICERs below a €50,000 (≈AUD 68, 512) threshold per improvement in cognitive z-score, suggesting a high probability of cost-effectiveness from a payer perspective.

Overall, these studies suggest that multidomain interventions may be cost-effective in some trial and modelling contexts. However, these findings are based on individual trials and modelled assumptions, including assumptions about sustained benefit over time.

Additional considerations

Input from the Living/Lived Experience Advisory Group

The Living/Lived Experience Advisory Group highlighted several important resource-related considerations:

- **Equity of access**: Availability of resources varies substantially by location, and inequities in access across Australia were emphasised.
- **Financial and time burden**: Participation may involve costs related to travel, program fees, and time commitment.
- **Need for additional support**: Individuals requiring assistance (e.g., support workers or tailored programs) may face increased costs and complexity
- **Health literacy and system navigation**: Limited awareness of available services and difficulty navigating systems may reduce access to otherwise available resources.
- **Competing personal resources**: Individuals may need to balance physical, mental, and financial resources, including managing fatigue and energy levels, which may affect their ability to engage in interventions.

Summary

Key points

- Multidomain interventions require moderate resources, including multidisciplinary teams, infrastructure, and participant time *(854)*.
- Additional resources are needed to support equitable and culturally appropriate implementation *(899) (687)*.
- multidomain interventions may be cost-effective in some trial and modelling contexts *(1247) (797) (1264) (229) (349)*.
- Access to resources may be uneven across populations and regions
- Individuals may face financial, time, and psychosocial barriers to participation

Guideline Development Group judgement and discussion about resources

The Guideline Development Group judged that the resources required for multidomain interventions represent a **moderate cost**.

It was noted that although these interventions involve upfront costs, many components (e.g., allied health services) are comparable to, or less costly than, other widely accepted healthcare interventions.

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Guideline Development Group judgement and discussion about cost-effectiveness

The Guideline Development Group judged that cost-effectiveness **does not favour either the intervention or the comparator**.

Before voting, Group members sought clarification regarding the apparent inconsistency between the economic evaluations, which suggested cost-effectiveness in some trials, and the broader evidence review, which did not demonstrate meaningful benefit across the pooled evidence for this population. It was clarified that the cost-effectiveness analyses were based on individual trials in which some benefit had been observed, and that these analyses therefore reflected the outcomes of those specific studies rather than the overall pooled effect across all trials.

Some members questioned whether it was appropriate to include the cost-effectiveness criterion when the intervention had already been judged unlikely to produce meaningful benefit based on the overall effectiveness evidence. The methodologist noted that this created a degree of uncertainty, and that while a “don’t know” response may have been conceptually appropriate, this option was not available for this criterion. A neutral response, indicating that cost-effectiveness favoured neither the intervention nor the comparator, was therefore considered the most appropriate option.

It was also clarified that the apparent discrepancy did not arise because the economic evaluations had used different outcomes from those considered in the review. Rather, the issue reflected the fact that some individual trials reported positive findings, whereas the pooled meta-analysis across all trials did not demonstrate an overall effect.

Following discussion, majority of members voted that cost-effectiveness favours neither the intervention nor the comparator.

Equity

Important issues, or potential issues not investigated

Research evidence

General considerations

No studies were identified that directly assessed the impact of multidomain dementia risk reduction interventions on health equity in cognitively healthy populations. However, a substantial body of evidence indicates that both engagement in risk reduction behaviours and dementia risk itself are socially patterned.

Australian data suggest that awareness of dementia risk reduction is limited. In a national survey, only ~30% of participants reported feeling adequately informed about dementia risk reduction *(1262)*. Common barriers included low motivation, financial constraints, and lack of time, with women more likely to report financial and motivational barriers than men, and younger adults more likely to report time constraints.

Evidence from the Maintain Your Brain (MYB) trial demonstrates that participation in multidomain risk reduction programs is more likely among individuals with higher education, higher household income, residence in less disadvantaged or urban areas *(1246)*. Barriers to participation included caregiving responsibilities, speaking a language other than English at home, physical limitations, and lower self-reported quality of life.

International evidence similarly highlights structural barriers to engagement, including low socioeconomic status, cultural beliefs, and low awareness *(942)*. Importantly, dementia risk is not evenly distributed, with consistent evidence showing that lower socioeconomic status is associated with higher risk of cognitive impairment and dementia *(262) (713) (1006) (1222) (452) (660) (898) (1071)*.

Taken together, these findings suggest that without targeted approaches, multidomain interventions may be more accessible to advantaged populations, with the potential to reinforce or widen existing health inequities *(662) (1073) (1218)*.

Considerations for Aboriginal and Torres Strait Islander peoples

Cultural beliefs about changes in memory, thinking, or behaviour may influence how dementia is understood, with some individuals viewing these changes as part of normal ageing rather than a medical or health condition *(225)*.

Population attributable fractions (PAF) estimates suggest that there is substantial potential for dementia risk reduction among Aboriginal and Torres Strait Islander peoples *(1118)*. However, prevention strategies must be developed in partnership with communities and delivered in culturally appropriate ways, including through community-led and culturally safe models of care *(687) (463) (1134) (856)*.

Considerations for people from culturally and linguistically diverse (CALD) backgrounds

One third of Australians that may develop dementia in the future may be from a CALD background *(159) (137)*, yet they remain underrepresented in research *(137) (746)*. For example, participants in the Maintain Your Brain (MYB) trial were more highly educated and more likely to be from an English-speaking background compared to the Australian general population *(1246)*.

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Barriers to engagement may include language, stigma, cultural beliefs (e.g., dementia as a normal part of aging, or as a mental illness), and lack of culturally appropriate services *(1072)*. Several other factors, including the lack of culturally sensitive clinical evaluation tools, insufficient understanding of modifiable risk factors specific to different CALD communities, and limited culturally appropriate approaches for addressing modifiable dementia risk factors, such as diet, education, and physical activity, may also contribute to reduced access to and uptake of dementia risk reduction interventions in CALD communities *(899) (137) (746)*.

Considerations for LGBTQIA+ people

No direct evidence was identified regarding the impact of multidomain interventions on equity for LGBTQIA+ people.

However, some LGBTQIA+ populations may experience higher prevalence of modifiable dementia risk factors, including cardiovascular disease, depression, smoking, alcohol use, HIV and social isolation. Experiences of stigma, discrimination, and trauma may also influence engagement with health services. Risk reduction programs should there by inclusive, culturally safe, and responsive to the needs and experiences of LGBTQIA+ communities *(480) (996)*.

Considerations for people with disability

People with disability may face barriers related to physical accessibility, caregiving responsibilities, and health status, which may limit participation in multidomain interventions *(1246)*.

Considerations for people living outside major cities

People living in regional, rural, and remote areas may face additional barriers to accessing services including travel costs, limited availability of specialist services, and fewer opportunities to participate in structured interventions.

Additional considerations

Input from the Living/Lived Experience Advisory Group

The Living/Lived Experience Advisory Group highlighted several equity-related concerns:

- Fear of discrimination may deter some individuals from accessing services.
- Current ('usual care') systems were perceived as inequitable, and there was concern that multidomain interventions could further widen inequities if not implemented carefully.

Significant gaps were identified for several groups including:

- Aboriginal and Torres Strait Islander peoples
- People from CALD backgrounds
- LGBTQIA+ individuals, including experiences of stigma and lack of affirming care. One Living/Lived Experience Advisory Group member shared an example of a person who asked for a prescription for hormones, received a lecture from the GP about what hormones can do to their health, and total rejection of the person's identity.
- People with younger onset dementia and their families
- People living in regional, rural or remote regions
- Structural limitations in service availability, particularly outside major cities, may limit access even to usual care, let alone more intensive multi-domain interventions.

Summary

Key points

- No direct evidence was identified on the impact of multidomain interventions on health equity
- Engagement in dementia risk reduction is influenced by socioeconomic, cultural, and structural factors *(1262) (942) (1246)*.
- Dementia risk is unevenly distributed, with higher risk among disadvantaged populations *(262) (713) (1006) (1222) (452) (660) (898) (1071)*.
- Multidomain interventions may be more accessible to advantaged groups, with potential to widen inequities if not carefully implemented *(662)*.
- Equitable approaches require addressing structural barriers, not just individual behaviour change *(662) (1073) (1218)*.

Guideline Development Group judgement and discussion

The Guideline Development group noted a range of views regarding the impact of multidomain interventions on equity. Voting responses were distributed across categories (reduced equity, not impacted, and varies), reflecting uncertainty and differing interpretations of the available evidence. It was agreed that, given the absence of direct evidence and the competing considerations identified, the most appropriate judgment was that the impact on equity **varies**.

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Acceptability

No important issues with the recommended alternative

Research evidence

General considerations

Evidence from Australian and international studies suggest that multidomain interventions for dementia risk reduction are generally acceptable, although participation and completion rates vary.

Australian studies provide mixed but overall positive signals. In the Brain Boot Camp program, a baseline survey of community-dwelling older adults (>65 years) demonstrated a high level of motivation to adopt lifestyle and health behaviour changes to reduce dementia risk *(1071)*. A subsequent mixed-methods evaluation of the 3-month program reported high satisfaction among participants who completed the intervention, with most participants indicating that the resources provided were appropriate (62%), the personalised brain health profile was useful (72%), and they were committed to maintaining behaviour change (92%) *(1070)*. However, completion rates were less than 50%, suggesting potential challenges with sustained engagement.

Qualitative research among middle-aged Australians (47–65 years) with a family history of dementia found mixed attitudes towards multidomain dementia risk reduction strategies *(401)*. Participants emphasised that interventions are more acceptable when they are personalised, holistic, and structured around small, achievable changes.

International studies similarly report high acceptability. A community-adapted, 12-month multidomain intervention in Japan reported strong engagement, with ~77% of participants attending at least 60% of sessions, and a mean acceptability score of 4.4 out of 5 *(678)*. The Brain Wellness Information, Support, and Empowerment (Brain-WISE) program in the United States of America (USA) *(337)*, a short-term, group-based 'boot camp' intervention delivered over six weeks, also demonstrated high acceptability with 96% of participants reporting the program as worthwhile and sessions ratings consistently >4 out of 5.

In contrast, some evidence suggests more neutral or mixed views among healthcare professionals. The German AgeWell.de trial, general practitioners reported neutral expectations regarding the overall effectiveness of multidomain interventions, although they expressed greater confidence in the benefits of individual risk factor modification *(639)*.

Overall, these findings suggest that while multidomain interventions are generally acceptable, particularly among participants who engage with and complete programs, acceptability may be influenced by factors such as personalisation, perceived relevance, and burden of participation.

Considerations for Aboriginal and Torres Strait Islander peoples

Acceptability is closely linked to cultural safety and trauma-informed approaches *(735)*. Risk reduction messaging should be delivered using a strengths-based approach, recognising that many Aboriginal and Torres Strait Islander peoples experience multiple dementia risk factors across the life course *(226)*. Interventions are more likely to be acceptable when developed and delivered in partnership with communities and aligned with cultural values and practices.

Considerations for people from culturally and linguistically diverse backgrounds

For people from CALD backgrounds, interventions may be more acceptable when they are culturally tailored, flexible, and socially supported, and when they incorporate clear education and feedback *(729)*.

Dietary recommendations may require adaptation to align with cultural practices and norms. For example, while elements of the Mediterranean diet may not be directly transferable, incorporating relevant components (e.g., increased used of healthy oils or vegetables) within existing cultural dietary patterns may improve acceptability. For Chinese and Vietnamese cultures, traditional diets incorporate plenty of fruits and vegetables with minimal meat. However, these diets also tend to be high in rice (carbohydrates) and salt. The social aspects and vegetable consumption of the Mediterranean diet are similar to the Southeast Asian diet.

Considerations for LGBTQIA+ people

No direct evidence was identified regarding acceptability in LGBTQIA+ populations. However, acceptability is likely to be influenced by the extent to which interventions are inclusive, affirming, and sensitive to experiences of stigma, discrimination, and diverse identities.

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Considerations for people with disability

Acceptability may be enhanced when interventions are personalised, flexible, accessible, low-burden, and when they accommodate diverse functional needs of people with disability. Providing meaningful choice and appropriate support may further improve engagement.

Considerations for people who live outside major cities

For people who live in regional, rural, and remote areas, interventions may be more acceptable when they are accessible (including digitally), locally relevant, and supported by community engagement.

Additional considerations

Input from the Living/Lived Experience Advisory Group

The Living/Lived Experience Advisory Group noted that multi-domain interventions were generally acceptable to people living with dementia and their carers, particularly as they are perceived as low-risk and unlikely to cause harm. However, concerns were raised regarding the limited evidence for effectiveness, and the importance of ensuring that interventions do not create unrealistic expectations. One Living/Lived Experience Advisory Group member emphasised that irrespective of the strength of evidence, and cost of intervention, provide access to such interventions may be important from the perspective of dignity, autonomy, and supporting individuals to take action for their health.

Summary

Key points

- Multidomain interventions are generally acceptable, particularly among participants who complete programs *(1070) (678) (337)*.
- Completion and engagement may vary, indicating potential burden or feasibility changes *(337) (678) (1070)*.
- Acceptability is enhanced by personalisation, cultural relevance, flexibility, and perceived usefulness *(735) (226) (729)*.
- Healthcare professionals may express more cautious or neutral views, particularly regarding overall effectiveness *(639)*.
- Acceptability may vary across populations depending on cultural, social, and contextual factors.

Guideline Development Group judgement and discussion

The Guideline Development Group judged that multidomain interventions in adults with normal cognition are **probably acceptable**. There was no additional panel discussion for this EtD criterion.

Feasibility

No important issues with the recommended alternative

Research evidence

General considerations

Evidence from Australian and international studies indicates that multidomain interventions for dementia risk reduction are feasible in cognitively health populations, although sustained engagement varies across intervention types and durations.

The Maintain Your Brain (MYB) trial, the largest multidomain risk reduction study conducted in Australia to date, demonstrated that a fully online, 3-year intervention can be implemented at scale in cognitively healthy adults at risk of dementia *(236)*. However, formal feasibility outcomes were not reported, and indicators of sustained engagement were modest. Retention of primary outcome data was 47% in the intervention group, and engagement with intervention components was highly variable, with approximately one-third of participants completing little or none of the prescribed activities. Although formal withdrawal was relatively low (i.e., 6%), these findings suggest that while large-scale digital interventions are deliverable, maintaining engagement over extended periods is challenging, and may limit real-world effectiveness.

Shorter-duration Australian studies show similar patterns. The Brain Bootcamp program, conducted over 3-months, demonstrated lower retention (~42%), despite high rates of goal attainment among participants who completed the program (e.g., ~92% reported achieving at least one goal; 27% achieved two goals) *(1070)*. This suggests that feasibility may be influenced by participant burden and the level of support provided.

International studies are consistent with these findings. Large, longer-duration trials such as FINGER and MAPT reported moderate adherence (39%-51%), with adherence declining as intervention complexity and intensity increased *(342)*. In contrast, the US POINTER trial demonstrated that high adherence and retention can be achieved in large-scale multidomain interventions, with approximately 89% of participants completing the final 2-year assessment, and adherence remaining high throughout the intervention period *(172)*. However, this trial incorporated substantial structure, support, and accountability, including regular facilitated sessions and clinician involvement, which likely contributed to sustained engagement. Shorter and less intensive interventions, such as the Brain-WISE program (USA), PRIMA-Brain (Netherlands), and community-based programs in Japan, also reported higher retention and engagement (typically 75%-95%), supporting the feasibility of more streamlined or supported approaches *(678) (337) (1175)*. Together, these findings suggest that sustained adherence is achievable, but typically requires greater intensity, structure, and resource investment.

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Considerations for Aboriginal and Torres Strait Islander peoples

Existing primary care mechanisms, such as Medicare item 715 (annual health assessments) *(135)*, may provide potential entry points for integrating dementia risk reduction into routine care. Feasibility will depend on culturally appropriate implementation and alignment with community-controlled health services.

Considerations for people from culturally and linguistically diverse backgrounds

No direct evidence was identified. Feasibility is likely to be influenced by language, cultural relevance, and accessibility of services.

Considerations for LGBTQIA+ people

No direct evidence was identified. Feasibility may depend on the availability of inclusive and culturally safe services.

Considerations for people living with disability

No direct evidence was identified. Feasibility may be influenced by accessibility, need for support, and flexibility of delivery models.

Considerations for people living outside major cities

Feasibility may be reduced in regional, rural, and remote areas due to limited access to services, workforce constraints, and infrastructure gaps.

Additional considerations

Input from external interest holder organisations Feasibility Survey

Stakeholder feedback highlighted several system-level factors that may influence feasibility. Fragmentation across healthcare roles and funding structures may limit multidisciplinary collaboration and coordinated care. Variability in access to services across regions, particularly in rural and remote areas, was identified as a significant barrier.

Variability in access to healthcare services across and within states was also highlighted, with stakeholders describing a 'postcode lottery' that affects whether individuals can access appropriate service needs. These challenges are particularly pronounced in rural and remote communities. A 'no wrong access' approach was recommended to improve system navigation, ensuring that individuals can enter the healthcare system through multiple pathways and still be directed to appropriate services. This would require greater system-wide awareness of care pathways, alongside strengthening primary care education on dementia risk factors and prevention, and improving public awareness of the timeframes in which prevention is most effective.

Flexible funding models were identified as critical to support multidisciplinary, multidomain approaches across primary care, public health, aged care, and allied health settings. Education and awareness efforts should prioritise key referrers, including General Practitioners, geriatricians, and cognitive assessment services, to ensure understanding of evidence-based approaches. While some intervention components require specialised training and expertise, many fall within generalist practice and could be more broadly implemented across the healthcare workforce to improve consistency, reach, and sustainability.

Summary

Key points

- Multidomain interventions are generally feasible in cognitively health populations *(172) (236) (342)*.
- Long-term and complex interventions show variable engagement and adherence *(236) (342)*.
- Shorter, simpler, or more supported interventions demonstrate higher feasibility *(172) (678) (337) (1175)*.
- Feasibility is influenced by intervention design, delivery model, and system-level factors *(172) (678) (337) (342)*.
- Implementation may be more challenging in underserved populations and regions

Guideline Development Group judgement and discussion

The Guideline Development Group judged that multidomain interventions in adults with normal cognition are **probably feasible**. There was no additional discussion for this EtD criterion.

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Rationale

The Guideline Development Group judged that:

- Multidomain interventions resulted in trivial desirable effects and trivial undesirable effects, with moderate certainty evidence, for cognitively healthy people. The Group noted that measurable changes in cognition would be unlikely over the relatively short follow-up periods of the trials, and the potential importance of considering change in dementia risk scores as a future relevant outcome in a cognitively healthy population.
- There was possibly important variability in how much cognitively healthy people value the desirable and undesirable effects, and the balance of effects probably favoured the comparison (to not use multidomain interventions).
- Multidomain interventions were associated with moderate resource requirements, and their impact on equity was considered to be uncertain, with the potential to either increase or reduce equity depending on implementation settings.
- Multidomain interventions were probably acceptable and feasible in cognitively healthy people.

Considering all judgments together, and acknowledging the limitations in the available evidence, the Group agreed on a conditional recommendation against multidomain intervention in this population. The Group recognised that this is a rapidly evolving area and will be impacted by emerging Australian-based research.

Clinical question/ PICO

Population: adults with normal cognition
Intervention: multidomain interventions (addressing three or more risk factors)
Comparator: usual care

Outcome Timeframe	**Study results and measurements**	**Comparator** usual care	**Intervention** multidomain interventions (addressing three or more risk factor	**Certainty of the evidence** (Quality of evidence)	**Summary**
global cognitive function 9 Critical	Measured by: validated neuropsychological tests combined in a pre-defined composite score Based on data from 12,373 participants in 14 studies. (Randomized controlled) Follow up: 2.54 years (mean).	Difference:	**SMD 0.08 higher** (CI 95% 0.03 higher — 0.14 higher)	**Moderate** Due to serious inconsistency [1]	Multidomain interventions aimed Cognitively healthy adults or cognitively healthy adults at increased risk of dementia/cognitive impairment likely have little or no effect on global cognition measured with composite score of validated neuropsychological test. (Threshold for a small effect: SMD 0.16)
global cognitive function 9 Critical	Measured by: screening tool such as MMSE, MoCA Based on data from 7,106 participants in 9 studies. (Randomized controlled) Follow up: 3.89 years (mean).	Difference:	**SMD 0.06 higher** (CI 95% 0.02 higher — 0.09 higher)	**Moderate** Due to serious publication bias [2]	Multidomain interventions aimed at Cognitively healthy adults or cognitively healthy adults at increased risk of dementia/cognitive impairment likely have little or no effect on global cognition measured with screening tools. (Threshold for a small effect: SMD 0.16)
Memory 9 Critical	Measured by: validated neuropsychological assessment, as single tests or combined in a pre-defined composite score Based on data from 15,731 participants in 14 studies. (Randomized controlled) Follow up: 3.32 years (mean).	Difference:	**SMD 0.04 higher** (CI 95% 0.01 higher — 0.08 higher)	**High**	Multidomain interventions aimed at Cognitively healthy adults or cognitively healthy adults at increased risk of dementia/cognitive impairment have little or no effect on memory. (Threshold for a small effect: SMD 0.16)
Executive function 9 Critical	Measured by: validated neuropsychological assessment, as single tests or combined in a pre-defined composite score Based on data from 11,906 participants in 10 studies. (Randomized controlled) Follow up: 2.6 years (mean).	Difference:	**SMD 0.04 higher** (CI 95% 0.02 higher — 0.06 higher)	**High**	Multidomain interventions aimed at Cognitively healthy adults or cognitively healthy adults at increased risk of dementia/cognitive impairment have little or no effect on executive function. (Threshold for a small effect: SMD 0.16)
Processing speed	Measured by: validated neuropsychological	Difference:	**SMD 0.04 higher** (CI 95% 0.01 higher	**High**	Multidomain interventions aimed at Cognitively

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Outcome Timeframe	**Study results and measurements**	**Comparator** usual care	**Intervention** multidomain interventions (addressing three or more risk factor	**Certainty of the evidence** (Quality of evidence)	**Summary**
9 Critical	assessment, as single tests or combined in a pre-defined composite score Based on data from 5,521 participants in 8 studies. (Randomized controlled) Follow up: 2.19 years (mean).		— 0.07 higher)		healthy adults or cognitively healthy adults at increased risk of dementia/cognitive impairment have little or no effect on processing speed. (Threshold for a small effect: SMD 0.16)
Attention 9 Critical	Measured by: validated neuropsychological tests Based on data from 6,916 participants in 6 studies. (Randomized controlled) Follow up: 2.83 years (mean).	Difference:	**SMD 0.04 higher** (CI 95% 0.01 lower — 0.1 higher)	**High**	Multidomain interventions aimed at Cognitively healthy adults or cognitively healthy adults at increased risk of dementia/cognitive impairment have little or no effect on attention. (Threshold for a small effect: SMD 0.16)
Language/verbal fluency 9 Critical	Measured by: validated neuropsychological tests Based on data from 2,248 participants in 6 studies. (Randomized controlled) Follow up: 2.47 years (mean).	Difference:	**SMD 0.01 higher** (CI 95% 0.06 lower — 0.08 higher)	**High**	Multidomain interventions aimed at Cognitively healthy adults or cognitively healthy adults at increased risk of dementia/cognitive impairment have little or no effect on language/ verbal fluency. (Threshold for a small effect: SMD 0.16)
Other outcomes- not considered in the WHO evidence review 6 Important	Based on data from participants in 0 studies.				The outcome functional ability and participation - overall, functional ability - physical - specific and health-related quality of life were not considered in the WHO evidence review.
Long-term incidence of dementia (10-15 years) 9 Critical	Based on data from participants in 0 studies.			**Very low**	No studies reported on incident dementia at 10-15 years follow-up
Longer term follow-up of other outcomes (10-15 years)	Based on data from participants in 0 studies.			**Very low**	No studies reported on other critical outcomes at longer term follow-up

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Outcome Timeframe	**Study results and measurements**	**Comparator** usual care	**Intervention** multidomain interventions (addressing three or more risk factor	**Certainty of the evidence** (Quality of evidence)	**Summary**
9 Critical					
Short-term incidence of dementia 9 Critical	Based on data from 3,652 participants in 2 studies. (Randomized controlled)	Relative effect: Log OR- 0.07 (-0.34-0.19) Absolute risk difference: 0.56 fewer per 1000 person-years (95%CI: 3.44 fewer - 2.31 more). This means that, if 1000 people were followed up for 1 year, the intervention would be associated with 0.56 fewer cases. When applied to the total sample size of 3,652 participants and a mean follow-up of 69.1 months (5.76 years) across the studies included in the metaanalysis, this corresponds to an estimated 12 fewer cases of dementia over the follow-up period.		**High**	Multidomain interventions aimed Cognitively healthy adults or cognitively healthy adults at increased risk of dementia/cognitive impairment have little or no effect on incident dementia. (Threshold for meaningful benefit or harm: 10 per 1000)

1. **Inconsistency: serious.** Although the CIs overlap in most studies, the effect estimates are variable: 7/14 (weight: 62.34%) showed little or no effect, 5/14 (weight: 26.91%) showed a small important effect, and 2/14 (weight: 10.74%) showed important (small) harm.. **Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.**
2. **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious. Publication bias: serious.** Eggers' test p ≤ 0.05.

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8. Diagnosis and therapies

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8.1 Blood-based biomarkers in the diagnostic workup of a person with suspected Alzheimer's Disease dementia

What are blood-based biomarkers for dementia?

Blood-based biomarkers (BBM) are measurable proteins in plasma that specifically reflect Alzheimer's Disease (AD) pathology in the brain such as amyloid-β deposition and tau-related neurofibrillary tangles, and also other non-specific processes in the brain such as neurodegeneration *(744)*.

The most studied BBMs for detecting AD pathology include phosphorylated tau isoforms (p-tau217, p-tau181, p-tau231), the amyloid-β42/40 ratio. They are correlated with established reference standards of Alzheimer's disease pathology such as Cerebrospinal Fluid assays (CSF), amyloid Positron Emission Tomography (PET), and neuropathology *(744)*.

Such BBMs may in the future be used to more easily and efficiently identify people who may benefit from emerging new Alzheimer's disease treatments, and help in prognostication, in different care settings*(744)*.

Blood-based biomarkers in Australia

In Australia, some commercial assays are technically available in limited facilities but not reimbursed through the Medicare Benefits Scheme (MBS). Research into BBM for dementia has advanced through longitudinal cohorts such as the Australian Imaging, Biomarkers and Lifestyle (AIBL) study, which demonstrated that plasma biomarker panels can distinguish between people with and without AD pathology*(407)*.

More recent research highlights the potential of individual biomarkers such as plasma Aβ42/40 ratio, p-tau181, p-tau217, glial fibrillary acidic protein (GFAP) and neurofilament light chain (NfL)*(298)*.

While these biomarkers show promise, their translation into clinical practice requires further validation in real-world settings and may be especially relevant in diverse and rural populations where access to specialist diagnostic tests such as PET scans is limited. To address this gap, the Australian Dementia Network (ADNeT) is currently conducting a primary care–based study to evaluate the feasibility and utility of BBM, aiming to inform their potential integration into routine diagnostic pathways*(23)*.

Target audience

This review is relevant for the diagnosis of dementia subtype (specifically ADD) in specialist settings. Therefore, the primary target audience includes medical specialists involved in the diagnostic evaluation of cognitive impairment and dementia. A specialist in this context is defined as a healthcare provider, typically, but not exclusively, in neurology, psychiatry, or geriatrics, who spends at least 25% of their clinical practice time caring for adults with cognitive impairment or dementia. Other health professionals and people living with dementia will benefit from these guidelines and are considered the secondary target audience. Other medical practitioners, healthcare professionals involved in the care of people living with dementia and people with living experience of dementia would also benefit as secondary target audiences.

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Key points:

- Most research in BBM has been for various forms of phosphorylated tau (p-tau) and beta-amyloid (Aβ) and studied their correlation with the presence of AD pathology in the brain measured either using brain PET scans or CSF*(744)*.
- As new treatments are becoming available for people diagnosed with dementia due to AD pathology, it is becoming important to have reliable, easy-to-perform and accessible tests that help exclude or confirm the presence of Alzheimer's disease pathology, so that appropriate management plans may be devised*(744)*.
- Such BBM tests may also be used to help select people for entry into Alzheimer's disease drug trials*(298)*.
- There are limited providers of such tests in Australia.

Question 3

Should blood-based biomarkers be used as a triaging test in the diagnostic process for people with cognitive impairment in a specialist setting?

Question 4

Should blood-based biomarkers be used as a confirmatory test in the diagnostic process for people with cognitive impairment in a specialist setting?

Conditional recommendation for , Low certainty evidence

Recommendation 3

Consider using a blood-based biomarker test with sensitivity ≥90% and specificity ≥75% as a triaging test to determine the presence or absence of Alzheimer's disease pathology in the brain during specialist diagnostic workup of individuals with mild cognitive impairment or dementia.

Recommendation 4

Consider using a blood-based biomarker test with sensitivity ≥90% and specificity ≥90% as a confirmatory test to determine the presence or absence of Alzheimer's disease pathology in the brain during specialist diagnostic workup of individuals with mild cognitive impairment or dementia.

Remarks

Blood-based biomarker tests should only be used as an adjunct to comprehensive clinical evaluation, including detailed history taking, neurobehavioural assessment, cognitive testing, and brain imaging.

A triaging blood-based biomarker test refers to a test in which a negative result rules out Alzheimer's disease pathology in the brain with high probability, whereas a positive result should be confirmed using another method, such as cerebrospinal fluid (CSF) analysis or amyloid-PET scans.

A confirmatory blood-based biomarker test refers to a test in which a negative test rules out Alzheimer's disease pathology in the brain and a positive test confirms Alzheimer's disease pathology, with a high probability.

The diagnostic accuracy thresholds for a blood-based biomarker test refer to the performance of each specific assay against recognised reference standards. Results should not be extrapolated across different assays or platforms without validation.

The diagnostic value of blood-based biomarkers varies according to the clinical context, and may be greater in specific scenarios when diagnostic uncertainty remains after standard evaluation and the result is expected to influence clinical management. For example, confirmation of Alzheimer's disease pathology may be required prior to treatment initiation of disease modifying therapy or inclusion in a clinical trial.

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In the following clinical scenarios, a blood-based biomarker test may not be appropriate or should be interpreted with extra caution. These are based on the Alzheimer's Association Clinical Practice Guideline on the use of blood-based biomarkers in the diagnostic workup of mild cognitive impairment and dementia within specialised care settings.

- *When knowing whether Alzheimer's disease pathology is present would not impact decision making.*
- *In patients with obvious modifiable or temporary conditions likely to explain cognitive impairment.*
- *In patients with limited life expectancy, when the clinical significance and prognostic value of Alzheimer's disease pathology is uncertain.*
- *In patients with a history of other brain conditions that may influence biomarker levels but are poorly studied, such as human immunodeficiency virus infection, neurocysticercosis, prior chemotherapy or radiation, or chronic traumatic encephalopathy.*
- *In patients with medical conditions that may affect biomarker levels, such as acute brain injury, severe chronic kidney disease, or amyotrophic lateral sclerosis.*
- *In patients taking medications that may alter biomarker levels, such as neprilysin inhibitors for heart failure or drugs that disrupt the blood–brain barrier.*

Practical info

Use shared or supported decision-making with the person undergoing assessment, and if appropriate their carer, when considering use of blood-based biomarkers in the diagnostic processes, discussing the potential benefits, limitations, costs, and implications of results.

Check that the blood-based biomarker test has received regulatory approval and can be analysed by an appropriately certified laboratory.

Evidence to decision

Benefits and harms

Substantial net benefits of the recommended alternative

Research evidence

Test accuracy

Source Guideline - Alzheimer's Association Clinical Practice Guideline on the use of Blood Based Biomarkers in the diagnostic workup of susp Alzheimer's disease within specialised care settings*(891)*.

Source systematic review - Alzheimer's Association (US) systematic review accepted in press Alzheimer's Dement; evidence tables provid authors)

Permissions to use the source guideline and systematic review were sought and granted by the Alzheimer's Association Guideline team.

Setting - Specialist care

Population - people with objective clinically identified mild cognitive impairment or dementia.

Measures of test accuracy - Pooled Sensitivity (Sn) and Pooled Specificity (Sp) at a single cut-point

Tests evaluated - Plasma p-tau and Aβ tests measuring the following analytes by any immunoassay or mass spectrometry: p-tau217, the ratio tau217 to non-p-tau217 × 100 (expressed as percentage p-tau217 [%p-tau217]), p-tau181, p-tau231, and Aβ42/Aβ40. Tests measuring combi different analytes across classes (e.g., p-tau217/Aβ42) were excluded.

Reference Standards - Amyloid PET imaging, CSF analysis of Aβ42/40 or combinations of Aβ42 and p-tau, and/or neuropathology

1. For triaging testing (rule out presence of Alzheimer's Disease pathology): (threshold for pooled Sn ≥90%, pooled Sp ≥75%)

Three BBM tests met the triaging threshold (Names of tests/platforms have been removed and replaced with Test a, b c etc):

- (Test a) Aβ42/40 immunoassay: Pooled Sn 90.1% (71.0–97.1), Pooled Sp 83.3% (77.4–87.9).
- (Test b) p-tau217 ImmunoPrecipitation-MassSpectrometry (IP-MS): Pooled Sn 91.4% (86.6–94.6), Pooled Sp 85.3% (78.3–90.3). (Test tau217 ImmunoPrecipitation-MassSpectrometry IP-MS: Pooled Sn 91.4% (88.2–93.8), Pooled Sp 92.2% (88.7–94.7).
- Other tests measuring p-tau181, and p-tau231 did not meet the triaging threshold.

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2. For confirmatory testing (rule in or rule out presence of Alzheimer's disease pathology): (Threshold for Pooled Sn ≥90%, pooled Sp ≥90%)

One BBM test met the confirmatory threshold (Test c) %p-tau217 IP-MS; pooled Sn 91.4%, pooled Sp 92.2%).
Other tests measuring Aβ42/40, p-tau217, p-tau181 and p-tau231 did not meet the confirmatory threshold.

Prevalence of Alzheimer's disease pathology (indicating pre-test probability)

The prevalence of Alzheimer's disease pathology reported in the studies of above tests that met thresholds for accuracy ranged from 0.50 (50 0.74 (74%).

The prevalence of Alzheimer's disease pathology reported in the other studies included in this systematic review ranged from 0.15 (15%) to 0 (80%).

The complete data from the Summary of Findings table provided by the Alzheimer's Association guideline can be viewed at the following link: https://app.magicapp.org/#/guideline/nyO1Yj

Table 1.Summary of findings (SoF) table for evaluated tests meeting the prespecified threshold triaging (pooled Sn ≥90%, Sp ≥75%), confirmatory testing (pooled Sn ≥90%, Sp ≥90%) or both (ada and reproduced with permission from source guideline authors)

Test Name	Pooled Sn (95%CI)	Pooled Sp (95%CI)	N of studies included in MA (n of patients)	N of total eligible studies (including studies included narratively and in MA)	Country	CoE for triaging based on 90% Sp threshold	Footnotes for confirmatory	CoE for confirmatory based on 90% Sp threshold	Footnotes for confirmatory	Narra summ of stud no inclu in M
Aβ42/40 Immunoassay (a)	90.08% (71.03 - 97.11)	83.25% (77.36 - 87.85)	1 study 2 cohorts (397)	1 study 2 cohorts (397)	Global multicenter trial	Low	Downgraded by two levels due to serious risk of bias and serious imprecision	Moderate	Downgraded by one level due to serious risk of bias	NA
p-tau217 IP-MS (c)	91.41% (86.64 - 94.58)	85.28% (78.31 - 90.29)	2 studies (775)	2 studies (775)	USA and Canada	Low	Downgraded by two levels due to serious risk of bias and serious imprecision	Very low	Downgraded by three levels due to serious risk of bias, serious imprecision, and serious inconsistency	NA
%p-tau217 IP-MS (b)	91.39% (88.19 - 93.79)	92.23% (88.67 - 94.74)	3 studies 4 cohorts (1371)	3 studies 4 cohorts 1371)	Sweden	Low	Downgraded by two levels due to serious risk of bias and serious imprecision	Low	Downgraded by two levels due to serious risk of bias and serious imprecision	NA

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Desirable effects (benefits)

Interpretation of results of an accurate BBM test:

- When used as a triaging test, a negative test result from selected tests measuring Aβ42/40, p-tau217, %p-tau217 that meet thresho accuracy (Sn ≥90%, Sp ≥75%) may reliably rule out Alzheimer's disease pathology, and help avoid PET and CSF tests. However, a positi result from these tests may still require confirmation with PET/CSF.
- When used as a confirmatory test, a positive or negative test from selected tests measuring %p-tau217 IP-MS that meet thresholds for ac (Sn ≥90%, Sp ≥90%) may reliably rule in or rule out Alzheimer's disease pathology respectively and help avoid the need for PET/CSF.

Evidence for desirable effects was drawn from the Supplementary Table S1 of the Alzheimer's Association Clinical Practice Guideline Evide Decision framework*(891)* and summarised below:

- BBM tests are less invasive than CSF or PET, potentially reducing patient discomfort and anxiety.
- Use of these tests may shorten the interval between symptom onset and confirmed diagnosis.
- A shorter time to receive results may reduce anxiety related to uncertainty.
- Earlier detection of Alzheimer's disease pathology may support timely access to disease-modifying therapies and other management stra

Clinical Importance

- An accurate BBM test when applied appropriately may have meaningful effects for patients and caregivers, by reducing uncertainty, imp confidence in the diagnosis, and improving earlier access to therapies.
- For clinicians, earlier and more reliable diagnostic information supports early decision-making and care planning.

Australian context

- In Australia, BBMs if made widely available could improve access to timely management in rural and regional areas where PET/CSF is lim

Undesirable effects (harms)

Information was drawn from the Alzheimer's Association Clinical Practice Guideline EtD framework*(891)*.without a systematic search for evide

Comments from The Alzheimer's Association EtD

- Risk of misattributing cognitive symptoms entirely to Alzheimer's disease pathology, potentially overlooking other treatable conditions.
- Anxiety and distress from false positive results at the triaging stage, leading to delayed definitive diagnosis.
- Variability across BBM assays may lead to misinterpretation if tests are ordered outside validated clinical pathways.
- Clinician education and training resources are required to ensure results are interpreted appropriately and in context.
- Reduced use of lumbar puncture may limit diagnostic information beyond amyloid biomarkers (e.g., infection, inflammatory conditions).
- Ethical challenges around disclosure and counselling, requiring robust support systems to accompany result communication.

Clinical importance

- False positives may lead to unnecessary PET/CSF, overdiagnosis, or misclassification of dementia subtype.
- False negatives may delay correct diagnosis and management.

Summary

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Balance of effects: Guideline Development Group judgement and discussion

The Guideline Development Group considered the overall balance of effects considering the test accuracy, desirable and undesirable e certainty of the evidence, and values. For this judgement, the intervention was the use of BBM to measure Alzheimer's disease pathology, a comparison was the usual approach of measuring pathology using amyloid PET or CSF testing via lumbar puncture. These tests were cons specifically for measuring Alzheimer's disease pathology rather than as part of the broader diagnostic work-up for cognitive impairment.

The Group reached consensus that the balance of effects **favours the use of BBM** compared with amyloid PET or CSF testing for mea Alzheimer's disease pathology.

Test accuracy: Guideline Development Group judgement and discussion

The Guideline Development Group discussed the accuracy of BBM in general, considering their role for triaging or confirmation of dementia than individual tests. Concerns were raised about the applicability of the findings to the target population. Although the population of i included individuals aged over 40 years, the Group noted that most data related to older populations, typically in their 60s and 70s, and tha was limited information available for younger individuals.

The Group also discussed the influence of pre-test probability, noting that in specialist settings, where individuals present with cognitive impai pre-test probability was likely to be higher than in other settings, which may influence test performance. It was highlighted that BBM were no in isolation in clinical practice, and that diagnostic decision-making typically involved multiple sources of information.

The Group also discussed the relationship between BBM and reference standards such as amyloid PET imaging and post-mortem patholog Group acknowledged that test performance may vary depending on the assay or provider, and noted that considerations were made at a g level rather than for specific tests or brands. The Group l recognised that this was a rapidly evolving field, with ongoing research and emergin that were not available at the time of the review.

It was clarified that the judgement of test accuracy reflected both the performance of the test and the certainty of the evidence considered tog Following discussion, the Group voted on the overall accuracy of BBM and reached consensus that the test was **accurate**.

Desirable effects (benefits): Guideline Development Group judgement and discussion

The Guideline Development Group considered the anticipated desirable effects of using BBM to measure Alzheimer's disease pathology. Ev indicated that these tests are less invasive than amyloid PET or CSF testing and may shorten the interval between symptom onset and confir

of diagnosis. An accurate BBM test, when applied appropriately, could also reduce diagnostic uncertainty, improve confidence in the diagnc clinicians and patients, and support earlier clinical decision-making.

In addition, the Group noted the potential relevance of BBM in the Australian context, where access to PET imaging or CSF testing may be lim rural and regional areas. If BBM became widely available, they could potentially improve access to pathology testing in settings where PET or l puncture services are difficult to obtain.

After discussion and voting, the Group judged that the anticipated desirable effects of BBM are **large**.

Undesirable effects (harms): Guideline Development Group judgement and discussion

The Guideline Development Group considered the potential undesirable effects associated with the use of BBM for assessing Alzheimer's d pathology. Potential harms discussed included the risk of misattributing cognitive symptoms to Alzheimer's pathology, anxiety or distress re from false positive results, particularly at the triaging stage, and variability in the precision of BBM assays. The Group also noted that cl education and training would be important, as undesirable effects could arise if the tests were used or interpreted by clinicians without appro expertise. Ethical challenges related to disclosure and counselling were also highlighted. In addition, the usual concerns associated with diag testing, including false positive and false negative results, were considered.

During the discussion, questions were raised about the implications of false negative results, particularly when BBM are used as a triage test. noted that triage thresholds were intended to provide high confidence that a negative result is unlikely to represent Alzheimer's pathology positive triage results would generally require confirmation with a subsequent test. The Group also emphasised that these tests are intended f in people who already have cognitive impairment and are being assessed in a specialist setting, and that BBM would be interpreted as pa broader clinical evaluation rather than used in isolation.

The Group reached consensus that the anticipated undesirable effects of BBM were **small**.

Certainty of the evidence

Low

Research evidence

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For triaging testing: (Sn ≥90%, Sp ≥75%):

Certainty: Low for the three tests that met the threshold (Aβ42/40 immunoassay, p-tau217 IP-MS, %p-tau217 IP-MS).

Downgraded for risk of bias and imprecision.

Confirmatory testing (Sn ≥90%, Sp ≥90%):

Certainty: Low for the only assay that met the threshold (%p-tau217 IP-MS).

Downgraded for risk of bias and imprecision.

Tests not meeting the threshold ranged from Moderate to Very low, and varied depending on biomarker measured and platform used.

Summary

The overall certainty of the body of evidence for this question was **low.**

Values and preferences

No substantial variability expected

Research evidence

General considerations

Evidence from The Alzheimer's Association Clinical Practice Guideline

A prospective study conducted in a French memory clinic including 1,005 outpatients, of whom 480 were later diagnosed with dementia*(763)*. Patients were directly asked about their preferences regarding disclosure of an Alzheimer's disease diagnosis. Overall, 85.3% wished to be informed, 7.2% did not, and 7.5% were unsure. Older age and lower cognitive function were associated with preferring not to be informed. Most patients (85.2%) also wanted their families to be informed. Main reasons for disclosure were the right to know and trust in physicians and family; reasons against disclosure were mainly fear or considering the information useless*(763)*.

Other Research evidence (No systematic review)

Australian context

The ongoing "Living with Dementia Survey" by Dementia Australia is collecting nationwide perspectives from people living with dementia, their families, and carers on diagnostic experiences, support needs, and priorities*(71)*. Although results are not yet available, the survey reflects a recognised need to capture and incorporate patient and caregiver values into dementia care and diagnostic pathways, including potential future use of BBM*(71)*.

International context

A survey conducted in the Netherlands, which included 109 carers of people living with dementia, indicated that 72.0% favoured BBM for Alzheimer's disease pathology diagnosis*(214)*. Provided with hypothetical scenarios, confidence in a normal result decreased significantly if symptoms were more severe (mild: 78.5% vs. severe: 48.6%). Concerns toward BBM testing included treatment unavailability, increased/prolonged distress, and Alzheimer's disease -related stigma. Potential benefits were actionability, explanation for symptoms, and opportunities for better care and future treatment*(214)*.

Expert opinion

People living with younger onset dementia would value a blood biomarker, and would opt for that rather than a lumbar puncture. Use of blood biomarkers could save money in use of MRI, and limit exposure to radiation in younger people.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect evidence on how Aboriginal and Torres Strait Islander peoples value outcomes related to BBM.

Considerations for people from culturally and linguistically diverse backgrounds

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We did not identify studies that provided direct or indirect evidence on how people from culturally and linguistically diverse backgrounds value outcomes related to BBM.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect evidence on how LGBTQIA+ people living with dementia value outcomes related to BBM.

Considerations for people with younger onset dementia

There is often a delay in diagnosis of younger onset dementia due to heterogeneity of symptoms*(740)*.

Considerations for people with disability

We did not identify studies that provided direct or indirect evidence on how people with disability value outcomes related to BBM.

Considerations for people living outside major cities

We did not identify studies that provided direct or indirect evidence on how people living outside major cities value outcomes related to BBM.

Additional considerations

Input from the Living/Lived Experience Advisory Group

There is little variability among the Living/Lived Experience Advisory Group around the use of BBM as a substitute or confirmatory test. While cerebrospinal fluid analysis testing via lumbar puncture can provide valuable insights, it is invasive and carries risks, making blood-based biomarker tests a more acceptable and safer alternative. The key consideration is the sensitivity and specificity of blood-based biomarker tests to ensure accurate diagnosis, which is crucial for both people diagnosed with dementia and their careers. A reliable, non-invasive test could improve access to diagnosis and treatment pathways, reduce barriers to seeking help, and support better planning for quality of life. It is important that outcomes are feasible and supportive for both the person diagnosed with dementia and their careers.

Summary

Key points

- Most people diagnosed with Mild Cognitive Impairment or dementia (~85%) want to know whether they had Alzheimer's disease pathology, mainly for truth, planning, and quality of care reasons*(763)*.
- Most carers (~70%) would value BBMs; their confidence in a normal result is greater if the person has symptoms of dementia; they may place less value on a BBM in the absence of a treatment; they expressed potential benefits in knowledge and explanation of symptoms*(214)*.
- The Living with Dementia Survey highlights the importance of incorporating patient and caregiver values into dementia care and diagnostic pathways, including potential future use of BBM*(71)*.
- Earlier diagnosis may support timely planning, access to care, and future eligibility for disease-modifying treatments, reduce anxiety, increase confidence in diagnosis, and improve quality of life.

Guideline Development Group judgement and discussion

During the discussion, the Guideline Development Group considered whether there is meaningful variability in how people value the outcomes associated with the use of BBM in a specialist diagnostic setting. Group members highlighted that many of the perceived benefits of BBM, as reflected in input from the Living/Lived Experience Advisory Group, are contingent on the test being sufficiently accurate and reliable. These attributes were viewed as foundational to the value placed on BBM, particularly in supporting diagnostic clarification while potentially reducing the need for more invasive or burdensome investigations.

The Group discussed whether values might differ for people living in rural and remote areas, noting concerns raised by carers about the logistical burden of accessing specialist services, including travel, time off work, and competing caring responsibilities. However, some members emphasised that specialist care is not limited to metropolitan academic centres and increasingly includes telehealth, hub-and-spoke, and networked models of dementia care. From this perspective, BBM were seen as potentially aligning well with specialist models of care that already operate in rural and regional settings.

The discussion also acknowledged that individual circumstances vary, particularly for carers and for people diagnosed with younger-onset dementia, and that such contextual factors may influence how outcomes are valued. Nevertheless, the Group generally agreed that BBM are likely to be perceived as less burdensome than alternative diagnostic options, and that these advantages may reduce, rather than amplify, variability in values across individuals.

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The key question for judgement was whether these contextual differences translate into important variability in how people would choose to use BBM when considering both desirable and undesirable effects.

Based on the discussion and voting results, the Group judged that there was **probably no important uncertainty or variability** in values regarding the use of BBM in a specialist diagnostic setting.

Resources

No important issues with the recommended alternative

Research evidence

General considerations

Evidence accessed from The Alzheimer's Association Clinical Practice Guideline:

Using publicly available data, the estimated cost range for BBM tests in the US is approximately $195 (≈AUD 299.17) to $1,450 (≈AUD 2224.61) in 2024, though actual prices may differ as some tests have yet to reach the market*(839)(1092)*.

Medicare covers amyloid PET imaging in the US within the IDEAS study under a Coverage with Evidence Development (CED) framework. Costs related to the scan are reimbursed by Medicare as for other covered services, while beneficiaries may be responsible for standard deductibles or co-payments. However, any coinsurance not covered by supplemental insurance is paid by the study sponsor*(600)*.

Relative costs: Cost considerations may differ depending on who is making the decision. For healthcare systems or payers, the relative cost of diagnostic tests may not align with the costs patients experience, which depend on insurance coverage. While BBM tests are generally less expensive than PET for healthcare systems, patients' out-of-pocket expenses can vary by setting and policy. In the US, for instance, Medicare reimburses PET scans but not BBM tests. As a result, patients with traditional Medicare may still need to pay a deductible and coinsurance for PET, whereas BBM tests could require them to cover the entire cost. Some manufacturers, however, are starting to provide financial assistance for BBM testing*(394)*.

In the US, inadequate reimbursement for lumbar puncture creates a financial barrier for memory clinics and discourages wider use of CSF biomarker testing as demand increases with new anti-amyloid therapies. Medicare reimbursement in

2023 (≈USD 134.87, ≈AUD 209.98) is below the actual cost of LP (≈USD 150–237, ≈ AUD 233.54-368.99), resulting in losses per procedure, potential shifts toward more expensive fluoroscopic LP, and delays in treatment initiation*(216)*.

Cost effectiveness

The accessibility, affordability, and cost-effectiveness of BBM testing differ across regions and payers. At present, BBM tests and disease-modifying therapies are only available in certain countries, meaning the value of diagnostic strategies depends on local availability, as well as associated benefits, risks, and costs. For instance, disease-modifying treatments such as lecanemab and donanemab are available and reimbursed in the US through Medicare*(798)*, but are not reimbursed in the UK, as they were judged not to meet conventional cost-effectiveness thresholds for willingness-to-pay*(850)*.

In a Swedish modelling study assessing the cost-effectiveness of diagnostic pathways linked to anti-amyloid therapy (AAT), three strategies were evaluated: CSF-guided AAT, BBM-guided AAT, and BBM→CSF→AAT*(1265)*. Relative to standard of care (SoC), none of the three strategies: CSF - guided AAT, BBM - guided AAT, or BBM triage with CSF confirmation prior to AAT, were cost-effective at Sweden's willingness-to-pay threshold (€94,800 (≈AUD 157,031.64) per quality-adjusted life-year [QALY] in 2023). However, BBM→CSF→AAT may be cost-effective versus CSF→AAT if the decision-maker accepts a modest QALY loss in exchange for lower costs. After AAT is introduced, payer-specific budget-impact analyses will be needed to guide financing and capacity planning. BBMs can improve diagnostic resource use, but they do not, by themselves, guarantee that a BBM directed AAT pathway will be cost-effective*(1265)*.

A US-based research team developed a web-based application to model the time and financial costs of screening for Alzheimer's disease clinical trials, comparing four strategies: PET-only, Alzheimer's disease blood test before the screening visit, Alzheimer's disease blood test after the screening visit, and blood-test–only*(1030)*. The modelling estimated that screening 100 amyloid-positive participants with PET-only would cost about $2.9 million (≈AUD 4.2 million) in 2022 and take 2.8 years. Incorporating a blood test as a pre-screening step reduced costs to $1.7–2.2 million (≈AUD 2.5-3.2 million) and shortened enrolment time to about 1.4 years, while a blood-test–only approach cost $0.7 million (≈AUD 1 million) and required 1.3 years. These findings demonstrate that BBM can substantially reduce time and financial resources compared with PET-only screening, mainly by decreasing the number of PET scans required, though blood-test–only strategies carry trade-offs and combining BBMs with PET may offer a more reliable balance between cost savings and diagnostic accuracy*(1030)*.

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An interactive cost-effectiveness calculator developed in Spain by the Barcelona βeta Brain Research Centre models the economic impact of using plasma p-tau217 compared with CSF or PET*(177)*. The tool is web-based and openly accessible, and it allows users to input local cost parameters such as test prices, PET scan costs, and lumbar puncture expenses. While default values are provided from published studies, the flexibility to adapt inputs makes the calculator applicable across different health systems and countries. Model outputs typically show cost reductions of approximately 70–90% for plasma p-tau217 compared with CSF or PET, highlighting its potential as a practical resource to support planning and decision-making in diverse settings*(177)*.

Other Research evidence (No systematic review)

Australian context

Blood-based biomarkers are not yet listed on the Medicare Benefits Schedule (MBS); adoption would currently require private payment or be limited to research projects. (The MBS does cover brain FDG-PET in restricted clinical scenarios, with a fee of approximately AUD 605, but not amyloid-PET*(138)*.

Medical Services Advisory Committee *(*MSAC) application #1784 is assessing Apolipoprotein E (APOE) testing and options to confirm Aβ pathology (via PET/CSF) in mild cognitive impairment or early Alzheimer's disease, indicating that the government is already considering diagnostic technologies linked to treatment pathways; BBMs could be considered in this fashion as complementary or triage tools*(343)*.

In Australia, CSF Alzheimer's disease biomarker testing is currently not MBS-funded. The National Dementia Diagnostics Laboratory (NDDL)*(343)(22)* charges a non-rebated fee of ~AUD 400 (in 2025) for the CSF immunoassay, and hospital handbooks list the same (~AUD 400, not Medicare-rebatable). While lumbar puncture itself attracts a low MBS schedule fee (~AUD 87.80; anaesthesia if required ~AUD 115.50){137}, the laboratory assay remains an out-of-pocket cost. These settings suggest potential capacity and affordability constraints as demand grows, supporting the role of BBM as a triage step pending local economic evaluation and any future MBS listings.

International context

According to an experts review in the Netherlands, BBM may in the future also become useful for monitoring biological efficacy of new Alzheimer's disease treatments, and the safety of extending the dosing interval*(1137)*. Blood-based biomarkers may be resource advantageous in this context, compared with CSF and imaging biomarkers, due to their non-invasiveness, reduced costs, and lower burden to the patient and health-care systems (e.g., with respect to tracer

cost and scanning time). However, advantages of imaging include the spatial resolution and direct visibility of brain pathology.

In a study conducted across three memory clinic cohorts (BioFINDER-1 and BioFINDER-2 in Sweden and TRIAD cohort at McGill University in Canada), stratification with a plasma p-tau217 BBM model substantially reduced the need for expensive or invasive testing while still accurately determining amyloid-β status in patients with cognitive impairment*(55)*.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect resource evidence in relation to BBM for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect resource evidence in relation to BBM for people from culturally and linguistically diverse backgrounds.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect resource evidence in relation to BBM for LGBTQIA+ people living with dementia.

Considerations for people with disability

We did not identify studies that provided direct or indirect resource evidence in relation to BBM for people with disability.

Considerations for people with younger onset dementia

We did not identify studies that provided direct or indirect resource evidence in relation to BBM for people with younger onset dementia.

Considerations for people living outside major cities

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We did not identify studies that provided direct or indirect resource evidence in relation to BBM for people living outside major cities.

Additional considerations

Input from the Living/Lived Experience Advisory Group

There is currently no government funding for BBM tests, advocacy for this is essential. Blood-based biomarker tests are less costly than PET scans and access to PET scans is limited. To ensure a positive experience, staff administering blood tests should receive appropriate training in dementia care and communication.

Summary

Key points

- Estimated test costs (US): BBM USD 195-1,450 vs. PET USD 3,000-5,000*(599)*.
- Relative costs vary by perspective: BBM tests are generally less costly than PET for healthcare systems, but patients' out-of-pocket costs depend on insurance coverage. In the US, Medicare covers PET but not BBM tests, meaning patients may face higher direct costs for BBM unless financial assistance is available*(393)*.
- Expert review suggests BBMs may be resource-advantageous for treatment monitoring, being less invasive, lower cost, and less burdensome than CSF or imaging; imaging still provides spatial resolution and direct pathology visualisation*(1137)*.
- Training of staff (communication, dementia care) and set-up of systems needs to be factored in resource estimation.
- High-cost platforms to set-up and maintain; laboratory capacity and training required.
- Stratification with a BBM model can reduce reliance on expensive or invasive tests, while still accurately determining amyloid-β status in patients with cognitive impairment*(54)*.
- In the US, Medicare reimbursement for lumbar puncture (~USD 134.87) is below actual costs (~USD 150–237), creating financial barriers; BBMs as a triage step could reduce pressure on LP/PET services, though reimbursement alignment is required*(216)*.
- In Australia, BBM tests are not yet listed on the Medicare Benefits Schedule (MBS)*(138)*.

- Access is limited to those who can afford private payment (~$1400 for a particular test of p-tau217) or become involved in research projects*(343)(22)(429)(137)*.

Guideline Development Group judgement and discussion

Resources

During the discussion, the Guideline Development Group considered the magnitude of resource requirements associated with the use of BBM, clarifying first the relevant cost perspective for this judgement. It was agreed that, in the current context, costs should be considered primarily from the consumer perspective, given that BBM are not currently available within publicly funded pathways.

Several Group members noted that BBM are less expensive than alternative diagnostic tests, particularly PET imaging. It was stated that PET scans cost several thousand dollars in Australia, and that amyloid PET is only available privately or through research. CSF testing was also noted to involve costs related to reagents. In contrast, BBM were described as having lower estimated costs based on available international data, and these relative cost differences were considered applicable to the Australian context.

From a consumer perspective, it was noted that many people diagnosed with dementia are on pensions, and that higher private test costs may be difficult for some individuals. One Group member clarified that their selection of "large costs" in voting reflected this consumer-level perspective, rather than system-level costs. The discussion also highlighted that FDG-PET for dementia diagnosis is currently available on Medicare, whereas amyloid PET is not, and this distinction was considered relevant when comparing resource implications.

Overall, the discussion reflected differing perspectives depending on whether BBM costs were considered in comparison with other diagnostic tests or in relation to current funding arrangements.

Based on the discussion and voting results, the Group judged that the use of BBM is associated with **moderate resource savings.**

Cost effectiveness

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The Guideline Development Group discussed whether the cost-effectiveness of BBM favours the intervention or the comparison, clarifying at the outset that the intervention under consideration was BBM and the comparison comprised existing diagnostic tests, including PET imaging and CSF biomarkers.

It was noted that the only available economic evidence informing this question was derived from analyses summarised by the Alzheimer's Association. The Group acknowledged that no Australian-specific cost-effectiveness data are currently available. It was further clarified that the health economic analyses included in the Alzheimer's Association material were largely linked to anti-amyloid therapies, and that these analyses were not directly relevant to the present judgement, as the Group was voting on the diagnostic tests, not on treatment strategies.

During the discussion, some uncertainty arose regarding the framing of the question, particularly in distinguishing whether the vote should reflect the cost-effectiveness of BBM relative to existing tests, or vice versa. This led to confusion among some Group members about how to interpret and respond to the voting options. As a result, the Group agreed to repeat the vote, with the question restated to clearly emphasise that the judgement concerned whether the cost-effectiveness favours BBM (the intervention) or the existing diagnostic tests (the comparison).

In the initial vote, most Group members indicated that cost-effectiveness favoured BBM. After clarification of the question, the Group judged that the cost-effectiveness **probably favours the intervention (BBM)**, while recognising the limitations of the available evidence and the absence of Australian-specific economic data.

Equity No important issues with the recommended alternative

Research evidence

General considerations

Evidence accessed from The Alzheimer's Association Clinical Practice Guideline

Alzheimer's Association reported in the EtD document that Alzheimer's disease blood tests have the potential to deliver greater equity into the healthcare system via improved ease of access*(891)*. From the clinical implementation of Alzheimer's disease CSF and amyloid imaging testing, only for specialists in dementia care and individuals with cognitive symptoms, we have learned that Alzheimer's disease biomarker testing can be leveraged to improve medical care such as optimising pharmacotherapy decisions, and reducing the number of diagnostic procedures needed to arrive at a diagnosis*(1265)(1030)*.

Commentary by Marco et al highlighted that while BBMs could expand access to diagnosis and potentially improve equity compared with CSF and PET, their accuracy is strongly dependent on disease prevalence*(384)*. In low-prevalence groups, false positive rates may approach 40%, whereas in high-prevalence settings such as memory clinics they fall closer to 5%. If introduced broadly without validation, BBMs could lead to misdiagnosis, unnecessary anxiety, and misallocation of resources, thereby worsening inequities. The authors cautioned that benefits demonstrated with CSF and PET may not directly translate to BBMs unless implementation is carefully targeted*(384)*.

The Spanish Society of Neurology has developed guidelines for the appropriate use of BBM*(21)*. Among other recommendations, it advises public health systems should lead and guide the implementation of blood biomarkers and other advances in Alzheimer's disease by including blood biomarkers in the NHS service portfolio, thus ensuring equity in access*(21)*.

Other Research evidence (No systematic review)

Australian context

Access to diagnostic test for people in rural, regional and remote communities can be improved by the use of BBM's as compared with complex tests such as PET and lumbar puncture*(526)*.

The Australian Institute of Health and Welfare *(*AIHW)*(125)* highlights that Aboriginal and Torres Strait Islander peoples experience dementia at three to five times the rate of non-Indigenous Australians, with distinct cultural, social, and health system contexts influencing diagnosis and care. These disparities emphasise the need for culturally safe, accessible diagnostic approaches that align with community values and preferences. Blood-based biomarkers, if implemented within trusted local health services and supported by culturally appropriate engagement, could address barriers to timely and accurate diagnosis in these communities.

In an Australian paper*(933)*, seven interrelated research components were identified from seventeen studies as core processes to enhance the cultural safety of biomarker and genomic research in Aboriginal and Torres Strait Islanders. These included building relationships and community engagement, learning, research coordination, logistics, consent, samples and biospecimens, biobank structures and protections and policy. The importance of ensuring self-determination, ownership and decision-making power was emphasised in developing these processes.

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While the Culturally and Linguistically Diverse Dementia Research Action Plan*(45)* does not BBM) explicitly, it calls to "increase the development and uptake of evidence-based, culture-fair tools for dementia screening and diagnosis in primary and acute care settings," and to expand Culturally and Linguistically Diverse representation "to increase understanding of differences in biological indicators of disease presence between ethnic groups." Accordingly, any BBM rollout should be co-designed with Culturally and Linguistically Diverse communities, include multilingual/interpreter support, and report diagnostic performance by ethnicity with equity monitoring for timeliness and accuracy of diagnosis*(45)(313)(124)*.

Biomarkers such as plasma and cerebrospinal fluid proteins, neuroimaging and genetics have shown promise in the early identification of younger onset dementia as well as providing further understanding behind the overlap between psychiatric and neurodegenerative conditions occurring in younger people, including those with genetic forms of Alzheimer's disease*(298)(430)(739)*.

International context

In the US Anti-Amyloid Treatment in Asymptomatic Alzheimer's Disease (A4) trial (n=1,018) and the Longitudinal Evaluation to Understand Risk (LEARN) cohort (n=480), the authors tested whether race/ethnicity modified the association between plasma phosphorylated-tau 217 (p-tau217) and amyloid positron emission tomography (PET) measured as standardised uptake value ratio (SUVR), using mixed-effects models adjusted for apolipoprotein E epsilon-4 (*APOE ε4*) carrier status*(830)*. They found no significant interaction by race/ethnicity; in a matched subset of participants from racial and ethnic under-represented groups (RE-URG) versus non-RE-URG, the p-tau217–PET relationship was similar. The authors conclude that p-tau217's predictive ability relative to PET appears consistent across racial/ethnic groups, while emphasising small RE-URG sample sizes and the need for replication. They also note that plasma-based pre-screening is less invasive and lower cost than PET and could support more inclusive, large-scale screening in the AHEAD 3–45 prevention program*(830)*.

A 2025 systematic review*(660)* synthesises 10 US studies comparing Alzheimer's BBM (plasma/serum Aβ, total tau, p-tau, NfL, GFAP) across racial/ethnic groups and concluded that race/ethnicity can be associated with differences in biomarker concentrations, though part of the variation may reflect medical comorbidities and social determinants rather than race/ethnicity per se. Seven studies reported differences in blood biomarker concentrations between ethnic or racial groups. However, after adjusting for medical conditions and social determinants of health, the differences became non-significant in two of the studies. The included studies differed in their included covariates and their statistical approaches, which complicated the interpretation of the observed differences. The available evidence suggests that ethnicity and race may influence blood biomarker concentrations. However, it remains unclear to what extent these differences are

mediated by differences in social determinants of health and medical conditions. Future studies are needed to explore ethnic and racial differences in blood biomarkers, including studies in diverse samples outside the US*(660)*.

A modelling study by the Research and Development Corporation (RAND)*(544)* estimated that by 2028, about 1.6 million people in the US with mild cognitive impairment due to Alzheimer's disease could face average waits of 18 months for specialist evaluation, with delays up to three times longer in rural areas. This highlight critical feasibility challenges related to limited specialist capacity and inequitable access to timely dementia care.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect equity evidence in relation to BBM for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect equity evidence in relation to BBM for people from culturally and linguistically diverse backgrounds.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect equity evidence in relation to BBM for LGBTQIA+ people living with dementia.

Considerations for people with disability

We did not identify studies that provided direct or indirect equity evidence in relation to BBM for people with disability.

Considerations for people with younger onset dementia

We did not identify studies that provided direct or indirect equity evidence in relation to BBM for people with younger onset dementia.

Considerations for people living outside major cities

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We did not identify studies that provided direct or indirect equity evidence in relation to BBM for people living outside major cities.

Additional considerations

Input from the Living/Lived Experience Advisory Group

PET scans are not equitably accessible across Australia, with long wait times. In contrast, BBM tests in specialist clinics may be more widely available, and are safer and less intrusive. However, cost remains a concern and could limit access for priority populations. It is essential that all diagnostic options are clearly explained, especially the role of blood tests as an initial screening tool, and that information is provided in culturally appropriate formats and languages. Staff administering tests should be trained to communicate effectively and sensitively. Additionally, factors such as medications and conditions like HIV and kidney disease may affect test results.

Input from External Interest Holder Organisations

- New pathology test could help reduce health inequities by enabling local dementia biomarker testing, particularly in rural and low socioeconomic areas.
- Allowing samples to be collected in general practice clinics and processed centrally, could improve access to timely diagnosis and care could be significantly improved for underserved populations.

Summary

Key points

- Alzheimer's disease blood tests may improve equity by increasing ease of access and, as seen with CSF and PET, can support better care through optimised pharmacotherapy and fewer diagnostic procedures*(384)*.
- For people with Alzheimer's disease and their families, CSF testing is valued for diagnostic certainty and empowerment to plan, but such benefits may not directly translate to blood-based testing.
- The Spanish Society of Neurology recommends that the public health system lead implementation to ensure equitable access*(21)*.

- Plasma p-tau217 shows consistent predictive ability across racial and ethnic groups in US cohorts, supporting potential for more inclusive and equitable screening, though replication in larger under-represented samples is needed*(830)*.
- In people with Down syndrome, BBMs such as plasma p-tau217 may enhance equity by providing prognostic information and reducing reliance on invasive or costly confirmatory tests.
- Racial and ethnic differences in BBM concentrations have been reported but often diminish after adjusting for comorbidities and social determinants, highlighting the need to address contextual factors to ensure equitable implementation*(660)*.
- Any BBM validation or rollout should be co-designed with Culturally and Linguistically Diverse communities, including multilingual/interpreter support, while reporting diagnostic performance by ethnicity*(45)(313)(124)*.
- Access to diagnostic test for people in rural, regional and remote communities can be improved using BBM's as compared with complex tests such as PET and lumbar puncture*(526)*.
- BBMs may be valued and useful for people diagnosed with younger onset dementia, including those with genetic forms of Alzheimer's disease and those with Down Syndrome*(298)(430)(739)*.
- Culturally safe practices and community engagement should be adopted while designing and planning processes to use BBMs for the benefit of Aboriginal and Torres Strait Islanders*(933)*.

Guideline Development Group judgement and discussion

The Guideline Development Group discussed the potential impact of implementing BBM on health equity. It was noted that no systematic search for equity-specific evidence had been conducted; however, relevant evidence and contextual considerations were summarised for the Group.

It was stated that access to PET imaging in Australia is limited and inequitable, with long waiting times. It was also noted that BBM are more widely available. The Group was informed that high costs associated with biomarkers, regardless of type, may limit access. The importance of discussing diagnostic options, including the potential use of BBM as an initial triaging tool, and the need for staff training were highlighted.

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The Australian context was emphasised, including the need for validation of BBM to be co-designed with Aboriginal and Torres Strait Islander communities, and the importance of culturally safe practices and community engagement when planning and implementing diagnostic processes. It was also noted that BBM may be useful for people living in regional, rural, and remote communities, and for people diagnosed with younger-onset dementia, including those with genetic forms of Alzheimer's disease and people with Down syndrome.

Based on the voting results, the Group judged that the use of BBM would **probably increase** health equity.

Acceptability

No important issues with the recommended alternative

Research evidence

General considerations

Evidence from The Alzheimer's Association Clinical Practice Guideline

- According to the Global CEO Initiative on Alzheimer's Disease in the US*(810)*:
  - Patients and Caregivers: BBMs are seen as more acceptable than CSF or PET because they are minimally invasive, cheaper, and easier to access. They are valued for reducing delays and potentially enabling earlier treatment. Concerns remain about the emotional burden of early diagnosis and the consequences of knowing biomarker status without curative options.
  - Specialists (Neurologists, Geriatricians): Specialists recognise the utility of BBMs for improving diagnostic pathways and treatment access but stress the importance of validation across diverse populations and integration with other clinical and imaging data to ensure accuracy and appropriate use.

A mixed-methods study conducted in the Netherlands to explore caregivers' perspectives, which combined an online survey with a subsequent focus group, indicated that most informal caregivers would want BBM testing for Alzheimer's disease diagnosis. Early Alzheimer's disease diagnosis was associated with perceived (dis)advantages. Normal BBBM results were less reliable when symptoms were severe. The availability of treatment would greatly boost interest in BBBM testing for Alzheimer's disease. Informal carers expressed confusion about what the "Alzheimer's disease" meant*(214)*.

Other Research evidence (No systematic review)

International context

Blood-based biomarkers are perceived as highly acceptable compared to current methods like PET or lumbar puncture because they are less invasive, cheaper, and easier to scale. However, a review reported for authors from the US, Japan, France and Sweden*(536)*, emphasises that for broad acceptability, implementation must ensure clear interpretation, standardised pathways, and validation in diverse real-world populations while addressing ethical and equity concerns in different health systems.

It has been highlights by US authors, that all major biomarker modalities, molecular imaging, CSF, and BBMs differ in their acceptability for patients and health systems*(1028)*. While PET imaging provides detail, it is costly, less available, and may cause concerns about radiation exposure. CSF biomarkers are accurate and widely validated, but lumbar puncture is often perceived as invasive or risky, limiting acceptability, particularly among minoritised groups. By contrast, BBMs are less invasive, lower cost, and easier to implement at scale, making them the most acceptable option for routine testing and broad population access, though further validation in real-world settings is still needed*(1028)*.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect acceptability evidence in relation to BBM for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect acceptability evidence in relation to BBM for people from culturally and linguistically diverse backgrounds.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect acceptability evidence in relation to BBM for LGBTQIA+ people living with dementia.

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Considerations for people with disability

We did not identify studies that provided direct or indirect acceptability evidence in relation to BBM for people with disability.

Considerations for people with younger onset dementia

We did not identify studies that provided direct or indirect acceptability evidence in relation to BBM for people with younger onset dementia.

Considerations for people living outside major cities

We did not identify studies that provided direct or indirect acceptability evidence in relation to BBM for people living outside major cities.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- Blood-based biomarker tests are seen to offer a safer, less intrusive, and more accessible alternative to PET scans.
- Blood-based biomarker testing could reduce barriers to diagnosis and improve access to care, making it an acceptable option for people diagnosed with dementia and their careers.
- Earlier diagnosis without widely available disease-modifying therapies may cause distress, anxiety, or stigma for patients and families.
- In case of inconclusive (borderline) tests, the need for further testing may cause anxiety
- Systems of follow-up and counselling are not yet established to support testing, so patients may not receive appropriate post-test care.
- Risk of misinterpretation and/or overdiagnosis of Alzheimer's disease as the cause of dementia, and missing other potentially treatable factors, particularly if staff using are not adequately trained.
- Anxiety caused by false positive tests when using a triaging test, and the wait to confirm absence of Alzheimer's disease pathology by PET or CSF testing.

Summary

Key points

- BBMs are generally viewed positively across patients, caregivers, and clinicians for being less invasive and more accessible, but concerns include psychological impact, ethical issues (insurance and employment), lack of standardised guidelines, need for provider training, and the requirement for further validation across diverse populations and in combination with other diagnostic tools*(1028)*.
- Perceived advantages and disadvantages of BBM testing relate to early Alzheimer's disease diagnosis; confidence in normal results decreases with severe symptoms, interest increases with treatment availability, and caregivers often express uncertainty about the meaning of "Alzheimer's disease"*(214)*.
- BBMs are less invasive, cheaper, and scalable, but broad acceptability requires standardisation, validation, and attention to ethical and equity issues*(536)*.
- BBMs may be acceptable for routine large-scale use*(1028)*.
- There is a need for validation in diverse populations and integration with clinical and imaging data to provide confidence and generalisability*(214)*.

Guideline Development Group judgement and discussion

The Guideline Development Group considered whether the use of BBM is acceptable to key interest holders. It was noted that this judgement was informed by the available evidence and by additional considerations raised by members of the Living/Lived Experience Advisory Group. These considerations included the potential for early diagnosis to cause distress in the absence of currently available disease-modifying therapies, the possibility that borderline or inconclusive test results may lead to anxiety, and the risk of misinterpretation of results. The importance of training for clinicians was emphasised. It was also noted that, in the Australian context, BBM have not yet been validated in diverse populations, which was identified as a relevant consideration for acceptability.

Based on the voting results, the Group judged that the use of BBM was **probably acceptable** to key interest holders.

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Feasibility No important issues with the recommended alternative

Research evidence

General considerations

Evidence from The Alzheimer's Association Clinical Practice Guideline

According to a multi-country study (Europe, US) reported in the Alzheimer's Association EtD document, standardisation of pre-analytical lab steps is essential to ensure the reproducibility and clinical implementation of BBM in dementia*(1197)*.

Swedish experience suggests that the integration of blood-based biomarker testing is feasible in specialty care, as samples were collected and processed following standard clinical routines and prospectively analysed without pre-analytical or analytical concerns*(890)*.

In the context of BBM development for Alzheimer's disease, recent methodological and empirical work conducted in the US within specialised research centres, had highlighted that the feasibility of implementation is strongly influenced by the choice of analytic platform. The feasibility of implementation is influenced by the choice of analytic platform. While mass spectrometry provides high accuracy, its high cost, technical complexity, and need for specialised infrastructure limit large-scale adoption. In contrast, immunoassays are less resource-intensive and more scalable across routine clinical settings, making them the more feasible option for widespread dementia care, despite some trade-offs in analytical performance*(1293)*.

Other Research evidence (No systematic review)

Australian context

A large Australian survey*(1262)* (n=607) explored public attitudes toward dementia risk assessment and testing. It found that feasibility is limited by barriers such as time, cost, and motivation, which varied across age, gender, and socio-economic groups. Still, more than half of respondents expressed willingness to learn their dementia risk, particularly through less invasive approaches like saliva or blood tests. Feasibility will require addressing socio-demographic barriers and ensuring affordable, accessible, and non-invasive testing options.

For People living outside major cities (regional, rural, remote), the AlzMatch pilot*(1220)* shows that BBM pathways can be delivered through community phlebotomy centres rather than metropolitan trial sites alone: among 300 invitees from an online registry, 39% e-consented, 74% of consenters provided a usable plasma sample at community labs, and 60% with results met biomarker-based eligibility to screen, engagement and collection rates were similar across sex and under-represented racial/ethnic groups. The authors conclude that collecting blood at community laboratories for Alzheimer's disease plasma biomarkers is feasible and may improve accessibility beyond research, supporting broader clinical access*(1220)*.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect feasibility evidence in relation to BBM for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect feasibility evidence in relation to BBM for people from culturally and linguistically diverse backgrounds.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect feasibility evidence in relation to BBM for LGBTQIA+ people living with dementia.

Considerations for people with disability

We did not identify studies that provided direct or indirect feasibility evidence in relation to BBM for people with disability.

Considerations for people with younger onset dementia

We did not identify studies that provided direct or indirect feasibility evidence in relation to BBM for people with younger onset dementia.

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Considerations for people living outside major cities

We did not identify studies that provided direct or indirect feasibility evidence in relation to BBM for people living outside major cities.

Additional considerations

Input from External Interest Holder Organisations

Implementation Considerations

- Lack of access to a General Practitioner (GP) for a specialist referral
- Cost of blood-based biomarker tests
- Eligibility for blood-based biomarker tests

Workforce Considerations

- Clinics and specialist practitioners are needed in various locations to facilitate timely and equitable access.
- Given recent advancements few clinicians have experience with these tests. Education and support will be required.

Sustainability

- Blood-based biomarker tests offer a more scalable and sustainable option for dementia diagnosis leveraging existing pathology infrastructure.
- Unlike costly and less accessible methods such as CSF analysis and amyloid PET scans, blood tests can be more easily integrated into routine practice.
- Beyond testing, GPs may play a crucial role in communicating with patients, and coordinating post-diagnosis care, including case management, health record updates, and support for informal carers, ensuring patients receive timely and comprehensive guidance on next steps.

- GPs currently involved in studies using BBM report increased confidence in supporting patients with memory concerns, facilitating earlier discussions about cognitive issues and enabling proactive management strategies like care planning and risk reduction.
- To remain relevant and effective, dementia guidelines should be reviewed more regularly and explicitly include input from GPs already engaged in biomarker testing.

Accessibility

- While spinal fluid-based testing may be viewed as complex, costly, or risky, saliva and blood-based tests are likely to be more acceptable to patients.
- As current biomarker testing typically requires specialist referral to a small number of accredited laboratories, leaving GPs without direct access in routine care.
- Public education and targeted awareness campaigns are essential to promote the benefits of timely dementia diagnosis.
- Private blood tests are already available, with new tests anticipated by 2026.

Regulatory Considerations

- Following a dementia diagnosis or recommendation for further testing, maintaining confidentiality and securing stored health records is increasingly important.
- Fluid biomarker testing faces regulatory and funding challenges.
- Plasma biomarkers, such as pTau217, show promise but are not yet approved for routine clinical use in Australia outside of research settings, though trials and proposals for broader access are underway.

Summary

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Key points

- Evidence from Europe and the US found that standardisation of pre-analytical laboratory steps is essential for feasibility, ensuring reproducibility and enabling routine clinical use of BBMs*(1197)*.
- Evidence from Europe shows that BBM integration is feasible in specialty care, with samples collected and processed under standard clinical routines without major pre-analytical or analytical concerns*(890)*.
- The feasibility of BBM implementation depends on the analytic platform; mass spectrometry offers high accuracy but is costly and complex, whereas immunoassays are less resource-intensive and more scalable for routine care despite some performance trade-offs*(1293)*.
- An Australian survey (n=607) highlighted feasibility barriers such as time, cost, and motivation, varying across demographic groups, though more than half of respondents were willing to learn their dementia risk through non-invasive methods like blood or saliva testing*(1262)*.
- Some commercial BBM tests are being made available for clinical use in Australia, and analytical platforms will soon become available at specific sites in Vic and WA. But actual spread and number of collection centres is not transparently visible and are likely to be in metro vs regional centres.
- Community based collection centres may be a feasible way of improving access to biomarker tests for the broader Australian population*(1220)*.

Guideline Development Group judgement and discussion

The Guideline Development Group considered whether the use of BBM is feasible to implement. It was stated that some evidence had been summarised for this domain and that no additional considerations were raised by members of the Living/Lived Experience Advisory Group. The Australian context was discussed, and it was noted that there is very limited Australian-specific information, apart from an Australian survey that identified potential feasibility barriers. It was stated that considerations relating to feasibility were primarily commercial and potentially financial.

Additional information was provided regarding the current availability of BBM tests. It was reported that a blood test is available through six collection networks operating under a single primary industry provider. Enquiries had been made to these collection networks regarding where testing is performed and the number and location of collection sites; however, responses had not yet been received. It was stated that, at that time, blood collection was performed locally, while

laboratory analyses were conducted in certified laboratories in the US. It was also noted that there had been movement towards certification of at least two laboratories within Australia.

It was clarified that the discussion and vote were brand-agnostic and analyte-agnostic, and that the Group was voting on BBM in general. It was noted that blood samples were being sent overseas for analysis, and that this was an important consideration for Aboriginal and Torres Strait Islander peoples. It was also stated that there are plans to implement a number of testing platforms in Australia.

The Group discussed whether the feasibility judgement should be based on the current situation or should consider anticipated future changes. It was noted that the feasibility landscape is changing rapidly, with new equipment being introduced. Reference was made to previous EtD questions, where voting had been based on the current situation. It was agreed that the vote should be based on the current situation, with the discussion reflected in accompanying documentation.

A question was raised regarding the transport and potential degradation of blood samples. It was stated that transport processes are in place, that ultra-cold transport is not required, and that samples are currently being transported overseas. It was stated that transport is not considered a major issue, although it was noted that this may vary for some analytes.

Based on the voting results, the Group judged that the use of BBM was **probably feasible** to implement.

Rationale

The Guideline Development Group judged that:

- Blood-based biomarkers were accurate tests against established reference standards (CSF, amyloid-PET, or neuropathology), for triaging and confirming the presence of Alzheimer's disease pathology in the brain (brain amyloid and tau) in individuals with clinically diagnosed mild cognitive impairment or dementia
- Blood-based biomarkers resulted in moderate desirable effects and small undesirable effects, with low certainty evidence.
- There was probably no important variability in how people valued the desirable and undesirable effects of using blood-based biomarkers, and the balance of effects favoured using blood-based biomarkers.
- Blood-based biomarkers may be associated with moderate savings and probably cost-effective.
- Blood-based biomarkers may increase health equity, they are probably acceptable to people living with dementia, and implementation of blood-based biomarkers is probably feasible in practice.

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The Group agreed on conditional recommendations to use a blood-based biomarker as a triaging test and as a confirmatory test for Alzheimer's disease pathology in people with cognitive impairment or dementia in a specialist setting.

The conditional recommendations reflect the very low certainty of the evidence, the limited evidence specific to the Australian context, and uncertainty about the costs of testing and the current feasibility of implementation. It was also noted that this is a rapidly evolving area and will be impacted by emerging research.

8.2 Imaging biomarkers

The diagnosis of dementia is clinical and based on a comprehensive assessment that includes a detailed medical history, neurobehavioural evaluation, cognitive testing, physical examination, and supported by appropriate laboratory investigations to exclude reversible causes of cognitive impairment*(1368)*. The diagnosis requires the demonstration of progressive cognitive impairment, with associated functional decline in daily activities, as per established diagnostic criteria*(792)*. Brain imaging plays a complementary role to clinical assessment within this diagnostic pathway by providing objective information on brain structure, function, and pathology that can support diagnosis and exclude other causes of cognitive impairment, and help clarify dementia subtype when diagnostic uncertainty remains after comprehensive clinical assessment*(792)*. There are many ways to image the brain, such as examining structure with CT and MRI, function with FDG-PET, and the presence of amyloid or tau with molecular PET imaging*(52)*. This section will briefly deal with only PET imaging for dementia.

Positron emission tomography (PET)

PET is a nuclear medicine imaging technique involving the administration of a small amount of radioactive tracer that binds to specific proteins*(1370)*. Brain PET imaging biomarkers for dementia detect biochemical changes associated with neurodegenerative pathologies that may underlie dementia syndromes and may assist in clarifying the underlying dementia subtype after a comprehensive clinical assessment*(1370)*. PET tracers used in dementia fall into two fundamentally distinct categories*(1290)*, metabolic PET (FDG-PET) and molecular PET (amyloid PET and tau PET).

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8.2.1 18-Fluoro-deoxy glucose Positron Emission Tomography (FDG-PET) in the diagnostic workup of a person with suspected dementia or dementia subtype

FDG-PET measures glucose metabolism patterns in the brain*(1290)* reflecting neuronal activity. Specific patterns of reduced metabolism may support the clinical differentiation of dementia subtypes, such as Alzheimer's Disease Dementia (ADD), Frontotemporal dementia (FTD) and Dementia with Lewy Bodies (DLB)*(309)(1371)*. The use of FDG-PET in dementia is included for reimbursement under the Medicare Benefit Scheme (MBS)*(138)*.

Clinical context of FDG-PET in the diagnosis of dementia and dementia subtype

Glucose is the main energy substrate for brain cells, and reduced uptake in specific cortical regions indicates reduced cerebral metabolism and potentially neurodegeneration*(309)*. Metabolic patterns differ between dementia types, such as posterior temporoparietal hypometabolism in ADD versus frontal or anterior temporal reductions in FTD*(309)(1290)*.

FDG-PET provides functional information that complements structural imaging in specialist diagnostic settings when the clinical presentation is atypical, when there is discordance between clinical features and structural imaging findings, or when differentiation between dementia subtypes remains uncertain*(309)*. FDG-PET does not identify specific molecular pathology and should always be interpreted in the context of the overall clinical assessment.

Target audience

This review is relevant for the diagnosis of dementia and dementia subtype in specialist settings. Therefore, the primary target audience includes medical specialists involved in the diagnostic evaluation of cognitive impairment and dementia. A specialist in this context is defined as a healthcare provider, typically, but not exclusively, in neurology, psychiatry, or geriatrics, who spends at least 25% of their clinical practice time caring for adults with cognitive impairment or dementia. Other health professionals and people living with dementia will benefit from these guidelines and are considered the secondary target audience.

Question 5

Should FDG-PET be used for confirming diagnosis of dementia or dementia subtype in a specialist setting?

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Conditional recommendation for , Very low certainty evidence

Recommendation 5

Consider using FDG-PET imaging to clarify the diagnosis of dementia or dementia subtype during specialist assessment of an individual with suspected diagnosis of dementia, when uncertainty persists after comprehensive clinical assessment that includes a detailed history, neurobehavioural assessment, cognitive testing and structural brain imaging.

Remarks

The utility of FDG-PET varies across diagnostic comparisons, and this variation may inform the clinical context in which FDG-PET is requested:

- *A positive FDG-PET result was perceived to provide a large increase in diagnostic probability for distinguishing Alzheimer's disease dementia (ADD) from no dementia, for distinguishing Dementia due to Lewy Bodies (DLB) from non-DLB, and Frontotemporal Dementia (FTD) from non-FTD.*
- *For distinguishing ADD from non-ADD or other dementias, a positive result provides a moderate increase in diagnostic probability.*
- *However, for distinguishing between some dementia subtypes (e.g., ADD versus DLB), the change in diagnostic probability was considered small, uncertain, or not meaningful.*

When considering whether to use FDG-PET, clinicians should be aware that:

- *Most of the included studies in the evidence review addressed ADD, with fewer and smaller studies for FTD and DLB.*
- *The reference standard in most comparisons of diagnostic accuracy of FDG-PET was expert clinical diagnosis rather than the 'gold standard' of neuropathological confirmation.*
- *The studies informing this recommendation were conducted in specialist memory clinic settings and usually excluded people with advanced dementia, significant frailty, or multiple serious comorbidities.*

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Practical info

Use shared or supported decision-making with the person undergoing assessment, and their carer if appropriate, when considering use of FDG-PET in the diagnostic processes. Discuss the potential benefits, limitations, costs, and implications of results.

Explain or provide information about the scan process in advance to the person living with dementia, and their carer as appropriate.

Repeat FDG-PET scans are generally not indicated within 12 months of a prior scan without clear clinical justification because of cumulative radiation exposure.

FDG-PET is available at most PET centres at tertiary and many regional hospitals. However, FDG-PET may not be available in remote areas. Expertise in conducting and reporting on FDG-PET brain scans for dementia may not be available at all sites with FDG-PET capability.

FDG-PET brain imaging for the diagnosis of Alzheimer's disease is reimbursable under the Medicare Benefits Schedule (MBS) item number 61560.

Evidence to decision

Benefits and harms

Small net benefit, or little difference between alternatives

Research evidence
Test accuracy

Source Guideline – Dementia Assessment, management and support for people living with dementia and their carers, NICE Guideline *(849)*, Italian National Guideline, Diagnosis and treatment of dementia and Mild Cognitive Impairment *(443)*4).

Setting - Specialist care

Population - People (aged ≥ 40 years) with a suspected diagnosis of dementia

Measures of test accuracy - Pooled Sensitivity (Sn) and Pooled Specificity (Sp) and Likelihood ratios

Tests evaluated - 18F-fluoro-deoxyglucose Positron emission tomography ($[^{18}F]$FDG-PET)

Reference Standards -

1. Neuropathology

2. Standard clinician diagnosis (including history, cognitive exam including neuropsychological assessment, physical exam including neurological examination and functional assessment, basic labs including blood tests and structural brain imaging, and application of standard clinical diagnostic criteria).

When using FDG-PET to help with the diagnosis of dementia or dementia type:

A positive test results in a moderate increase in the probability of the person having dementia versus no dementia (high certainty).

A negative test results in a large decrease in the probability of the person not having dementia versus no dementia (very low certainty).

A positive test results in a large increase in the probability of the person having ADD versus no dementia (moderate certainty).

A negative test results in a moderate decrease in the probability of the person not having ADD versus no dementia (low certainty).

A positive test results in a very large increase the probability of the person having DLB versus no DLB (very low certainty).

A negative test results in no meaningful change in the probability of the person not having DLB versus no DLB (very low certainty).

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Additional context for this result: The NICE guidelines reported findings for this comparison from two studies (n = 255) that the test resulted in a very large increase (positive test, very low certainty) or did not result in meaningful change (negative test, very low certainty). The Italian Guidelines, based on these two studies and an additional study (n = 132) reported with low certainty, sensitivities ranging from 0.20 to 0.89 and specificities ranging from 0.95 to 0.99, but did not perform a meta-analysis.

The table below provides the results of comparisons.

Diagnostic accuracy of FDG-PET

Comparison	Pooled Sensitivity	Pooled Specificity	Test result	LR (CI95%)	Interpretation of the LR (NICE)	Certainty of evidence
Dementia vs no dementia	0.87	0.77	Positive	3.70 (2.62–5.22)	Moderate increase	High
			Negative	0.16 (0.03–0.79)	Large decrease	Very low
ADD vs other conditions						
ADD vs no dementia	0.79	0.91	Positive	8.71 (2.29-33.17)	Large increase	Moderate
			Negative	0.23 (0.10-0.51)	Moderate decrease	Low
ADD vs non-ADD	0.72	0.77	Positive	3.19 (2.05-4.60)	Moderate increase	Very low
			Negative	0.37 (0.18-0.62)	Moderate decrease	Very low
ADD vs other dementias	0.71	0.66	Positive	2.07 (1.52-2.78)	Moderate increase	Low
			Negative	0.46 (0.30-0.64)	Moderate decrease	Low
ADD vs DLB	0.58	0.20	Positive	0.73 (0.45-1.19)	No meaningful change	Very low
			Negative	2.08 (0.35-12.27)	Very uncertain*	Very low
ADD vs FTD	0.79	0.71	Positive	3.36 (1.81-6.25)	Moderate increase	Very low
			Negative	0.21 (0.03-1.44)	No meaningful change	Very low
DLB vs other conditions						
DLB vs non-DBL	0.72	0.95	Positive	14.38 (3.92-52.72)	Very large increase	Very low
			Negative	0.28 (0.07-1.05)	No meaningful change	Very low
DLB vs other dementias	0.2	0.95	Positive	3.72 (0.53-26.13)	Very uncertain*	Very low
			Negative	0.85 (0.54-1.31)	No meaningful change	Very low
FTD vs other conditions						
FTD vs non-FTD	0.43	0.93	Positive	6.20 (2.12-18.11)	Large increase	Very low
			Negative	0.63 (0.43-0.92)	No meaningful change	Very low
FTD vs other dementia	0.4	0.78	Positive	1.78 (0.91-3.51)	No meaningful change	Very low
			Negative	0.78 (0.59-1.03)	No meaningful change	Very low
FTD vs DLB	0.34	0.92	Positive	4.11 (0.27-62.70)	Very uncertain*	Very low
			Negative	0.72 (0.48-1.08)	No meaningful change	Very low
*NICE interpretation of the Likelihood ratio updated from No meaningful change to Very uncertain.						

ADD: Alzheimer's disease dementia, DLB: Dementia with Lewy bodies, FTD: Frontotemporal dementia

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For further details, refer to Table S5-5. Summary of Findings for FDG-PET, in the technical report.

Desirable effects (benefits)

Diagnostic accuracy [critical outcome]

For the diagnosis of dementia:

- A positive result increases the probability of diagnosing dementia versus no dementia (high certainty evidence)
- A negative result decreases the probability of diagnosing dementia versus no dementia (very low certainty evidence)

For the diagnosis of Alzheimer's Disease Dementia (ADD)

- A positive result increases the probability of diagnosing ADD versus no dementia (moderate certainty evidence)
- A negative result decreases the probability of diagnosing ADD versus no dementia (low certainty evidence)
- A positive result increases the probability of diagnosing ADD versus other types of dementia, except versus DLB (very low to low certainty evidence)
- A negative result decreases the probability of diagnosing ADD versus other types of dementia, except versus DLB and FTD (very low to low certainty evidence)

For the diagnosis of Dementia with Lewy Bodies (DLB)

- A positive result increases the probability of diagnosing DLB versus non-DLB (very low certainty evidence)
- A negative result carries no meaningful change in the probability of diagnosing DLB versus non-DLB (very low certainty evidence)
- We are very uncertain about the effect of a positive result for diagnosing DLB versus other dementias (very low certainty evidence)
- A negative result carries no meaningful change in the probability of diagnosing DLB versus other dementias (very low certainty evidence)

For the diagnosis of FrontoTemporal Dementia (FTD)

- A positive result increases the probability of diagnosing FTD versus non-FTD (very low certainty)
- A negative result has no meaningful change in the probability of diagnosing FTD versus non-FTD (very low certainty)
- A positive or a negative result carries no meaningful change in the probability of diagnosing FTD versus other dementias (very low certainty)
- We are very uncertain about the effect of a positive result for diagnosing FTD versus DLB (very low certainty)
- A negative result carries no meaningful change in the probability of diagnosing FTD versus DLB (very low certainty)

In addition, in an ad hoc search either when screening for the review of diagnostic test accuracy and from other sources, it has been reported that:

- FDG-PET is most useful when there is clinical uncertainty in diagnosis after clinical, cognitive and structural imaging
- It is least useful when there is no clinical uncertainty
- It is possibly more of value in those with less severe cognitive impairment
- leads to measurable changes in diagnoses in specialist memory clinic settings.

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Undesirable effects (harms)

In the updated evidence, one study reported adverse events evaluating FDG-PET:

- Ito 2025 documented 22 adverse events in 19 of 135 participants, with 11/89 (12.4%) of AD patients and 5/19 (26.3%) of FTD patients experiencing adverse events; however, none of the adverse events were judged to be related to FDG-PET*(603)*.

Summary

Balance of effects: Guideline Development Group judgement and discussion

To decide on the balance of effects, the Guideline Development Group initially considered and made separate judgements about:

- test accuracy – **accurate**
- the size of desirable anticipated effects (benefit) – **moderate**
- the size of undesirable anticipated effects (harm) – **small**
- the overall certainty of the evidence for critical outcomes – **very low**
- whether there was important variability (or uncertainty) in how much people value the main outcomes – **possibly important uncertainty or variability.**

The Group discussed the balance between desirable and undesirable effects of FDG-PET and noted substantial variability in views among clinicians. It was acknowledged that this variability reflects differences in clinical

experience, familiarity with PET imaging, access to the test, and how clinicians integrate FDG-PET into clinical decision-making. The Group noted that some clinicians used FDG-PET frequently and found it helpful, while others had limited access to the test or had found it less useful in practice.

During the discussion, input from the Living/Lived Experience Advisory Group was referenced, highlighting variability in how people living with dementia perceive the desirability of undergoing additional testing. It was noted that some people were comfortable relying on clinical assessment as the basis for decision-making, while others were concerned about the potential impact of further testing on their loved ones and may prefer to avoid additional investigations.

Clarification was provided that the voting option "Probably favours the comparison" reflects a judgement that imaging provided limited additional diagnostic or management benefit to comprehensive clinical evaluation supported by structural imaging. Group members noted that concerns about potential overuse of FDG-PET in situations where the diagnosis is already clear and where imaging is unlikely to change management influenced some votes. Other Group members indicated that they considered FDG-PET to probably favour the intervention, while acknowledging why a substantial minority held a different view, reflecting different weighting of factors.

After discussion and voting results, the Group reached consensus that the balance between desirable and undesirable effects p**robably favoured FDG-PET**, while recognising variability in views and the importance of specifying the clinical circumstances in which FDG-PET may be used.

Test accuracy: Guideline Development Group judgement and discussion

The Guideline Development Group discussed the accuracy of FDG-PET in the context of diagnosing dementia or differentiating dementia type. During the discussion, it was noted that the evidence review largely evaluated FDG-PET in relation to reference standards rather than directly addressing its additive value when used alongside comprehensive clinical assessment which is the issue addressed in clinics, rather than its use as a replacement for clinical diagnosis.

Clarification was provided that while dementia diagnosis remained a clinical judgement, that FDG-PET may provide supportive information about underlying neurodegeneration, and help distinguish neurodegenerative processes from other causes of cognitive impairment including primary psychiatric conditions. The Group discussed that FDG-PET may assist in situations where diagnostic uncertainty existed, including differentiation between dementia subtypes, younger-onset presentation, and cases where depression may mimic dementia. It was also noted that the accuracy of FDG-PET varies by clinical context and indication, and that it was generally used as an adjunct to, rather than a standalone diagnostic test.

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Following discussion, the Group reached consensus that FDG-PET is **accurate**, while acknowledging that its diagnostic performance varies by context.

Desirable effects (benefits): Guideline Development Group judgement and discussion

The Guideline Development Group considered the magnitude of the anticipated desirable effects of performing FDG-PET when diagnosing dementia or dementia type in a specialist setting. Prior to voting, the Group was invited to raise any additional points beyond those discussed earlier in the meeting, and no further comments were made.

The Group then proceeded to vote on how substantial the desirable anticipated effects of FDG-PET were in this context, and achieved consensus that the anticipated desirable effects of FDG-PET were **moderate**.

Undesirable effects (harms): Guideline Development Group judgement and discussion

The Guideline Development Group discussed the anticipated undesirable effects associated with the use of FDG-PET. During the discussion, it was clarified that reported adverse events in the included studies were primarily minor and related to the administration of the radiotracer, such as injection-site reactions (e.g., bruising). It was noted that allergic reactions were theoretically possible but were not reported in the evidence discussed. The Group also acknowledged exposure to radiation as an inherent aspect of the test.

In addition to physical effects, the Group discussed potential psychological or informational undesirable effects related to test results. These included situations in which FDG-PET results may not be helpful in discriminating between dementia subtypes, results that contradicted clinical impressions, or unexpected findings that may cause distress. It was also noted that undergoing imaging may have been challenging for some people living with dementia, particularly those with behavioural symptoms, which may have represented an additional undesirable effect in certain cases.

The Group then proceeded to vote on how substantial the anticipated undesirable effects of FDG-PET were, and reached consensus that the anticipated undesirable effects of FDG-PET are **small.**

Certainty of the evidence

Very low

Research evidence

The overall certainty of the body of evidence was determined by the lowest certainty rating of all the critical outcomes.

Summary

The overall certainty of the body of evidence for this question was very low. For test accuracy, the guideline development group noted that the overall certainty of the evidence is based on the lowest certainty rating recorded across the included comparisons. As this follows the standard EtD approach, no vote was required for this domain.

Regarding the certainty of evidence for the effects of the test, the guideline development group clarified that this refers to the certainty of evidence for any critical or important direct benefits, adverse effects, or burden of the test.

For the certainty of evidence related to the impact of test results on management, the guideline development group noted that no relevant evidence was available.

Values and preferences

Substantial variability is expected or uncertain

Research evidence

General Considerations

NICE Clinical Practice Guideline

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The NICE guideline committee considered that sensitivity, specificity, and positive and negative likelihood ratios, reflect different aspects of diagnostic accuracy and should all be considered in decision making. The committee also highlighted that individuals who are difficult to diagnose may undergo multiple sequential test, including imaging and biomarkers tests before reaching a diagnosis*(849)*.

Other Research evidence (No systematic review)

International context

A narrative review of studies published since 2000 evaluating the effectiveness and safety of 18F-FDG-PET for the assessment of dementia, including investigations with autopsy confirmation, longitudinal clinical follow-up, and multicentre cohorts reported that FDG-PET meaningfully increased clinicians' diagnostic confidence, reducing the proportion of unclear diagnoses from 39% to 16%, and clinicians indicated that the scan helped, clarified, and oriented diagnosis in 56% of cases, while confirming the initial clinical impression in an additional 16%*(211)*. The review also highlighted that a normal FDG-PET pattern can reassure patients and clinicians that cognitive decline is unlikely to progress rapidly over several years. Although the included studies did not directly measure patient or caregiver preferences, the reported improvements in diagnostic clarity, avoidance of misdiagnosis, and provision of prognostic information demonstrate that FDG-PET yields outcomes that patients and families typically value, namely reduced uncertainty and better guidance for clinical and life planning*(211)*.

A UK service evaluation of a functional neuroimaging pathway, within a UK Memory Assessment Service reported that FDG-PET/CT contributed to diagnostic clarification in 80% of cases, based on referring clinicians feedback (Kuruvilla et al., 2015). Nearly half of clinicians rated the test as "very helpful" by 47% and "helpful" by 34%. During the initial needs assessment, consultants identified younger patients and those with atypical presentations as groups for whom diagnostic clarification was particularly needed*(678)*.

A UK cross-sectional survey of people living with dementia, carers, and healthy individuals comparing SPECT and FDG-PET found that preferences between imaging modalities were generally acceptable, and that preference for one over the other was largely determined by the perceived diagnostic accuracy of the scan*(173)*.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect evidence on how Aboriginal and Torres Strait Islander peoples value outcomes related to FDG-PET.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect evidence on how people from culturally and linguistically diverse backgrounds value outcomes related of FDG-PET.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect evidence on how LGBTQIA+ people living with dementia value outcomes related to FDG-PET.

Considerations for people with younger onset dementia

There is often a delay in diagnosis of younger onset dementia due to heterogeneity of symptoms*(738)*.

Considerations for people with disability

We did not identify studies that provided direct or indirect evidence on how people with disability value outcomes related to FDG-PET.

Considerations for people living outside major cities

We did not identify studies that provided direct or indirect evidence on how people living outside major cities value outcomes related to FDG-PET.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- The Living/Lived Experience Advisory Group expressed that the value of imaging tests depends on why they are being used. They are especially important when it's critical to confirm whether someone has Alzheimer's disease so they can access new treatments, or when a person and their family want certainty about the type of dementia. In these cases, accuracy and awareness of possible side effects really matter.
- There was some variability among the Living/Lived Experience Advisory Group with some feeling that if imaging gives clear answers, it should continue to be used, while blood tests may help in other situations. Knowing the dementia subtype can make a big difference to quality of life, care decisions, and treatment planning, and many saw imaging as a useful second step after blood-based tests. Others emphasised that the choice should be personalised, guided by a specialist, and centred on the person's needs with one Living/Lived Experience Advisory Group member stating that person-centredness should be added as an outcome.

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Summary

Key points

- A narrative review showed that FDG-PET increases diagnostic confidence with which specialists confirm or redirect initial clinical impression, and in the case of a normal scan, help reassure patients*(211)*.
- A UK study showed FDG-PET/CT improves dementia diagnosis, with 80% of clinicians reporting it helped clarify cases. The tool is particularly useful for younger or atypical patients*(678)*.
- In a survey conducted in the UK, preferences of healthy individuals and carers of people living with dementia comparing for FDG-PET over SPECT was largely determined by the perceived diagnostic accuracy of the scan*(173)*.

Guideline Development Group judgement and discussion

The Guideline Development Group considered whether there is variability in how people value the outcomes associated with FDG-PET. Input from the Living/Lived Experience Advisory Group indicated that this is a highly personal consideration, with examples provided of individuals who experienced difficulty tolerating the physical aspects of the test. While the potential usefulness of FDG-PET was not disputed, it was emphasised that individual tolerance of the procedure influences how the test is valued. The Group agreed that these comments supported the presence of variability in values and preferences, and that the key question for judgement was whether such variability exists.

Based on the discussion and voting results, the Group achieved consensus that there was **possibly important uncertainty or variability in values.**

Resources

Important issues, or potential issues not investigated

Research evidence

General Considerations

NICE Clinical Practice Guideline

The NICE guideline committee noted that, in cases of diagnostic uncertainty, performing imaging or biomarker tests sequentially, rather than in parallel, may result in a clear diagnosis while reducing patient exposure to potential distressing and lowering costs to healthcare system. The committee also noted that, although imaging test are associated with substantial initial equipment costs, these technologies are already routinely used, and the incremental cost per test is considerably lower once established*(849)*.

Other Research evidence (No systematic review)

Australian context

Under the Medicare Benefits Schedule (MBS Item 61560), FDG-PET can be used in tertiary specialist settings to support the diagnosis of Alzheimer's Disease*(138)*. The item requires that the service include a quantitative comparison with a normal reference database, and that no prior FDG-PET or amyloid-PET scan for Alzheimer's disease has been performed in the preceding 12 months*(138)*. The schedule fee is AUD $605.05, with Medicare benefits of $453.80 (75%) or $514.30 (85%), and the service may be claimed up to three times per lifetime*(138)*. This listing was introduced following MSAC Application 1195.1 and represents the only PET modality currently subsidised under Medicare for dementia diagnosis*(135)*. The defined eligibility criteria and frequency limits are designed to ensure that FDG-PET is applied selectively in diagnostically uncertain cases, supporting both clinical appropriateness and cost-effective use of public health resources*(135)*.

A national, cross-sectional online survey of medical specialists was applied across Australian memory and cognition clinics, to determine the infrastructure, workforce and training needs required to characterise health system preparedness for rollout of amyloid-targeting therapies for Alzheimer disease*(809)*. Only 40% of clinics reported using imaging biomarkers including FDG-PET in the diagnostic work-up. Clinicians reported that access barriers, wait times for PET scans, and out-of-pocket expenses for patients impede the use of biomarker imaging. PET wait times averaged 36± 27.6 days, and limited infrastructure, including cold storage capacity, infusion space, and availability of nursing or administrative support, was also identified as a constraint*(809)*.

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International context

Chételat et al.*(309)*, described FDG-PET as a resource-intensive modality requiring specialised equipment, trained personnel, and appropriate infrastructure for acquisition and interpretation. The authors noted that PET imaging is associated with high costs, limited availability, and variability in reimbursement across healthcare systems. Cost-effectiveness was reported to be uncertain, particularly in the absence of disease-modifying treatments and insufficient evidence that the use of biomarkers reduces disease burden or overall healthcare costs*(309)*.

Evidence from a UK Memory Assessment Service indicates that FDG-PET/CT, while associated with higher upfront cost £350 ($AUD620) per scan, compared with approximately £100 ($AUD180) for CT and £150 ($AUD270) for MRI may reduce downstream healthcare utilisation*(678)*. According to clinician feedback, the availability of functional neuroimaging avoided multiple resource-intensive investigations and consultations, including repeat neuropsychology assessments, MRIs, CTs, SPECT scans, EEGs, neurology or tertiary centre referrals, additional outpatient reviews, and unnecessary therapeutic trials. The authors stated that, based on NHS reference costs, these avoided investigations would match the initial cost of the scans and could potentially generate savings*(678)*.

The Scottish Health Technologies Group developed a health technology assessment comparing FDG-PET with perfusion SPECT for dementia diagnosis and provided detailed cost and service-capacity information based on NHS Scotland data (2024)*(1049)*. The report stated that PET-CT scanners cost £1.9–£2.3 million ($AUD3.8-$4,6 million), with annual service costs of £100,000–£115,000 ($AUD200,000-230,000). It also stated that constructing PET-CT facilities costs £400,000-£1 million ($AUD800,00-$2million) and that FDG injector equipment costs £69,000–£160,000 ($AUD140,000-325,000), with annual maintenance of £5,000–£14,000 ($AUD10,000-28,000). The document further noted that PET-CT services in Scotland performed approximately 700 scans per month, predominantly for cancer, and that PET-CT services were at capacity*(1049)*.

In a Belgian economic modelling evaluation (2005), authors provided detailed cost and cost-effectiveness results for incorporating FDG-PET into the diagnostic pathway for dementia*(838)*. The direct cost of brain PET was €507 ($AUD890), calculated from Belgian reimbursement data reflecting the true cost under the assumption of optimal scanner use of eight scans per day. Using costs of care from the Belgian Higher Institute of Employment (HIVA),

the decision-tree model found that adding FDG-PET generated net cost savings ranging between €205-3610 ($AUD365-6,430) per patient, depending on whether care occurred in institutional settings or at home. When examining "cost per accurate diagnosis," savings ranged between €623-6110 ($AUD1,110-10,885) across scenarios. Sensitivity analyses showed that FDG-PET remained cost-saving when the PET scan cost increased to €1000–1500 ($AUD1,780-2670), depending on the care setting. In additional analyses using cost data from Finland, Greece, Ireland, and Spain, the authors reported that FDG-PET continued to produce net savings, with break-even thresholds for PET cost around €1400 ($AUD2,500) under scenarios without treatment and above €2700 ($AUD4,800) when treatment effects were included. The study also reported that FDG-PET ceased to be cost-saving when the assumed delay in cognitive decline from earlier treatment was reduced to approximately one month or less*(838)*.

Cost-effectiveness

In the 2020 application for the listing of FDG-PET under the Australian Medicare Benefit Scheme (MBS), the Department of Molecular Imaging and Therapy (Austin Health) indicated that, in the first year, for a fee of $705.05 at 85% ($600) for 4,000 services, FDG-PET would cost $2,400,000*(1372)*. However, it was proposed that this would add minimal additional cost to Medicare, as brain FDG-PET would replace the less effective SPECT service while maintaining the same rebate level*(135)*. In their commentary, the Australian Government Medical Service Advisory Committee (MSAC) considered the Department's financial modelling for the proposed listing of FDG-PET, which estimated a total MBS cost of $1.757 million over four years based on a service fee of $705.05 to be reasonable. However, MSAC recommended ongoing monitoring of FDG-PET and SPECT utilisation, along with tracking of patient out-of-pocket expenses, and that the FDG-PET item be reviewed 12 months after its initial MBS listing.

The Scottish Health Technologies Group (SHTG) found no study comparing the cost-effectiveness of FDG-PET with other similar diagnostic technologies used in dementia diagnosis*(1049)*. However, the authors observed that, although FDG-PET had a higher acquisition cost, its potentially greater clinical value compared with alternatives such as SPECT meant that future economic evaluations may identify it as costlier but also more effective*(1049)*.

Resource requirements

Resource	**Description FDG-PET*(108)***
Staff	• 1 nuclear medicine physician/radiologist for interpretation (0.5–1 h/case). • 1 PET technologist for preparation, uptake monitoring y acquisition (1.5 h). • 1 nurse for cannulation and glucose check. • Medical physicist for QA/QC (routine)
Training	• Training in neurodegenerative metabolic patterns and semi-quantitative tools (e.g., Neurostat/SSP, CortexID). • Technologist training in brain-PET acquisition following minimal stimulation protocols.
Supplies [medical supplies]	• Radiotracer 18F-FDG (≈185–370 MBq). • Blood glucose strips. • IV cannula, syringes, saline.
Equipment and infrastructure	• PET scanner: £1.9M–£2.3M • Annual service: £100k–£115k • FDG injector: £69k–£160k • Annual maintenance: £5k–£14k • Turnkey facility: £400k–£1M*(1049)*
Time	**~90 minutes total:** • Arrival check + glucose check: 5–10 min.

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Resource	Description FDG-PET*(108)*
	• Cannulation + injection: 5 min. • Uptake period: 30 min in dim, quiet conditions. • Positioning + low-dose CT: 5–10 min. • PET acquisition: 15–20 min. • Reconstruction + metabolic pattern analysis + report: 30–45 min*(135)*
Supervision and monitoring	• Monitor blood glucose before injection. • Ensure minimal sensory stimulation during uptake (critical to avoid cortical activation). • Radiation safety oversight by RSO or physicist.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect resource evidence in relation to FDG-PET for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect resource evidence in relation to FDG-PET for people from culturally and linguistically diverse backgrounds.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect resource evidence in relation to FDG-PET for LGBTQIA+ people living with dementia.

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Considerations for people with disability

We did not identify studies that provided direct or indirect resource evidence in relation to FDG-PET for people with disability.

Considerations for people living with younger onset dementia

Services are not set up for people with younger onset dementia. They often need multiple specialists, and they are not age appropriate or connected. There are few settings that are set up to assess and manage people with younger onset dementia [Expert comment].

People with younger onset dementia often are carers themselves, and need to navigate how to remain in employment, and how to access NDIS services*(284)*. People diagnosed with younger onset dementia often have loss of earnings before diagnosis. Early diagnosis and robust social support systems are vital to alleviate the financial and professional challenges faced by individuals with dementia under age 65*(170)*.

Considerations for people living outside major cities

We did not identify studies that provided direct or indirect resource evidence in relation to FDG-PET for people living outside major cities.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- Person-centred decision-making depends on skilled staff who can clearly explain the risks and benefits of PET scans. However, limited health literacy can make it difficult for some people to access or understand this information. It is equally important to consider the communication needs of people living with dementia after diagnosis, along with the resources and support required to help them and their families navigate the next steps.
- In many hospitals, often only one clinician is trained to deliver PET scans, meaning that if they are unavailable, waitlists lengthen.

- PET scans depend on isotopes which lose effectiveness rapidly and cannot be transported long distances. This restricts their use to metropolitan centres where they can be produced and applied quickly.
- For people with disabilities, physical access to facilities and positioning can be a significant challenge, which makes a 5-min scan a 1h+ scan and may require additional staffing to facilitate positioning. This would also impact carer time, as they would be left waiting for much longer.

Summary

Key points

Australian context

- Under MBS Item 61560, an FDG-PET brain scan costs AUD $605.05, with Medicare benefits of $453.80 (75%) or $514.30 (85%). FDG-PET can be claimed up to three times per lifetime for suspected Alzheimer's disease. The item is restricted to cases where diagnosis remains equivocal after specialist evaluation. FDG-PET cannot be billed if the patient had FDG-PET or amyloid-PET in the past 12 months*(138)*.
- MBS Listing followed MSAC Application 1195.1, with estimated total cost of $1.757 million over four years. Austin Health modelling projected 4,000 scans in the first year at ≈$600 benefit each: $2.4 million, replacing SPECT. MSAC recommended monitoring FDG-PET vs SPECT utilisation and out-of-pocket costs, with a 12-month post-listing review*(135)*.
- Across Australian memory clinics, only 40% use imaging biomarkers, mostly FDG-PET. Only 26.7% of clinics refer for confirmatory PET imaging; one clinic does so routinely*(809)*.
- PET access is limited by infrastructure, wait times, and out-of-pocket costs; FDG-PET wait times average 36 days*(809)*.
- Resource barriers include limited scanner access, staff shortages, cold-storage limits, infusion space, and administrative support, plus patient out-of-pocket costs*(809)*.

International context

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- FDG-PET is a resource-intensive imaging modality associated with high costs, specialised infrastructure requirements, and uncertainty regarding cost-effectiveness, with no specific cost estimates reported*(678)*.
- In the UK, availability of FDG-PET/CT reduced the need for repeat neuropsychology, MRI/CT/SPECT, EEG, neurology referrals, tertiary referrals, extra outpatient reviews, and unnecessary treatment trials*(678)*.
- Avoided investigations were estimated to offset the scan cost based on NHS reference costs*(678)*.
- In Scotland, PET-CT scanners cost £1.9–£2.3 million ($AUD3.8-$4,6 million), with annual service costs of £100,000–£115,000 ($AUD200,000-230,000). PET-CT facility construction costs £400,000–£1 million ($AUD800,00-$2million); injector equipment £69,000–£160,000 ($AUD140,000-325,000) with annual maintenance £5,000–£14,000 ($AUD10,000-28,000)*(1049)*.
- PET-CT services perform ~700 scans/month, are at capacity, and adding FDG-PET would impact availability unless more investment is made*(1049)*.
- In Belgium, FDG-PET cost €507 per scan and generated €205–3610 savings per patient, depending on care setting*(838)*.
- Cost per accurate diagnosis improved savings €623–6110 ($AUD1,110-10,885). FDG-PET remained cost-saving until scan cost reached €1000–1500 ($AUD1,780-2670), or in multicountry analyses €1400 ($AUD2,500) and €2700 ($AUD4,800)*(838)*.

Guideline Development Group judgement and discussion

Resources

The Guideline Development Group discussed the size of resource requirements associated with the use of FDG-PET. During the discussion, it was clarified that consideration of resources should be aligned with the conditional nature of the recommendation and the emphasis on shared decision-making, rather than assuming routine use for all individuals. The Group noted that FDG-PET was not intended to be applied universally and that resource considerations should be weighed in the context of selective use based on individual circumstances. No further points were raised prior to voting.

The Group reached consensus that the use of FDG-PET was associated with **moderate cost.**

Cost effectiveness

The Guideline Development Group discussed whether the cost-effectiveness favours FDG-PET or the comparison. During the discussion, it was noted that there was some uncertainty regarding cost-effective use of FDG-PET in the Australian context, particularly because FDG-PET was not always used as a direct substitute for other imaging modalities (such as SPECT) and may have been applied in varying clinical scenarios. The Group acknowledged that the assumptions underlying cost-effectiveness varied depending on how FDG-PET was used in practice.

The Group achieved consensus that the cost-effectiveness **probably favours FDG-PET**, acknowledging uncertainty related to patterns of use in clinical practice.

Equity

Intervention likely increases inequity

Research evidence

General Considerations

NICE Clinical Practice Guideline

The NICE guideline committee recognised that certain population groups, including people with learning disabilities, Down's syndrome, language or sensory impairment, and lower educational attainment, may face additional challenges in the diagnosis of dementia. The committee noted that some cognitive tests may be less robust in these populations due to cultural and educational differences, which may affect diagnostic accuracy. They emphasised the importance of assessment by clinicians with appropriate expertise and the need to adapt the diagnostic process, including the use of imaging and biomarker tests, to individual patient characteristics*(849)*.

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Other Research evidence (No systematic review)

Australian context

This Australian report highlights the need for culturally safe models of diagnosis and care for Aboriginal and Torres Strait Islander peopl*(829)*. In terms of equity, it provides evidence that dementia research must be adapted to diverse cultural contexts to prevent new technologies such as PET from reinforcing inequalities. The document emphasised that equitable access requires sustained funding and local staff training, showing that equity depends on a deliberate effort in implementation.

According to the public summary document from the Australian Government Medical Service Advisory Committee (MSAC) regarding an application requesting re-consideration of Medicare Benefits Schedule (MBS) listing for FDG-PET for Alzheimer disease diagnosis in Australia in 2020, the Applicant Developed Assessment Report (ADAR) stated that PET cameras are now available across many large regional/rural centres, including Darwin, Cairns, Townsville, Bundaberg, Mackay, Sunshine Coast, Lismore, Coffs Harbour, Port Macquarie, Newcastle, Gosford, Albury-Wodonga, Bendigo, Ballarat, Geelong, and Bunbury. However, the MSAC noted that access to FDG-PET in some regional and rural areas of Australia may still be limited*(135)*. They agreed that, since the service is restricted to once per year and repeat scans for ongoing equivocal cases are uncommon, and given that patients from regional or rural centres are likely to travel to specialist dementia centres, concerns about access due to remoteness are somewhat reduced. Additionally, one of the organizations that sent comments during public consultation identified equity of access to FDG-PET for patients in rural Australia as a potential problem*(135)*.

Evidence from Australian memory and cognition clinics indicated that access to PET-based diagnostic testing was unevenly distributed geographically and financially across Australia*(809)*. Only a small proportion of clinics were located in regional or rural areas, and many patients travel considerable distances to attend appointments. Clinicians highlighted access, capacity and availability constraints as major barriers to early diagnosis. PET biomarker access is unevenly distributed geographically and financially, with disadvantaged regions less able to provide or refer for biomarker imaging.

In a retrospective study from an Australian memory clinic comparing diagnostic pathways between English-speaking background (ESB) and non-English-speaking background (NESB) patients, the authors reported differences in how FDG-PET was used across these groups*(878)*. NESB patients were more likely to undergo FDG-PET as part of their diagnostic work-up (15 of 19 NESB patients vs. 17 of 35 ESB patients; p = 0.04), noting that language barriers made history-taking and cognitive testing more difficult in this group. The authors also reported that waiting times

for FDG-PET were the main reason NESB patients experienced a longer delay between the initial consultation and diagnostic feedback, with an average delay of 1.8 months (p = 0.04)*(878)*.

International context

The Scottish Health Technologies Group (SHTG) council noted that the limited availability of FDG-PET services in Scotland meant that some people may have to travel long distances to access the services, which may potentially create inequalities in access (Scottish Health Technologies Group (SHTG), 2024). Additionally, patient comorbidities may affect the clinical utility of FDG-PET, for example the glucose-based radiotracer used in FDG-PET scan may not be suitable for patients with poorly controlled diabetes*(170)*.

In a Canadian review based on the 2018 McMaster Health Forum survey, it was reported that public funding and reimbursement conditions for PET in dementia differed substantially across Canadian provinces, with dementia-related PET listed as reimbursed in only half of them*(627)*.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect equity evidence in relation to FDG-PET for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect equity evidence in relation to FDG-PET for people from culturally and linguistically diverse backgrounds.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect equity evidence in relation to FDG-PET for LGBTQIA+ people living with dementia.

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Considerations for people living with younger onset dementia

People with younger onset dementia may have a delay in diagnosis, and need more diagnostic tests to determine diagnosis, and this can increase the equity gap*(738)*.

Diagnostic delay is common, with a frequent diagnostic conundrum being, "Is this young-onset dementia or is this a psychiatric condition?". For assessment and accurate diagnosis, a thorough screen is recommended, such as collateral history and investigations such as neuroimaging, lumbar puncture, neuropsychology, and genetic testing. The management of young-onset dementia needs to be age-appropriate and multidisciplinary, with timely access to services and consideration of the family (including children).

PET scans tend to be used a bit more in younger people, based on the Living/Lived Experience Advisory Group's experience and network.

Considerations for people living with disability

Physical access to equipment (e.g., tables etc.) required for scanning and positioning can be a significant challenge (e.g., as a post-polio survivor), which also makes a 5-min scan a 1h+ scan. It also may require additional staffing to facilitate positioning. This would also impact carer time, as they would be left waiting for much longer.

Considerations for people living with younger onset dementia

We did not identify studies that provided direct or indirect equity evidence in relation to FDG-PET for people with younger onset dementia.

Considerations for people living outside major cities

Access to PET scans requires travel, which may limit access for some individuals. Diagnosis and treatment experiences may differ between people living in metropolitan areas and those in regional, rural, or remote settings. Blood-based biomarkers may provide a better alternative to diagnose people living in remote areas, as they may be cheaper and more accessible than PET imaging.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- Healthcare professionals should consider equity information collected on intake forms to help manage issues they may encounter during the procedure (e.g., recording of physical barriers to x-ray for post-polio survivors).

- The Living/Lived Experience Advisory Group shared stories of not being offered treatment due to their age and emphasised that care should still be offered to people regardless of age or diagnosis of dementia. There is some ageism in the medical system.

Summary

Key points

Australian context

- Access to FDG-PET is uneven across Australia. National survey data show geographical inequities, with most PET-capable clinics located in metropolitan areas and few in regional/rural zones. Although PET cameras exist in many large regional centres (e.g., Darwin, Cairns, Townsville, Bendigo, Ballarat, Bunbury), MSAC noted that access remains limited in some rural locations*(135)*.
- Equity of access for rural patients is a concern (raised during public consultation by an interest-holder organisation). MSAC considered that barriers are partly mitigated because FDG-PET is used infrequently (once per year) and patients from regional areas may often travel to specialist centres*(135)*.
- Clinicians identify travel burden, limited scanner capacity, and out-of-pocket costs as major barriers to equitable access*(809)*.
- In one Australian memory clinic study, patients from Non-English-Speaking Backgrounds were more likely to undergo FDG-PET (15/19 vs 17/35; p=0.04) due to language-related diagnostic uncertainty. They also experienced longer delays to diagnostic feedback (1.8 months, p=0.04), mainly due to slower access to FDG-PET*(878)*.
- When access is provided, diverse groups may benefit equally, but structural and geographic barriers persist. Equity requires culturally safe diagnostic models, local workforce training, and sustained funding to ensure fair access.

International context

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- In Scotland, limited FDG-PET availability forces some patients to travel long distances, creating potential inequalities in access. They found that patient comorbidities may affect the clinical utility of FDG-PET, for example the glucose-based radiotracer used in FDG-PET scan may not be suitable for patients with poorly controlled diabetes*(1049)*.
- In Canada, public funding and reimbursement vary widely by province and its geography and uneven population distribution create an accessibility gap for PET imaging, particularly affecting remote communities*(627)*.

Guideline Development Group judgement and discussion

The Guideline Development Group discussed the potential impact of FDG-PET on health equity. During the discussion, concerns were raised about uneven access to FDG-PET across Australia, particularly for people living in regional and remote areas, where availability of PET services was limited and individuals may have been unaware that the test was available. The Group noted that access was substantially better in metropolitan areas, which may have contributed to geographic inequities. Travel burden, financial capacity, and logistical constraints were also highlighted as relevant considerations to be addressed through shared decision-making.

During the discussion, potential age-related bias was raised based on lived experience. However, it was also noted that dementia predominantly affected older people and that age-related considerations may have been less clearly applicable in this context. The Group discussed that the impact on equity may have vary across populations and settings, depending on access pathways and individual circumstances. Clarification was also provided regarding interpretation of the equity question, distinguishing impacts on equity from impacts on inequity, and acknowledging that views on this issue were mixed.

Two rounds of voting were conducted. In the first vote, the category “Probably reduced equity” received the highest proportion of responses. Following clarification and further discussion, the Group reached consensus that FDG-PET **probably reduced equity**, while recognising substantial uncertainty and variability.

Acceptability No important issues with the recommended alternative

Research evidence

General Considerations

Procedural considerations are inherent to PET imaging. All PET scans require intravenous cannulation, which may cause discomfort, anxiety, or lead some patients to decline the procedure. PET also involves exposure to ionising radiation, which although low for a single scan, is unavoidable across all PET modalities. Accumulated radiation dose may limit future imaging options for patients who require repeated evaluations. Furthermore, some individuals, particularly those with claustrophobia, agitation, or behavioural disturbances, may have trouble tolerating the scanner environment.

NICE Clinical Practice Guideline

The NICE guideline committee stated that some diagnostic test, including imaging biomarkers may be stressful and not well tolerated by some patients, particularly those with advanced dementia or claustrophobia. The committee emphasised that these tests should be considered acceptable only when results are likely to meaningfully reduce diagnostic uncertainty and when this is expected to influence clinical management*(849)*.

Other Research evidence (No systematic review)

Australian context

The Australian Imaging, Biomarker & Lifestyle (AIBL) Study of Ageing assessed the biomarkers, genetic factors, cognitive characteristics, and health and lifestyle factors that determine the development of Alzheimer's disease*(470)*. In the AIBL study report, only ~2% of withdrawals cited being "unwilling to undergo PET neuroimaging or CSF collection," with ~4% reporting psychological distress, suggesting generally good acceptability when tests are offered in specialist programs*(470)*.

Results from public consultations conducted as part of the assessment for MBS listing of FDG-PET for dementia diagnosis by the Australian Government's Medical Services Advisory Committee (MSAC) showed that peak advocacy, industry, and professional organisations, including medical professionals, supported the MBS listing of FDG-PET for the diagnosis of Alzheimer's disease, suggesting widespread acceptability among stakeholders in Australia*(135)*.

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Evidence from Australian specialist clinics indicated that biomarker-based (including FDG) in the diagnostic were not routinely used in in clinical diagnostic assessment with 60% of clinics reporting no current use in practice. Reported utilisation was noted that potentially influenced by recent policy changes supporting access to FDG-PET, which could have affected estimates of utilisation*(809)*.

International context

Evidence from a UK cross-sectional study including comparing SPECT and PET indicated that participants reported few differences between the two modalities and generally did not express a preference for either scan. Diagnostic accuracy was prioritised over other scan characteristics when considering preferences, and physiological measures indicated that undergoing brain imaging was not associated with increased stress compared with baseline conditions*(173)*.

Evidence from the same UK evaluation of a functional neuroimaging service for dementia, the authors collected patient and clinician feedback to assess the acceptability of FDG-PET/CT*(678)*. Patient feedback for FDG-PET/CT indicated that 41% rated the experience as "very pleasant," 45% as "pleasant," 10% as "don't know," and 4% as "unpleasant.". Among all scans requested, one patient was unable to complete imaging due to agitation and refusal of intravenous cannulation. All referrers returned feedback forms (100%).

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect acceptability evidence in relation to FDG-PET for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect acceptability evidence in relation to FDG-PET for people from culturally and linguistically diverse backgrounds.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect acceptability evidence in relation to FDG-PET for LGBTQIA+ people living with dementia.

Considerations for people with disability

We did not identify studies that provided direct or indirect acceptability evidence in relation to FDG-PET for people with disability.

Considerations for people living with younger onset dementia

We did not identify studies that provided direct or indirect acceptability evidence in relation to FDG-PET for people with younger onset dementia.

Considerations for people living outside major cities

We did not identify studies that provided direct or indirect acceptability evidence in relation to FDG-PET for people living outside major cities.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- The Living/Lived Experience Advisory Group stated that the concept of PET scans would generally be acceptable as they are used across a wide range of medical conditions. However, the specific experience of PET scans (i.e., lying still in a machine, visits to hospital) may be distressing and unacceptable to some people living with dementia, especially in later stages of dementia.
- PET scans are just one tool in the diagnostic process, and their use should be guided by choice and person-centred care. FDG-PET is covered by Medicare and therefore more accessible. These decisions should be made by specialists, but always with the person's preferences at the centre.

Summary

Key points

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Australian context

- In the AIBL study, ~2% of withdrawals cited being unwilling to undergo PET neuroimaging, indicating high acceptability in research settings*(470)*.
- Public consultations for the MBS listing of FDG-PET showed broad support from professional, advocacy, and industry organisations, indicating stakeholder acceptability*(135)*.
- National specialist survey: clinicians indicated that imaging biomarkers (including FDG-PET) are not routinely used in most clinics, with 60% reporting no current use, suggesting limited uptake in clinical practice*(809)*.
- Acceptability is limited in practice by capacity constraints, long wait times, and inadequate infrastructure, which restrict actual test uptake rather than willingness.

International context

- NICE (2018) noted that PET imaging may be distressing for some patients (e.g., severe dementia, claustrophobia), so acceptability depends on whether results meaningfully reduce diagnostic uncertainty*(849)*.
- UK service evaluation: patient feedback for FDG-PET/CT rated the experience as "very pleasant" (41%), "pleasant" (45%), "don't know" (10%), and "unpleasant" (4%)*(173)*.

Guideline Development Group judgement and discussion

Prior to voting, the Guideline Development Group confirmed that the summary presented adequately reflected the discussion held in the Living/Lived Experience Advisory Group and the concerns previously raised. No additional points were introduced during the discussion. Clarification was provided regarding the wording of the voting options, confirming that the relevant response category for acceptability was "Probably yes".

The Group achieved consensus that FDG-PET was **probably acceptable** to key interest-holders.

Feasibility No important issues with the recommended alternative

Research evidence

General Considerations

NICE Clinical Practice Guideline

The NICE guideline committee noted that appropriate interpretation of imaging biomarker results requires specialist expertise in dementia diagnostics and nuclear medicine. Implementation feasibility depends on local availability of PET infrastructure and trained personnel, as well as integration into established diagnostic pathways to avoid unnecessary testing and duplication of services*(849)*.

Which PET scans are available in Australia?

Individuals with suspected dementia should first be assessed by their general practitioner and, where appropriate, referred to a specialist such as a neurologist, geriatrician, or cognitive disorders clinician*(35)*. The specialist can determine whether an FDG-PET scan, reimbursed under Medicare Benefits Schedule (MBS Item 61560 since November 2020), is clinically indicated when standard assessment is inconclusive*(135)*.

In Australia, several PET, PET/CT, and PET/MRI systems, along with their associated software, are registered on the Australian Register of Therapeutic Goods (ARTG), as is FDG for injection. Radiolabelled FDG is also currently produced at some hospitals across Australia*(135)*.

Access to PET imaging is largely limited to metropolitan areas, which may exacerbate inequities for people living in regional, rural, and remote communities. The Australian Department of Health and Aged Care website on PET locations, includes sites across Australia where licensed PET units operate*(131)*. These units are located only in the localities for which licensing has been granted under the national regulatory framework for PET equipment. This constrained distribution limits operational feasibility for nationwide implementation, as many specialist services, particularly those in regional, rural, and remote areas, do not have on-site PET access and rely on referral pathways or patient travel to obtain PET imaging.

Evidence from Australian specialist settings indicated that access to brain FDG-PET and other imaging biomarkers was limited within existing diagnostic pathways*(809)*. Only a minority of clinics reported being able to refer patients for confirmatory PET imaging, and approximately one-quarter of new patients were referred for brain PET, including brain FDG-PET. Clinicians described access, capacity, and availability constraints affecting the use of imaging biomarkers in specialist diagnostic pathways*(809)*.

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Other Research evidence (No systematic review)

International context

A study conducted at the Karolinska University Hospital in Stockholm, Sweden, examined 277 patients with uncertain cognitive diagnoses who underwent FDG-PET following extensive baseline assessment, including neuropsychological testing, MRI, and cerebrospinal fluid biomarkers. FDG-PET was performed using standardised acquisition and interpreted using routine visual assessment supported by semiquantitative analysis*(907)*. The imaging results were incorporated into a multidisciplinary diagnostic process in which post-FDG-PET diagnoses were stablished based on all clinical and biomarker information*(907)*.

International experience from the US, Canada, and the UK suggests that implementation of brain FDG-PET is feasible when appropriate infrastructure and operational requirements are in place. A narrative review from US describes standardised acquisition and interpretation protocols, including patient preparation, tracer administration, uptake period, and image acquisition, which are routinely applied in clinical practice using established visual and quantitative methods*(371)*. A Canadian review reports that brain FDG-PET is widely used in clinical practice and incorporated within diagnostic pathways for dementia across multiple jurisdictions, supported by established interpretation frameworks and availability within existing imaging services*(627)*. In the UK, a two-year service evaluation of a commissioned functional neuroimaging service reported that planned annual capacity for brain FDG-PET/CT scans was not exceeded, that the service was integrated into routine diagnostic pathways using structured referral and multidisciplinary processes, and that recurrent funding was secured following a pilot phase, with high referrer satisfaction and reported avoidance of additional investigations*(678)*.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect feasibility evidence in relation to FDG-PET for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect feasibility evidence in relation to FDG-PET for people from culturally and linguistically diverse backgrounds.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect feasibility evidence in relation to FDG-PET for LGBTQIA+ people living with dementia.

Considerations for people with disability

We did not identify studies that provided direct or indirect feasibility evidence in relation to FDG-PET for people with disability.

Considerations for people living with younger onset dementia

We did not identify studies that provided direct or indirect feasibility evidence in relation to FDG-PET for people with younger onset dementia.

Considerations for people living outside major cities

We did not identify studies that provided direct or indirect feasibility evidence in relation to FDG-PET for people living outside major cities.

Additional considerations

Input from the External Interest Holder Organisations

Advanced imaging techniques such as FDG-PET are valuable tools in diagnosing dementia, particularly in atypical cases. However, these technologies are costly, limited in availability, and typically restricted to major medical centres. Regulatory barriers, such as Medicare restrictions, prevent routine use by GPs, and specialist services are unevenly distributed, especially in rural and low socioeconomic areas.

Many GPs lack experience with dementia imaging and require appropriate education and training to use and interpret these tests effectively. Persistent myths and stigma, such as the belief that 'nothing can be done,' hinder early detection and discourage individuals from seeking help. Addressing these knowledge gaps is crucial for improving diagnostic accuracy and patient outcomes.

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Funding limitations for advanced imaging and specialist consultations pose significant challenges. The high cost and resource-intensive nature of these diagnostics raise concerns about sustainability.

While advanced imaging can be useful in clarifying uncertain or atypical dementia presentations, it is not necessary for typical cases and should always be secondary to a thorough clinical assessment. The appropriate use of these technologies requires clinician expertise and adequate infrastructure to ensure effective and sustainable implementation.

Geographic and socioeconomic factors further limit access to diagnostics and care, while issues related to travel, driving, and insurance complicate the situation for many individuals. Culturally and linguistically diverse communities face additional barriers in accessing dementia care, including the complexity of the healthcare system and the cost of services.

Summary

Key points

Australian context

- Brain FDG-PET is funded under MBS Item 61560, restricted for a diagnosis of suspected Alzheimer's disease dementia. It is available in accredited public and private PET centres across Australia*(135)*.
- Brain FDG-PET requires specialist
- National specialist survey: PET waiting times are variable and dependent on geography , and limited capacity restrict routine use. PET imaging staff report barriers including insufficient staffing, infrastructure issues including scanner and isotope availability. Clinicians report difficulty integrating brain FDG-PET into diagnostic pathways*(809)*.

International context

- A tertiary-clinic study conducted in Sweden involving 277 cases at Karolinska University Hospital reported no technical or logistical difficulties when incorporating FDG-PET into standard diagnostic pathways*(907)*.
- Standardised protocols (SNMMI-based) for FDG-PET acquisition and interpretation are widely established*(371)*.
- In Canada: brain FDG-PET is described as routinely available and commonly used in Canada's dementia work-up*(627)*.
- UK service evaluation: structured referral triage, double reporting, and MDT meetings enabled smooth implementation within capacity*(678)*.

Guideline Development Group judgement and discussion

The Guideline Development Group discussed the feasibility of implementing FDG-PET within current diagnostic pathways. The Group noted that FDG-PET was already implemented in Australian specialist settings, supported by existing referral mechanisms, funding arrangements, and professional expertise. Feasibility was considered in relation to availability of PET scanners, workforce capacity, referral processes, and integration into specialist services.

During the discussion, it was emphasised that feasibility varies across settings. The Group highlighted that feasibility was highest in metropolitan specialist centres and more limited in regional and remote contexts, due to constraints related to scanner availability, workforce distribution, waiting times, and geographic concentration of PET services.

The Group reached consensus that FDG-PET was **probably feasible** to implement within specialist settings, while recognising that feasibility varies across regions and service contexts.

Rationale

The Guideline Development Group judged that:

- FDG-PET was an accurate test against clinically diagnosed dementia or neuropathology, with moderate desirable effects and small undesirable effects, based on very low certainty evidence.
- There was possibly important variability in how individuals valued the desirable and undesirable effects of using FDG-PET, and the balance of effects probably favoured the use of FDG-PET.
- FDG-PET was associated with moderate resource requirements, and cost-effectiveness probably favoured FDG-PET, while recognising that some cost considerations related to health system factors.
- The impact on equity was uncertain, with the potential for equity to be increased in some circumstances and reduced in others, particularly due to geographic access.
- FDG-PET was probably acceptable and probably feasible to implement in specialist settings.

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Considering all judgments together, the Group agreed that while most factors favour FDG-PET, the very low certainty of the evidence did not support a strong recommendation, and that a conditional recommendation was more appropriate.

8.2.2 Amyloid Positron Emission Tomography (PET) in the diagnostic workup of a person with suspected Alzheimer's Disease dementia

Amyloid-PET in the diagnostic workup of suspected Alzheimer's Disease dementia

Amyloid-PET uses radiolabelled tracers (such as florbetapir, florbetaben, or flutemetamol) that bind to fibrillar β-amyloid plaques, one of the hallmark neuropathological features of Alzheimer's disease*(1371)*. A positive amyloid-PET scan indicates the presence of amyloid pathology in the brain*(1371)*.

At time of writing, amyloid-PET is not reimbursable through the MBS and is only available in some large urban centres in Australia. Amyloid-PET results are typically reported as positive or negative based on visual reads using tracer-specific thresholds. However, there is increasing adoption of a standardised, internationally validated quantitative measure: the Centiloid(CL) scale*(1380)(1381)*.

Clinical context of amyloid-PET in the diagnosis of Alzheimer's disease dementia (ADD)

Contemporary frameworks consider the term "Alzheimer's disease (AD)" as reflecting the core biological pathologies of beta-amyloid and tau. If brain amyloid is detected on amyloid-PET in a person who has a clinical dementia syndrome, and the specialist considers the clinical assessment to be congruent with the effects of AD pathology, then the term Alzheimer's Disease Dementia (ADD) is used to describe the diagnosis*(1379)*.

Therefore, although the ability of amyloid-PET to detect brain amyloid pathology is well established*(950)*, a positive amyloid-PET result by itself (in the absence of a comprehensive clinical assessment that considers whether or not it contributes to the dementia syndrome), does not confirm a diagnosis of ADD*(792)(604)*. Amyloid deposition may be present in cognitively unimpaired individuals with prevalence increasing with age, from approximately 10% (95% CI 8–13%) at age 50, rising to 44% (95% CI 37–51%) by age 90, among those with normal cognition*(1378)*.

Target audience

This review is relevant for the diagnosis of dementia subtype (specifically ADD) in specialist settings. Therefore, the primary target audience includes medical specialists involved in the diagnostic evaluation of cognitive impairment and dementia. A specialist in this context is defined as a healthcare provider, typically, but not exclusively, in neurology, psychiatry, or geriatrics, who spends at least 25% of their clinical practice time caring for adults with cognitive impairment or dementia. Other health professionals and people living with dementia will benefit from these guidelines and are considered the secondary target audience.

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Question 6

Should amyloid-PET be used to diagnose dementia subtype in a specialist setting?

Conditional recommendation against , Very low certainty evidence

Recommendation 6

During specialist assessment, do not routinely use amyloid-PET for diagnosing dementia subtype in people with suspected Alzheimer's disease dementia.

Remarks

Comprehensive clinical evaluation of the person by a specialist with expertise in dementia is required, including detailed history, neurobehavioural assessment, cognitive testing, laboratory investigations to exclude reversible causes, and other brain imaging.

The diagnostic value of amyloid-PET varies according to the clinical context, and may be greater in specific scenarios when diagnostic uncertainty remains after standard evaluation and the result is expected to influence clinical treatment or prognosis, including:

- *Evaluating for anti-amyloid disease-modifying therapy, when confirmation of amyloid pathology is required prior to treatment initiation or inclusion in clinical trials.*
- *Clarifying the diagnosis in a person with younger onset dementia with an atypical clinical presentation, when the differential diagnosis includes non-Alzheimer neurodegenerative disorders such as frontotemporal dementia (FTD).*

When considering whether to use amyloid-PET, clinicians should be aware that:

- *The reference standard in studies included in the evidence review was clinical diagnosis rather than the 'gold standard' of neuropathological confirmation.*
- *A positive amyloid-PET in the absence of a comprehensive clinical evaluation does not by itself confirm Alzheimer's disease dementia, as amyloid may be present in other types of dementia and also in some cognitively unimpaired individuals.*
- *A negative amyloid-PET reduces the likelihood of Alzheimer's disease pathology and may be useful in excluding AD as the primary cause of dementia.*

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Amyloid-PET should not be used:

- *As a screening test in asymptomatic individuals or those with subjective cognitive complaints alone.*
- *When the clinical diagnosis is already clear and the result is unlikely to alter management.*
- *For prognostic purposes or disease staging.*

Practical info

Use shared or supported decision-making with the person undergoing assessment when considering use of amyloid-PET in the diagnostic processes, discussing the potential benefits, limitations, costs, and implications of results.

Explain the scan process in advance to the person living with dementia, and their carer if appropriate.

If considering a repeat amyloid-PET scan, discuss cumulative radiation exposure and document clinical justification.

Amyloid-PET is not funded by the Medicare Benefits Scheme, and access is limited and varies across Australia. Amyloid-PET is primarily available through specialist nuclear medicine services or clinical trials in metropolitan centres.

Discuss the relative advantages, disadvantages, and costs of alternative biomarkers with patients when such options are available (e.g., cerebrospinal fluid, blood-based).

Evidence to decision

Benefits and harms Important harms

Research evidence

Test accuracy

Source Guideline - Dementia Assessment, management and support for people living with dementia and their carers, NICE Guideline*(849)*, Italian National Guideline, Diagnosis and treatment of dementia and Mild Cognitive Impairment*(443)*.

Setting - Specialist care

Population - People (aged ≥ 40 years) with a suspected diagnosis of Alzheimer's disease dementia (ADD)

Measures of test accuracy - Pooled Sensitivity (Sn) and Pooled Specificity (Sp) and Likelihood ratios

Tests evaluated - Amyloid-Positron Emission Tomography (Amyloid-PET)

Reference Standard - Standard clinician diagnosis (including history, cognitive exam including neuropsychological assessment, physical exam including neurological examination and functional assessment, basic labs including blood tests and structural brain imaging, and application of standard clinical diagnostic criteria)

When using amyloid-PET to help with the diagnosis of ADD:

There is no meaningful change in the probability of the person having ADD (Based on new meta-analysis from 3 studies on a total of 11,729 participants, against standard clinician diagnosis but no neuropathological reference standard)*(1301)(778)(949)*.

Additional context for this result:

The NICE guideline reported findings for amyloid-PET from only from one study (n=211) that the test resulted in a moderate increase (positive test, moderate certainty) or a moderate decrease (negative test, moderate certainty) in the probability of diagnosing ADD in a person with suspected dementia*(849)*. The Italian Guideline, based on that and two additional studies (n = 11,719) reported with low certainty, sensitivities ranging from 0.52 to 0.76 and specificities ranging from 0.48 to 0.66, but did not perform a meta-analysis*(443)*.

Diagnostic accuracy of amyloid-PET

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Comparison	Studies	No. of participants	Design	Reference standard	Sensitivity (95% CI)	Specificity (95% CI)	Measure	Summary of findings (95%CI)	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Overall certainty (GRADE)	LR Interpretation
ADD versus non-AD	3 studies: (Zwan 2017 Rabinovici 2019 Matsuda 2022)	11719	Prospective	3× Standard clinical diagnosis	0.65 (0.55–0.75)	0.55 (0.43–0.67)	LR+ (95% CI)	1.45 (0.98–2.15)	Very serious [a]	Very serious[b]	Not serious[c]	Serious[d]	(-)	Very low	Slight increase in probability of AD dementia
							LR– (95% CI)	0.62 (0.37–1.05)	Very serious [a]	Very serious[b]	Not serious[c]	Serious[d]		Very low	Slight decrease in probability of AD dementia

From NICE guideline, with some editing.

[a] Risk of bias: Zwan 2017 was judged at low overall risk of bias, whereas Rabinovici 2019 and Matsuda 2022 were judged at high risk of bias due to concerns in the index test, reference standard and/or flow and timing domains. Together, these studies contributed approximately 68–69% of the meta-analytic weight; therefore, using the NICE criteria, risk of bias was judged very serious and downgraded by two levels.

[b] Inconsistency: Heterogeneity was very high across all outcomes: sensitivity I^2 = 85.6% ($p < 0.001$); specificity I^2 = 78.7% ($p = 0.01$); LR+ I^2 = 82.8% ($p = 0.003$); LR– I^2 = 89.2% ($p < 0.001$). All outcomes were downgraded by two levels for inconsistency.

[i] ndirectness: Evidence was based on specialist clinical diagnosis as the reference standard rather than neuropathological confirmation; however, this was considered appropriate for the review question and no downgrading was applied.

[d] Imprecision: Confidence intervals for likelihood ratios crossed thresholds for clinically meaningful effects ($LR^+ = 2$; $LR^- = 0.5$), indicating that estimates were compatible with both meaningful and non-meaningful changes in diagnostic probability; downgraded by one level.

Desirable effects (benefits)

Diagnostic accuracy for ADD [critical outcome]

- A positive or a negative result carries no meaningful change in the probability of diagnosing ADD versus non-ADD, with clinical pre-PET diagnosis as the reference standard (very low certainty)

Clinical Status - diagnosis of dementia sub-type [Critical outcome]

All three studies evaluated change in the management plan and the impact of amyloid-PET on downstream clinical decision-making:

- Zwan 2017, disclosure of amyloid-PET results led to a modification of the overall management plan in 79 of 211 patients (37%)*(1301)*.
- Matsuda 2022, management plans were altered in 42 of 99 participants (42%) following PET*(778)*.
- Rabinovici 2019 (IDEAS) study reported that the composite management endpoint changed in 63.5% of patients with dementia, with clinicians attributing 85.2% of these management modifications directly to the amyloid-PET findings*(949)*.

No evidence was reported for the following outcomes:

- Health, social care and treatment-related outcomes - Time to diagnosis [Important Outcome]
- Knowledge and Understanding (Consumer) - Patient and carer awareness of diagnosis [Important Outcome]

Undesirable effects (harms)

Adverse events [important outcome]

Two studies reported adverse events evaluating amyloid-PET:

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- Rabinovici 2019 reported 75 deaths between enrolment and the post-PET visit (17 pre-scan and 58 post-scan), with no suicides and no deaths or serious events attributed to the PET procedure*(949)*.
- Matsuda 2022 reported that no adverse events occurred following radiotracer administration or immediately after amyloid-PET scanning*(778)*.

  Overall, across the included studies, the available evidence does not indicate any clinically important harms attributable to PET imaging itself.

No evidence was reported for the following outcomes:

- Quality of life of the person with dementia [important outcome]
- Quality of life of the carer [important outcome]

Summary

Balance of effects: Guideline Development Group judgement and discussion

To decide on the balance of effects, the Guideline Development Group initially considered and made separate judgements about:

- test accuracy – **inaccurate**
- the size of desirable anticipated effects (benefit) – **moderate**
- the size of undesirable anticipated effects (harm) – **trivial**
- the overall certainty of the evidence for critical outcomes – **very low**
- whether there was important variability (or uncertainty) in how much people value the main outcomes – **possibly important uncertainty or variability.**

The Guideline Development Group considered the balance between desirable and undesirable effects of using amyloid-PET for the diagnosis of ADD in people with suspected dementia in specialist settings, taking into account the evidence on diagnostic accuracy, certainty of evidence, and variability in values.

Initial voting indicated that most members considered that the balance of effects probably favoured the use of amyloid-PET, while a smaller proportion considered that it probably favoured not performing an amyloid-PET scan.

During the discussion, some Group members explained that their preference for not performing an amyloid-PET scan was influenced by the judgement that test accuracy was inadequate, the certainty of the evidence was very low, and there was variability in how people value the outcomes. It was also noted that some individuals may have experienced fear or distress when learning that amyloid pathology was present.

Other Group members explained that their vote in favour of amyloid-PET reflected the view that potential diagnostic clarification outweigh the minimal harms associated with the procedure.

After discussion, the Group conducted a second vote. Most members indicated that the balance of effects probably favours not performing an amyloid-PET scan, while a smaller proportion indicated that it probably favours the use of amyloid-PET.

Overall, the Group reached consensus that the balance of effects **probably favoured** not routinely performing an amyloid-PET scan in this context.

Test accuracy: Guideline Development Group judgement and discussion

The Guideline Development Group discussed the diagnostic accuracy of amyloid-PET for identifying ADD in people with suspected dementia evaluated in specialist settings. Members noted that the interpretation of amyloid-PET findings is complex because the presence of amyloid pathology does not necessarily correspond directly with the clinical dementia syndrome.

Differing views were expressed regarding how amyloid-PET results should be interpreted. One view expressed by some Group members was that amyloid positivity indicates the presence of Alzheimer's disease pathology and therefore provides strong support for Alzheimer's disease dementia when a person already presents with a dementia syndrome. Other Group members emphasised that amyloid-PET detects pathology but does not determine whether that pathology explains the dementia syndrome. From this perspective, the presence of amyloid pathology alone may be considered insufficient to confidently establish a diagnosis of ADD. Group members highlighted three possible scenarios relevant to clinical practice: a person may have Alzheimer's disease pathology without a dementia syndrome; a person may have a dementia syndrome without amyloid pathology; and a person may have amyloid pathology but have a dementia syndrome caused by another condition that mimics the cognitive profile of ADD (such as Limbic predominant Age-related TDP-43 Encephalopathy - LATE). It was therefore noted that establishing Alzheimer's disease dementia requires confidence in the congruence between the clinical presentation and biomarker findings rather than relying on amyloid positivity alone.

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Group members also noted that the interpretation of amyloid-PET findings depends heavily on the clinical context, including the pattern of cognitive deficits, the patient's age, and the possibility of alternative or comorbid pathologies.

Questions were raised about the clinical context represented by the included evidence. It was clarified that the studies informing the review generally included patients in whom the aetiology of dementia remained uncertain despite comprehensive clinical assessment. The analysis compared amyloid-PET findings with pre-PET clinical diagnoses, and not neuropathology, and therefore represents an indirect and imperfect approach to addressing the diagnostic question. Members noted that this approach and that the absence of a definitive gold standard in the studies included in the review contributed to the judgement of very low certainty in diagnostic accuracy estimates, consistent with the assessment made in the NICE guideline. The concept of certainty of evidence was clarified during the discussion. It was noted that in the GRADE framework, certainty refers to confidence in the evidence base rather than certainty about the biological process detected by the test.

Following discussion, the Group voted on the overall diagnostic accuracy of amyloid-PET. The Group reached consensus that amyloid-PET is **inaccurate** for diagnosing ADD, while noting the imperfectness of the reference standard and the complexity of assigning a diagnosis as raised in the discussions.

Desirable effects (benefits): Guideline Development Group judgement and discussion

The Guideline Development Group considered that identifying brain amyloid may help clarify the underlying cause of cognitive impairment in situations where the aetiology remains uncertain after comprehensive clinical assessment. In these cases, amyloid-PET may contribute to diagnostic clarification and may support clinical decision-making.

The Group noted that identifying amyloid pathology may also influence clinical management in some situations, including decisions about further investigations, discussions with patients and families about the likely underlying disease process, and consideration of disease-modifying therapies where these are available.

Other Group members noted that the extent to which amyloid-PET changes clinical decision-making depends on the clinical context. They highlighted that the test may be more informative in selected scenarios, such as in younger patients.

Overall, consensus was reached that the desirable effects were **moderate.**

Undesirable effects (harms): Guideline Development Group judgement and discussion

The Guideline Development Group noted that the available evidence did not indicate clinically important harms attributable to PET imaging. In addition, no evidence was identified regarding quality-of-life outcomes for people living with dementia or their carers. Following the presentation of this information, no questions or comments were raised by the Group.

The Group reached consensus that the undesirable effects associated with amyloid-PET in this context were **trivial.**

Certainty of the evidence

Very low

Research evidence
The overall certainty of the body of evidence was determined by the lowest certainty rating of all the critical outcomes.

Summary
The overall certainty of the body of evidence for this question was **very low.**

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Values and preferences

Substantial variability is expected or uncertain

Research evidence
General Considerations

NICE Clinical Practice Guideline

The NICE guideline committee considered that sensitivity, specificity, and positive and negative likelihood ratios, reflect different aspects of diagnostic accuracy and should all be considered in decision making. The committee also highlighted that individuals in whom diagnosis is difficult may undergo multiple sequential tests, including imaging and biomarkers tests before a diagnosis is confirmed*(849)*.

Other Research evidence (No systematic review)

International context

A study conducted in the Netherlands by the Amsterdam University Medical Center (Amsterdam UMC, Alzheimer Center Amsterdam) in collaboration with the University Medical Center Groningen, as part of the ABIDE (Amyloid Biomarkers in Dementia) consortium, explored how members of the general public value additional diagnostic information obtained through amyloid-PET in the context of mild cognitive impairment (MCI)*(1183)*. Using a randomised online bidding-game experiment with 1,431 participants representing the Dutch general population, the study elicited willingness-to-pay values under three scenarios of incremental health benefit. Most participants (87%) preferred to undergo amyloid-PET, with a median stated value of €1,500 ($AUD2500) prior to randomisation and €2,000 ($AUD3500) when the test was likely to improve patient management. Participants were willing to pay about €500 ($AUD900) more if the result delayed institutionalization by 3–6 months*(1183)*.

The Appropriate Use Criteria (AUC) for amyloid-PET, developed by an expert panel convened by the Society of Nuclear Medicine and Molecular Imaging and the Alzheimer's Association in the US*(624)*, emphasised that amyloid-PET may increase diagnostic confidence and inform clinical management decisions. The panel noted that a positive scan supporting a diagnosis of Alzheimer's disease could support earlier and more targeted use of symptomatic therapies, such as acetylcholinesterase inhibitors or memantine, while a negative result could help avoid unnecessary or inappropriate treatment and prompt consideration of alternative diagnoses. The AUC also highlights that

diagnostic clarification may have psychological and practical value for patients and caregivers, including facilitating early planning, counselling, and access to support services, even in the absence of disease-modifying therapy*(624)*.

A systematic review synthesised six qualitative studies involving 381 individuals with cognitive impairment and 304 care partners from the US, Canada, and Belgium*(351)*. Across studies, the main motivation for undergoing amyloid-PET was the desire for diagnostic clarity and understanding the cause of cognitive symptoms. Participants viewed the information obtained from the scan as highly valuable, describing it as "providing answers" and helping them plan. Both patients and care partners emphasised that a definitive diagnosis reduced uncertainty and facilitated informed decision-making, reinforcing that accurate etiological information has strong personal and practical value even in the absence of curative treatment*(351)*.

The Caregivers' Reactions and Experience (CARE) study, a supplemental study of the Imaging Dementia Evidence for Amyloid Scanning (IDEAS) study conducted in the US, examined emotional and behavioural outcomes among 1,761 care partners of individuals with mild cognitive impairment (MCI) or dementia who received amyloid-PET results*(190)*. When results aligned with expectations, care partners reported feelings of relief and gratitude and described the information as helpful for planning and decision-making. Unexpected findings, particularly elevated amyloid in individuals with MCI, were associated with higher levels of distress, and anxiety, whereas non-elevated results were often associated with reassurance, although some care partners reported ongoing uncertainty regarding the cause of symptoms*(190)*.

Perceived benefits of amyloid-PET in clinical care was evaluated in a survey of 510 patients and caregivers from 48 US, two Canadian provinces, and additional international sites*(845)*. Nearly all respondents (99.6%) indicated they would undergo amyloid-PET if recommended by their clinician, and 99.4% supported further research into its clinical utility. Participants expressed overwhelmingly positive views about incorporating amyloid imaging into diagnosis, describing it as essential for understanding disease status, communicating with family, and planning. More than 85% believed early definitive diagnosis would be beneficial for legal and financial planning, and over 90% for family communication and disease education. Respondents emphasised that having objective confirmation of Alzheimer's pathology would provide emotional relief, reduce uncertainty, and assist in making proactive life decisions*(845)*.

The systematic review and meta-analysis conducted by Fantoni et al. included 17 studies involving 3,417 participants undergoing evaluation for Alzheimer's disease across multiple countries*(445)*. The review aimed to quantify the added value of amyloid-PET in cognitively impaired individuals. Across studies, amyloid-PET results were associated with a change in diagnosis in 31.3% of cases and an increase in diagnostic confidence in 62.1%. These findings indicated that amyloid-PET was associated with changes in diagnostic classification and increased clinician confidence in a substantial proportion of patients*(445)*.

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Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect evidence on how Aboriginal and Torres Strait Islander peoples living with dementia value outcomes related to amyloid-PET.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect evidence on how people from culturally and linguistically diverse backgrounds living with dementia value outcomes related to amyloid-PET.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect evidence on how LGBTQIA+ people living with dementia value outcomes related to amyloid-PET.

Considerations for people with disability

We did not identify studies that provided direct or indirect evidence on how people with disability value outcomes related to amyloid-PET.

Considerations for people with younger onset dementia

There is often a delay in diagnosis of younger onset dementia due to heterogeneity of symptoms*(738)*. However, no systematic reviews or meta-analyses specifically evaluating the diagnostic utility of amyloid-PET in people with younger onset dementia were identified. While individuals with younger onset dementia were included in some primary studies (e.g. Rabinovici et al., 2019*(949)*), no study specifically examined this subgroup, limiting the applicability of the evidence to this population.

Considerations for people living outside major cities

We did not identify studies that provided direct or indirect evidence on how people living outside major cities and living with dementia value outcomes related to amyloid-PET.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- The Living/Lived Experience Advisory Group expressed that the value of imaging tests depends on why they are being used. They are especially important when it is critical to confirm whether someone has Alzheimer's disease dementia so they can access new treatments, or when a person and their family want certainty about the type of dementia. In these cases, accuracy and awareness of possible side effects really matter.
- There was variability among the Living/Lived Experience Advisory Group with some feeling that if imaging gave clear answers, it should continue to be used, while emerging and simpler blood biomarkers may help in other situations. Knowing the dementia subtype could make a big difference to quality of life, care decisions, and treatment planning, and many saw imaging as a useful second step after blood-based tests. Others emphasised that the choice should be personalised, guided by a specialist, and centred on the person's needs with one Living/Lived Experience Advisory Group member stating that person-centredness should be added as an outcome.

Summary

Key points

- When used appropriately, amyloid-PET imaging can provide diagnostic clarity, reduce uncertainty, thus supporting planning, counselling and family communication*(624)*.
- International experience suggested that many people are willing to pay for amyloid-PET scans*(1183)*.
- Australian perspective suggested that people with suspected younger onset dementia particularly value early diagnosis*(738)*.

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Guideline Development Group judgement and discussion

Feedback from the Living/Lived Experience Advisory Group indicated that views about the value of amyloid-PET vary. Some individuals felt there was little value in having the test, while others described difficulties associated with undergoing the scan, particularly for people with disabilities or those with a moderate level of dementia. Concerns or fear about undergoing the procedure were also reported.

Following discussion, the Guideline Development Group voted on this domain and reached consensus that there is **possibly important uncertainty or variability** in how people value the outcomes associated with the use of amyloid-PET in this context.

Resources

Important negative issues

Research evidence

General Considerations

NICE Clinical Practice Guideline

The NICE guideline committee noted that, in cases of diagnostic uncertainty, performing imaging or biomarker tests sequentially, rather than in parallel, may result in a clear diagnosis while reducing patient exposure to potential distressing and lowering costs to healthcare system. The committee also noted that, although imaging test are associated with substantial initial equipment costs, these technologies are already routinely used, and the incremental cost per test is considerably lower once established*(849)*.

Other Research evidence (No systematic review)

Resource requirements

Resource	Description Amyloid-PET*(815)*
Staff	• Nuclear medicine physician/radiologist trained in binary amyloid interpretation (manufacturer-certified). • PET technologist for tracer preparation, uptake supervision, scan. • Nurse for cannulation. • Medical physicist for quality control.
Training	• Training programs for physicians provided by manufacturers (certification for florbetapir, flutemetamol, or florbetaben binary reads) • Technologists require appropriate certification and training • Training in visual/binary interpretation
Supplies [medical supplies]	• Radiotracer • IV cannulation supplies.
Equipment and infrastructure	• PET/CT scanner. • Hot-lab for tracer receipt and quality control. • Radiotracer delivered externally (cyclotron not required onsite).
Time	Varies by tracer, e.g.,: Florbetapir: 30–50 min uptake → 10 min scan. Florbetaben: 90 min uptake → 20 min scan. Flutemetamol: 90 min uptake → 20 min scan. • Interpretation: 10–20 min (binary read).
Supervision and monitoring	• Sedation monitoring • Monitoring for falls and mobility safety • Radiation safety • Injection-site monitoring

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Australian context

Amyloid-PET is not currently funded under Medicare, and private costs vary between providers ($AUD1200-2000 per scan)*(36)*. Free diagnostic assessments are available through the Australian Dementia Network (ADNeT) Screening for Trials program, which accepts referrals from clinicians, general practitioners, and memory clinics for individuals with suspected early Alzheimer's disease dementia*(743)*. As of 2020, screening sites operated in Melbourne and Perth, with new centres commencing at Macquarie University (Sydney) and the South Australian Health and Medical Research Institute (SAHMRI, Adelaide). However, only a small subset of people with ADD is eligible for this program, as current pharma-sponsored trials determine the inclusion criteria. For example, people may not be eligible to participate if aged<65 years, if they do not have English language proficiency, or they have limited formal education. In addition, in 2026, at time of publication of these guidelines, the duration of this program is not known, and may not be available.

A national, cross-sectional online survey of medical specialists was applied across Australian memory and cognition clinics, to determine the infrastructure, workforce and training needs required to characterise health system preparedness for rollout of amyloid-targeting therapies for Alzheimer disease*(809)*. Only 40% of clinics used imaging biomarkers in their diagnostic work-up. Clinicians reported that access barriers, wait times for PET scans, and out-

of-pocket expenses for patients impede the use of biomarker imaging. PET wait times averaged 36± 27.6 days, and limited infrastructure, including cold storage capacity, infusion space, and availability of nursing or administrative support, was also identified as a constraint*(809)*.

International context

Chételat et al.*(309)*, described amyloid-PET as a resource-intensive technology, with individual scan costs estimated at €2000–2500 ($AUD3500-4500) in European settings and US$3000–4500 ($AUD4600-7000) in the US*(309)*. The authors reported that cost-effectiveness remains uncertain in the absence of disease-modifying treatments, as there is insufficient evidence that biomarkers reduce disease burden or overall costs. They also highlighted that PET imaging requires specialised infrastructure and trained personnel, and that availability and reimbursement vary across settings*(309)*.

A non-randomised controlled study conducted in the US by Rabinovici et al.*(947)* analysed 12,684 Medicare beneficiaries with MCI or dementia who participated in the IDEAS study and compared them with a matched Medicare control group not undergoing amyloid-PET imaging. The study aimed to determine whether amyloid-PET was associated with a reduction in hospitalisation and emergency department (ED) visits over a 12-month follow-up period. The authors reported a 4.5% relative reduction in 12-month hospitalisation, which did not meet the predefined threshold of a 10% reduction*(947)*. No statistically significant differences were observed in hospitalisation or ED visit rates between groups. These findings suggested that, among Medicare beneficiaries with cognitive decline, amyloid-PET use was not associated with a meaningful reduction in healthcare utilisation over 12 months*(947)*.

The Appropriate Use Criteria (AUC) highlight that amyloid-PET should be used judiciously to ensure efficient resource utilisation*(624)*. It is recommended only when the outcome of the scan is expected to influence management, avoiding unnecessary or duplicate testing. The taskforce considered amyloid-PET a high-cost procedure requiring specialised tracers and infrastructure, reinforcing the need for clear referral criteria to maintain cost-effectiveness within health systems*(624)*.

Cost-effectiveness

We did not identify studies that provided direct or indirect cost-effectiveness in relation to amyloid-PET.

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Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect resource evidence in relation to amyloid-PET for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect resource evidence in relation to amyloid-PET for people from culturally and linguistically diverse backgrounds.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect resource evidence in relation to amyloid-PET for LGBTQIA+ people living with dementia.

Considerations for people with disability

We did not identify studies that provided direct or indirect resource evidence in relation to amyloid-PET for people with disability.

Considerations for people living with younger onset dementia

The system is not designed for young people: Services are not set up for people with younger onset dementia. They often need multiple specialists, and they are not age appropriate or connected. There are few settings that are set up to assess and manage people with younger onset dementia.

People with younger onset dementia often are carers themselves, and need to navigate how to remain in employment, and how to access NDIS services*(284)*. People diagnosed with younger onset dementia often have loss of earnings before diagnosis. Early diagnosis and robust social support systems are vital to alleviate the financial and professional challenges faced by individuals with dementia under age 65*(170)*.

Considerations for people living outside major cities

We did not identify studies that provided direct or indirect resource evidence in relation to amyloid-PET for people living outside major cities.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- Amyloid-PET scans are more costly for individuals when compared to FDG-PET, which is covered by Medicare. The added expense of travel can further burden people since PET facilities are often limited to metropolitan areas. Although cost ideally should not be a barrier when a scan is needed for diagnosis, it remains a significant factor influencing access and decision-making.
- Person-centred decision-making depends on skilled staff who can clearly explain the risks and benefits of PET scans. However, limited health literacy can make it difficult for some people to access or understand this information. It is equally important to consider the communication needs of people living with dementia after diagnosis, along with the resources and support required to help them and their families navigate the next steps.
- In many hospitals, often only one clinician is trained to deliver PET scans, meaning that if they are unavailable, waitlists lengthen.
- PET scans depend on isotopes which lose effectiveness rapidly and cannot be transported long distances. This restricts their use to metropolitan centres where they can be produced and applied quickly.
- For people with disabilities, physical access to facilities and positioning can be a significant challenge, which makes a 5-min scan a 1h+ scan and may require additional staffing to facilitate positioning. This would also impact carer time, as they would be left waiting for much longer.
- If anti-amyloid therapies become supported by the Pharmaceutical Benefits Scheme, then it is likely that more people may seek the amyloid-PET which may drive additional demand, with workforce and financial implications. There is likely to be no spike in demand for amyloid-PET without a change in treatments.

Summary

Key points

Australian context

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- Amyloid-PET is not funded under the Medicare Benefits Schedule. Costs are private and vary by provider ($AUD1200-2000 per scan)*(36)*.
- Amyloid-PET is available free only through ADNeT Screening for Trials, offered in Melbourne, Perth, Sydney (Macquarie University), and Adelaide (SAHMRI), and this availability is limited by current trial inclusion criteria*(743)*.

International context

- Amyloid-PET is a resource-intensive technology with reported per-scan costs of €2000–2500($AUD3500-4500) in Europe and US$3000–4500 ($AUD4600-7000) in US, and its cost-effectiveness remains uncertain due to lack of evidence of impact on disease burden or healthcare costs*(309)*.
- The amyloid-PET imaging taskforce of the Society of Nuclear Medicine and Molecular Imaging recommendations state that amyloid-PET is a high-cost procedure that should be used only when results will influence management*(624)*.
- Amyloid-PET requires specialised tracers and infrastructure*(624)*.

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Guideline Development Group judgement and discussion

Resources

No discussion or additional comments were raised by the Guideline Development Group beyond the information presented. The Group agreed that the resource requirements associated with amyloid-PET are **large.**

Equity Intervention likely increases inequity

Research evidence

General Considerations

NICE Clinical Practice Guideline

The NICE guideline committee recognised that certain population groups, including people with learning disabilities, Down's syndrome, language or sensory impairment, and lower educational attainment, may face additional challenges in the diagnosis of dementia. The committee noted that some cognitive tests may be less robust in these populations due to cultural and educational differences, which may affect diagnostic accuracy. They emphasised the importance of assessment by clinicians with appropriate expertise and the need to adapt the diagnostic process, including the use of imaging and biomarker tests, to individual patient characteristics*(849)*.

Other Research evidence (No systematic review)

Australian context

The Australian report highlights the need for culturally safe models of diagnosis and care for Aboriginal and Torres Strait Islander people*(829)*. In terms of equity, it provided evidence that dementia research must be adapted to diverse cultural contexts to prevent new technologies such as PET from reinforcing inequalities. The document emphasised that equitable access requires sustained funding and local staff training, showing that equity depends on a deliberate effort in implementation*(829)*.

International context

The IDEAS study in the US, evaluated the association between amyloid-PET and changes in clinical management among ethnoracially diverse, clinically heterogeneous patients*(1266)*. This trial enrolled a racially and ethnically diverse cohort: 21.7% Black, 20.3% Latinx, and 58.1% all other races/ethnicities (AORE). Post-PET management changes were consistently >30% across all groups, though slightly lower in Black (55.3–55.8%) and Latinx (53.7–61.9%) compared with AORE (58.3–62.0%). Diagnostic shifts from AD to non-AD occurred more often in Black and Latinx (~25.5%) vs AORE (22.2%), suggesting these groups may derive particular benefit from diagnostic clarification*(1266)*.

The international online survey conducted in US, Canada, the Dominican Republic, and Greece, reported no significant differences by urban versus rural residence or across US regions in support for amyloid-PET availability, perceived benefits, or willingness to undergo imaging*(845)*. However, regional variation was observed in how participants reported they would use scan results. Participants from the US Midwest were more likely to report using results for legal planning (93%), disability insurance (67.5%), and life insurance (60.5%) compared with other regions. The authors noted that these differences may reflect broader regional disparities in education and health insurance coverage, highlighting how socioeconomic and geographic factors may influence how individuals act on diagnostic information*(845)*.

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The Amyloid Imaging Taskforce of the Society of Nuclear Medicine and Molecular Imaging*(624)* acknowledged inequities in access to amyloid-PET, as availability is largely restricted to specialised centres with PET capability and tracer supply chains. Geographic and economic barriers may limit access for people in rural or underserved regions. The Taskforce recommended developing referral pathways and equitable access strategies to avoid disproportionate benefit for urban or privately insured populations*(624)*.

A systematic review identified significant gaps in diversity and representation among participants in studies exploring experiences with amyloid-PET imaging*(351)*. Across 381 individuals with cognitive impairment and 304 care partners, over 80% were White, with average education levels of 16 years for patients and 17.8 years for care partners. Most studies were conducted in the US, with only two outside North America (Canada and Belgium). The authors highlighted that these sociodemographic patterns limit the generalisability of findings and the need for future research involving more ethnoculturally and socioeconomically diverse populations. This evidence indicated that current knowledge on the perceived value and experience of amyloid-PET reflected predominantly highly educated, White populations with better access to specialist care, pointing to ongoing inequities in representation and potentially in access to diagnostic imaging for dementia*(351)*.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect equity evidence in relation to amyloid-PET for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect equity evidence in relation to amyloid-PET for people from culturally and linguistically diverse backgrounds.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect equity evidence in relation to amyloid-PET for LGBTQIA+ people living with dementia.

Considerations for people with disability

We did not identify studies that provided direct or indirect equity evidence in relation to amyloid-PET for people with disability.

Considerations for people living with younger onset dementia

People with younger onset dementia may need more diagnostic tests including PET imaging to determine diagnosis*(738)*. The clinical presentation of younger onset dementia is varied and may include cognitive, psychiatric and neurological symptoms. Diagnostic delay is common, with a frequent diagnostic conundrum being, 'Is the diagnosis young-onset dementia or is it a psychiatric condition?'.

Considerations for people living outside major cities

We did not identify studies that provided direct or indirect equity evidence in relation to amyloid-PET for people living outside major cities.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- Healthcare professionals should consider equity information collected on intake forms to help manage issues they may encounter during the procedure (e.g., recording of physical barriers to x-ray for post-polio survivors).
- The Living/Lived Experience Advisory Group shared stories of not being offered appropriate management due to their age and emphasised that care (including tests like PET scans) should still be offered to people regardless of age or diagnosis of dementia. There is some ageism in the medical system.
- Equity for LGBTQIA+ people who have a good support network and family ties would likely not be affected; however, trans people are often isolated from their families of origin, and their families of choice may not be very supportive. They often live by themselves and are fearful of accessing healthcare services due to experience of discrimination. There is significant risk regarding disclosure to new and unknown specialists.
- Physical access to equipment (e.g., tables etc.) required for scanning and positioning can be a significant challenge for people living with disability (e.g., as a post-polio survivor), which also makes a 5-min scan a 1h+ scan. It also may require additional staffing to facilitate positioning. This would also impact carer time, as they would be left waiting for much longer.
- Access to PET scans requires a lot of travel for people and people who living outside major cities may not be able to access them. The diagnosis and treatment experiences are fundamentally different between people living in metro vs. regional/rural/remote regions.
- Blood-based biomarkers may be better to for people living remotely as they are cheaper and easier to access.
- PET scans tend to be used a bit more in younger people, based on the Living/Lived Experience Advisory Group LEAG's experience and network, the technology seems to not be as scary to younger people as older people.

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Summary

Key points

Australian context

- Equity concerns have been raised around culturally safe diagnostic pathways for Aboriginal and Torres Strait Islander people and other priority groups; implementation requires targeted funding and local workforce training*(829)*.

International context

- A systematic review reported that over 80% of participants in amyloid-PET studies were White and highly educated, with most studies conducted in the US, indicating limited diversity and representation of minority groups. These demographic patterns highlighted gaps in representation and limited applicability to more diverse populations*(351)*.
- In the IDEAS study, management changes related to the PET scan were >30% across all racial/ethnic groups, but slightly lower in Black (55.3–55.8%) and Latinx (53.7–61.9%) participants vs AORE (58.3–62.0%). Diagnostic shifts from AD→ non-AD were more common in Black and Latinx groups (~25.5%) than AORE (22.2%), suggesting

potential benefit in reducing misdiagnosis disparities. Recruitment required culturally adapted and Spanish-language materials, acknowledging structural barriers to inclusion*(1266)*.

- Survey data (510 participants) showed no geographic differences in willingness to undergo amyloid-PET, but regional differences in how diagnostic information would be used, reflecting socioeconomic variation*(845)*.

Guideline Development Group judgement and discussion

The Guideline Development Group noted that amyloid-PET is not currently funded under the Australian Medicare Benefits Schedule, meaning access often depends on private self-funding or participation in ADNeT screening programs. It was also noted that access may be limited by geographic location, as most services are available in metropolitan areas, and by structural factors such as availability of trained staff and specialised infrastructure. Additional considerations highlighted that out-of-pocket costs and travel requirements may create barriers for people living in disadvantaged or regional areas.

No comments or additional discussion were raised by the Group prior to voting. The Group agreed that the use of amyloid-PET in this context would **probably reduce** health equity.

Acceptability

No important issues with the recommended alternative

Research evidence

Research evidence

General Considerations

Procedural considerations are inherent to PET imaging. All PET scans require intravenous cannulation, which may cause discomfort, anxiety, or lead some patients to decline the procedure. PET also involves exposure to ionising radiation, which although low for a single scan, is unavoidable across all PET modalities. Accumulated radiation dose may limit future imaging options for patients who require repeated evaluations. Furthermore, some individuals, particularly those with claustrophobia, agitation, or behavioural disturbances, may have trouble tolerating the scanner environment.

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NICE Clinical Practice Guideline

The NICE guideline committee stated that some diagnostic tests, including imaging biomarkers may be stressful and not well tolerated by some patients, particularly those with advanced dementia or claustrophobia. The committee emphasised that these tests should be considered acceptable only when results are likely to meaningfully reduce diagnostic uncertainty and when this is expected to influence clinical management*(849)*.

Other Research evidence (No systematic review)

Australian context

The Australian Imaging, Biomarker & Lifestyle (AIBL) Study of Ageing assessed the biomarkers, genetic factors, cognitive characteristics, and health and lifestyle factors that determine the development of Alzheimer's disease*(470)*. In the AIBL study report, only ~2% of withdrawals cited being "unwilling to undergo PET neuroimaging or CSF collection," with ~4% reporting psychological distress, suggesting generally good acceptability when tests were offered in specialist programs*(470)*. However, participants were volunteers, mainly White and highly educated, with a family history of dementia, and therefore may not be representative of the wider community.

Evidence from the national, cross-sectional online survey of medical specialists, clinicians indicated generally positive attitudes toward the use of biomarker-based diagnostics in the context of amyloid-targeting therapies. Clinicians reported high levels of confidence in their knowledge of amyloid-targeting mechanisms and related clinical trial evidence with 80% expressing confidence*(809)*. Some clinicians reported that patients were willing to undergo amyloid-PET imaging when they could afford it. However, only 40% of clinics reported incorporate biomarker imaging into routine diagnostic pathways, and clinicians identified limited capacity, long wait times, and inadequate infrastructure as barriers to wider use*(809)*.

International context

In a US-based analysis, there was high willingness to pursue amyloid-PET if available (>99%) suggesting that the test was highly acceptable to both patients and caregivers, who also reported strong emotional responses to its lack of

routine availability*(845)*. When asked whether additional research on amyloid-PET would be beneficial, 507 (99.4%) responded and 508 (99.6%) reported that they would choose to undergo amyloid-PET if it were offered*(845)*.

The New IDEAS study evaluated the utility of amyloid-PET in a broad and diverse population of Medicare beneficiaries meeting 2018 NIA-AA criteria for MCI or dementia*(1266)*. This study embedded standardised acquisition, interpretation training, and routine disclosure in the US Medicare. High participant diversity, strong engagement strategies, and high completion rates for post-PET follow-up suggested that amyloid-PET was broadly acceptable to both patients and clinicians across different demographic groups*(1266)*.

A study conducted in the Netherlands evaluated how people value additional diagnostic testing for MCI with amyloid-PET*(1183)*. The results showed that 87% of participants preferred to undergo amyloid-PET, indicating strong acceptance of the test even in the absence of curative treatments. Willingness to undergo testing was not associated with income, education, or quality of life, but was lower among women and those less worried about developing Alzheimer's disease*(1183)*

The Appropriate Use Criteria developed by the Alzheimer's Association and the Society of Nuclear Medicine and Molecular Imaging (SNMMI) outline when amyloid-PET is appropriate, such as in unexplained mild cognitive impairment, atypical or mixed presentations, or younger onset dementia, and when it is not, including in asymptomatic individuals or assessment of disease severity*(624)*. These recommendations reflect broad professional acceptance of amyloid-PET for well-defined clinical indications. The taskforce also recognized that learning one's amyloid status may provoke anxiety or stigma and therefore recommended structured pre- and post-test counselling to support informed consent and psychological preparedness. With these safeguards, amyloid-PET was considered ethically and socially acceptable to both clinicians and patients*(624)*.

A US prospective qualitative study of 30 individuals with MCI and 29 care partners examined decision-making regarding amyloid-PET using florbetapir F18 before participants received their scan results*(724)*. Interview data showed that most participants viewed amyloid-PET to obtain more information about the possible cause or likely course of their cognitive symptoms, and many referenced using this information for future planning. Participants equated amyloid positivity with an Alzheimer's disease diagnosis despite counselling, while others sought to know their amyloid status simply "for knowledge's sake." Reported drawbacks of amyloid-PET were infrequent; when mentioned, they primarily concerned the possibility that results would not change treatment or might lead to psychological distress*(724)*.

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A qualitative study conducted in Belgium with 38 patients diagnosed with amnestic MCI examined their perspectives on the disclosure of brain amyloid-PET results obtained within a research context*(1186)*. All participants chose to receive their individual amyloid-PET result. Before disclosure, participants described reasons for wanting their amyloid-PET information, including understanding their current brain health status, clarifying the cause of their memory problems, making practical and future arrangements, considering treatment or lifestyle adjustments, and informing family members. Reported disadvantages focused mainly on potential emotional impact, the implications of a positive amyloid finding, and concerns about restrictions that might follow a confirmed abnormal result. The study also documented misunderstandings among participants regarding the terminology of "positive" and "negative" amyloid-PET results and limited awareness of the limitations of amyloid-PET for use in MCI*(1186)*.

A US study within the Risk Evaluation and Amyloid Imaging for Screening in Relatives (RAISR) Trial examined health-related behaviour after disclosure of amyloid-PET results in 82 individuals with MCI. Among the 71 participants with complete follow-up, the study found no significant differences between amyloid-positive, amyloid-negative, and control groups in lifestyle changes, supplement use, cognitive activities, stress-reduction practices, or completion of advance directives over 12 months. Amyloid-negative participants were less likely than controls to consider long-term care insurance and to report "other" behaviour changes, which included adjustments in driving, finances, work, residence, alcohol use, management of comorbidities, and social or leisure activities*(1231)*.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect acceptability evidence in relation to amyloid-PET for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect acceptability evidence in relation to amyloid-PET for people from culturally and linguistically diverse backgrounds.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect acceptability evidence in relation to amyloid-PET for LGBTQIA+ people living with dementia.

Considerations for people with disability

We did not identify studies that provided direct or indirect acceptability evidence in relation to amyloid-PET for people with disability.

Considerations for people living with younger onset dementia

We did not identify studies that provided direct or indirect acceptability evidence in relation to amyloid-PET for people with younger onset dementia.

Considerations for people living outside major cities

We did not identify studies that provided direct or indirect acceptability evidence in relation to amyloid-PET for people living outside major cities.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- The Living/Lived Experience Advisory Group stated that the concept of PET scans would generally be acceptable as they are used across a wide range of medical conditions. However, the specific experience of PET scans (i.e., lying still in a machine, visits to hospital) may be distressing and unacceptable to some people living with dementia, especially in later stages of dementia.
- PET scans are just one tool in the diagnostic process, and their use should be guided by choice and person-centred care. Amyloid-PET may be considered if there is a specific need, depending on cost and acceptability. This decision should be made by specialists, but always with the person's preferences at the centre.

Summary

Key points

Australian context

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- In the AIBL study, only ~2% withdrew due to unwillingness to undergo PET neuroimaging or CSF collection, indicating high participant acceptability*(470)*.
- In a national specialist survey, clinicians regarded amyloid-PET positively but noted that practical barriers (cost, access, capacity) limit real-world use, not willingness*(809)*.

International context

- International survey (510 participants): 99.6% stated they would undergo amyloid-PET if offered, showing very high acceptability among patients and caregivers*(845)*.
- 99.4% believed additional research on amyloid-PET would be beneficial(Mustafa et al., 2018).
- New IDEAS cohort: high diversity, strong engagement strategies, and high follow-up completion demonstrated broad acceptability across demographic groups*(1266)*.
- Dutch willingness-to-test study: 87% preferred to undergo amyloid-PET, showing strong acceptance even without curative treatment*(1183)*.
- Acceptability was not associated with income, education, or quality of life; acceptance was lower among women and those less worried about Alzheimer's disease*(1183)*.
- Appropriate Use Criteria state that amyloid-PET may be acceptable within well-defined indications and recommended structured pre- and post-test counselling to manage potential anxiety or stigma*(624)*.
- Qualitative evidence showed that people often choose amyloid-PET primarily to obtain clarification of symptoms and support for future planning*(1186)*.

Guideline Development Group judgement and discussion

The Guideline Development Group noted that some procedural aspects of PET imaging may cause discomfort, anxiety, or claustrophobia, and that some individuals may decline the procedure for these reasons. It was also noted that the amount of radiation exposure may limit repeated imaging.

Information presented from studies and stakeholder input indicated that amyloid-PET is generally considered acceptable. Clinicians reported a positive view of amyloid-PET, although practical barriers may limit its implementation in routine practice.

Feedback from the Living/Lived Experience Advisory Group indicated that PET imaging is generally viewed as acceptable because it is widely used in other medical conditions. However, the experience of lying still during scanning may be distressing or unacceptable for some people living with dementia. It was also noted that imaging should be considered as one component of the diagnostic process and that decisions should be guided by person-centred care.

The Group agreed that the use of amyloid-PET was **probably acceptable** to key interest holders.

Feasibility

Intervention is likely difficult to implement

Research evidence

General Considerations

NICE Clinical Practice Guideline

The committee noted that appropriate interpretation of imaging biomarker results requires specialist expertise in dementia diagnostics and nuclear medicine. Implementation feasibility depends on local availability of PET infrastructure and trained personnel, as well as integration into established diagnostic pathways to avoid unnecessary testing and duplication of services*(849)*.

Which PET scans are available in Australia?

Access to amyloid-PET imaging is generally limited to research settings, and patients may be referred to programs such as the Australian Dementia Network (ADNeT) Screening for Trials, which offers biomarker testing for eligible participants at designated research centres across Australia. In early 2025, an application was submitted to the Medical Services Advisory Committee (MSAC) seeking MBS funding for amyloid-PET scans to determine eligibility for the anti-amyloid monoclonal antibody donanemab*(28)*. If approved, this would establish a specific subsidised access pathway for amyloid-PET in clinical care. Currently, amyloid-PET is also used extensively within clinical trials and observational studies investigating Alzheimer's pathology.

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Access to PET imaging is largely limited to metropolitan areas, which may exacerbate inequities for people living in regional, rural, and remote communities*(131)*. The Australian Department of Health and Aged Care website on PET locations, includes sites across Australia where licensed PET units operate. These units are located only in the localities for which licensing has been granted under the national regulatory framework for PET equipment. This constrained distribution limits operational feasibility for nationwide implementation, as many specialist services, particularly those in regional, rural, and remote areas, do not have on-site PET access and rely on referral pathways or patient travel to obtain PET imaging*(131)*.

The Australian Imaging, Biomarkers and Lifestyle (AIBL) study demonstrated the feasibility of large-scale, longitudinal imaging in Australia. More than 2,300 participants underwent amyloid-PET alongside longitudinal cognitive assessments, with many also undergoing MRI, while tau-PET was performed in a smaller subset of participants in more recent study phases. The study was conducted across multiple centres with repeated assessments over more than 15 years, indicating that sustained biomarker imaging was logistically feasible in specialised research networks*(470)*.

In the national, cross-sectional online survey of medical specialists only a minority of clinics reported being able to refer patients for confirmatory amyloid-PET imaging, and some cases this was performed routinely in only a small proportion of patients*(809)*. Clinicians reported that access to amyloid-PET was constrained by availability and out-of-pocket costs, and that long wait times limited the ability to incorporate imaging results into the diagnostic work-up. The survey also identified lack of current Models of Care and appropriate-use guidelines as barriers in the broader context of implementing amyloid-targeting therapies*(809)*.

Other Research evidence (No systematic review)

International context

Appropriate Use Criteria (AUC) for amyloid-PET described technical and logistical requirements relevant to its implementation*(624)*. The short half-life of ^11C-PiB (approximately 20 minutes) limits its use to centres with

on-site cyclotron facilities, whereas the development of ^18F-labeled tracers with longer half-lives (approximately 110 minutes) allowed for broader potential clinical use. There is a need for standardised acquisition protocols, validated interpretation procedures, appropriate training for nuclear medicine physicians and technologists, as well as certification of imaging centres by accrediting bodies. The AUC also stated that amyloid-PET should be performed under the supervision of clinicians with expertise in dementia and interpreted by appropriately trained imaging specialists. Because of variability in experience across imaging sites, quality control and structured reporting to support consistent and safe implementation was considered important*(624)*.

Evidence from a systematic review conducted across multiple countries indicated that the implementation of amyloid-PET involves several practical and operational considerations*(982)*. Variability in imaging protocols and interpretation methods across studies highlighted the need for standardised procedures to support consistent use in clinical practice. In addition, the requirement for specialised equipment, radiotracer production and distribution, and trained personnel were identified as key factors influencing implementation. These considerations suggest that amyloid-PET is more readily implemented within specialised centres with established infrastructure than in routine clinical settings*(982)*.

In the IDEAS study conducted in the US, imaging specialists were board-certified and completed vendor specific training for amyloid-PET interpretation, with standardised protocols applied across sites, supporting consistent implementation within a structured clinical framework*(1266)*.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect feasibility evidence in relation to amyloid-PET for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect feasibility evidence in relation to amyloid-PET for people from culturally and linguistically diverse backgrounds.

Considerations for LGBTQIA+ people

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We did not identify studies that provided direct or indirect feasibility evidence in relation to amyloid-PET for LGBTQIA+ people living with dementia.

Considerations for people with disability

We did not identify studies that provided direct or indirect feasibility evidence in relation to amyloid-PET for people with disability.

Considerations for people living with younger onset dementia

We did not identify studies that provided direct or indirect feasibility evidence in relation to amyloid-PET for people with younger onset dementia.

Considerations for people living outside major cities

We did not identify studies that provided direct or indirect feasibility evidence in relation to amyloid-PET for people living outside major cities.

Additional considerations

Input from the External Interest Holder Organisations

Advanced imaging techniques such as FDG PET and Amyloid-PET scans are valuable tools in diagnosing dementia, particularly in atypical cases. However, these technologies are costly, limited in availability, and typically restricted to major medical centres. Regulatory barriers, such as Medicare restrictions, prevent routine use by GPs, and specialist services are unevenly distributed, especially in rural and low socioeconomic areas.

Many GPs lack experience with dementia imaging and require appropriate education and training to use and interpret results from these tests effectively. Persistent myths and stigma, such as the belief that 'nothing can be done,' hinder early detection and discourage individuals from seeking help. Addressing these knowledge gaps is crucial for improving diagnostic accuracy and patient outcomes.

Funding limitations for advanced imaging and specialist consultations pose significant challenges. The high cost and resource-intensive nature of these diagnostics raise concerns about sustainability. While advanced imaging can be useful in clarifying uncertain or atypical dementia presentations, it is not necessary for typical cases and should always be secondary to a thorough clinical assessment. The appropriate use of these technologies requires clinician expertise and adequate infrastructure to ensure effective and sustainable implementation.

Geographic and socioeconomic factors further limit access to diagnostics and care, while issues related to travel, driving, and insurance complicate the situation for many individuals. Culturally and linguistically diverse communities face additional barriers in accessing dementia care, including the complexity of the healthcare system and the cost of services.

Summary

Key points

Australian context

- Amyloid-PET is not MBS-funded*(28)*.
- In 2026, amyloid-PET was mainly done via trial participations at major research centres*(28)*.
- In the Australian Imaging, Biomarkers and Lifestyle (AIBL) study, 2,300 participants underwent amyloid-PET, some with MRI and tau-PET, at 2 centres with repeated assessments over 15 years, demonstrating feasibility in research networks*(470)*.
- National specialist survey: only a minority of clinics refer patients for amyloid or tau PET. Barriers include wait times, staffing, and infrastructure limits*(809)*.

International context

- Amyloid-PET implementation requires specialised infrastructure, standardised protocols, and trained personnel, and is therefore more feasible in specialised centres than in routine clinical settings(Johnson et al., 2013).
- Appropriate use Criteria (2013): feasibility requires cyclotron capacity for ^11C-PiB and certified facilities for ^18F-tracers and mandates standardised protocols*(624)*.
- Requires highly trained specialists (board-certified nuclear medicine/radiology physicians, trained technologists) and standardised reporting protocols*(624)*.
- Feasibility is influenced by infrastructure availability, geographic distribution of PET facilities, and funding sustainability*(624)*.
- Amyloid-PET can be implemented across multiple clinical sites via credentialing specialists, standardised protocols, and vendor-specific training*(1266)*.

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Guideline Development Group judgement and discussion

The Guideline Development Group noted that amyloid-PET is currently used in some specialist centres and within research networks, indicating that implementation is possible in certain settings. However, access was described as variable across regions, with limited availability in some areas and no stable ongoing funding within the current health system. The Group also noted that many services already face challenges accessing other imaging modalities such as MRI in a timely manner, which may limit the capacity to implement amyloid-PET more broadly.

Some Group members considered that feasibility may change in the future as demand increases with the development of disease-modifying treatments. It was also acknowledged that feasibility may be influenced by geographic factors and differences in access to services.

The first round of voting showed mixed views, with Group members divided between probably no and probably yes. Following further discussion, a second round of voting was conducted, and the Group reached consensus that the use of amyloid-PET was **probably not feasible** to implement in the current context.

Rationale

The Guideline Development Group judged that:

- Amyloid-PET had low accuracy against clinically diagnosed Alzheimer's Disease dementia, with moderate desirable effects and trivial undesirable effects, based on very low certainty evidence. The Group acknowledged that clinical diagnosis is an imperfect reference standard and focuses on the syndrome of dementia, while amyloid-PET measures amyloid in the brain, and this may affect the concordance between them.
- There was possibly important variability in how individuals valued the desirable and undesirable effects of using amyloid-PET, and the balance of effects probably favoured not routinely using amyloid-PET.
- Amyloid-PET was associated with large resource requirements, and its use probably reduces equity due to differences in access across regions and services.
- Although amyloid-PET is probably acceptable, implementation at scale is probably not feasible within the current health system.

Considering all judgments together, the Group agreed on a conditional recommendation against the routine use of amyloid-PET to diagnose Alzheimer's disease dementia in a specialist setting. However, the Group noted that there may be specific clinical circumstances when the test may be considered, such as confirming amyloid pathology to support eligibility for anti-amyloid therapies, or in atypical clinical presentations and consequent diagnostic uncertainty that requires clarification.

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8.3 Disease modifying therapies

Donanemab and lecanemab are amyloid beta-directed monoclonal antibodies developed as a disease-modifying therapy for AD dementia *(1387)*. They target deposited amyloid in the brain, consistent with therapeutic strategies based on the amyloid cascade hypothesis *(1385)*. Because donanemab and lecanemab act on underlying amyloid pathology rather than the clinical syndrome, confirmation of amyloid positivity is required prior to treatment *(1387)(604)*.

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8.3.1 Donanemab

What does donanemab do?

Donanemab selectively binds to a pyroglutamate-modified N-terminal form of Aβ (pGlu3-Aβ), which is enriched in deposited amyloid plaques *(1383)*. Through binding to plaque-associated amyloid, donanemab facilitates clearance of amyloid deposits via microglial activation and phagocytosis, leading to reduction of cerebral amyloid burden *(1383)*. This mechanism reflects a targeted approach to removing deposited amyloid plaques, distinguishing it from therapies that primarily target soluble amyloid species *(1385)*.

As with other anti-amyloid therapies, donanemab is associated with amyloid-related imaging abnormalities (ARIA), including Amyloid-Related Imaging Abnormalities - Edema/Effusion (ARIA-E) and Amyloid-Related Imaging Abnormalities - Hemosiderin (ARIA-H), which are considered important adverse events requiring monitoring *(1387)(1383)*.

Who is eligible to receive donanemab?

The Therapeutic Goods Administration approved donanemab for individuals with early symptomatic Alzheimer's disease, including mild cognitive impairment (MCI) due to Alzheimer's disease or mild Alzheimer's disease dementia, in whom amyloid pathology has been confirmed using a validated test (e.g., amyloid Positron Emission Tomography - PET or Cerebrospinal fluid - CSF biomarkers) *(80)(604)(1383)*.

Approval is restricted to individuals who are apolipoprotein E ε4 (APOE ε4) heterozygotes or non-carriers, and is not indicated in APOE ε4 homozygous patients due to an increased risk of ARIA. Determination of APOE ε4 genotype is required prior to treatment initiation to inform risk and eligibility *(80)*.

Treatment requires supervision by a physician experienced in Alzheimer's disease and should be administered in specialised centres with access to multidisciplinary care, including expertise in the detection and management of ARIA. A baseline brain MRI within 6 months prior to initiation is required, with additional MRI monitoring during treatment to detect amyloid-related imaging abnormalities *(80)*.

Question 7
Should donanemab (compared with placebo) be used in people with mild cognitive impairment or dementia due to Alzheimer's disease?

Conditional recommendation against , Moderate certainty evidence

DRAFT

Recommendation 7

The use of donanemab is not routinely recommended for people diagnosed with mild cognitive impairment or mild dementia due to Alzheimer's disease pathology.

Remarks

The clinical effect was deemed not to exceed the minimum important difference for the critical outcomes of cognitive function and functional ability.

There is an increased risk of Amyloid-related imaging abnormalities (ARIA), including ARIA-Edema (ARIA-E) and ARIA-Haemorrhage (ARIA-H), in people receiving donanemab. The risk is higher in people with APOE4 homozygous state. APOE4 genotyping is required before treatment to inform eligibility discussions and risk-benefit discussions as part of gaining informed consent.

Confirming treatment eligibility and follow up monitoring requires sophisticated procedures and systems including amyloid-PET imaging, MRI scans, blood tests, APOE4 testing, genetic counselling, infusion delivery capability, and pathways for urgent assessment of new neurological symptoms during the course of therapy.

Practical info

Use shared or supported decision making to explain the potential benefits, risks, substantial out of pocket costs, procedures and logistical requirements associated with donanemab treatment to the person, and their carer where appropriate. For example, as of March 2026, APOE4 testing, MRI monitoring and amyloid-PET scans for anti-amyloid therapy are not subsidised on the Medicare Benefits Scheme.

Donanamab was approved by the Therapeutic Goods Administration (TGA) in May 2025 for use in people with mild cognitive impairment or mild dementia due to Alzheimer's disease who are APOE4 heterozygotes or non-carriers. As of March 2026, donanemab is not subsidised on the Pharmaceutical Benefits Scheme (PBS).

Treatment with donanemab requires amyloid-PET, CSF and blood tests, including APOE4 testing before treatment, regular intravenous infusions (every 4 weeks), MRI monitoring and ongoing clinical follow-up, which may represent a substantial treatment burden for both the person and carer.

Infusion-related reactions may occur during administration of donanemab and should be monitored and managed according to institutional infusion protocols. People receiving donanemab require urgent medical assessment if new neurological symptoms occur (e.g, headache, confusion, visual symptoms, dizziness, focal deficits or seizures) as these may indicate ARIA.

Evidence to decision

Benefits and harms

Important harms

Research evidence

Desirable effects (benefits)

Compared to placebo:

Donanemab resulted in little to no difference in:

- Dementia stage/severity progression (moderate certainty) [CRITICAL]
- Global cognitive decline (moderate certainty) [CRITICAL]
- Overall functional ability decline (moderate certainty) [CRITICAL]

Donanemab resulted in a large reduction in amyloid load (high certainty) [IMPORTANT]

No studies reported on:

- Health-related quality of life for the person with dementia [CRITICAL]
- Health-related quality of life for the carer [CRITICAL]
- Patient choice on receiving treatment [CRITICAL]

DRAFT

Our interpretation of treatment effects is based on the following thresholds:

- Standardised mean difference (SMD)
- 0.4 = a small but clinically important effect
- 0.7 = a moderate effect

We also calculated and interpreted MDs for dementia stage/severity and global cognitive function. Our findings for MD interpretation were consistent with the interpretation of the SMDs, aside from a downgrade in certainty for global cognitive function (Alzheimer's Disease Assessment Scale - Cognitive Subscale - ADAS-Cog13) which made it more imprecise.

Undesirable effects (harms)

Compared to placebo:

Donanemab likely resulted in little to no difference in mortality (moderate certainty) [CRITICAL]

Donanemab likely resulted in a large increase in:

- ARIA-E incidence (moderate certainty) [IMPORTANT]
- ARIA-H incidence (moderate certainty) [IMPORTANT]

Donanemab likely resulted in little to no difference in infusion reaction incidence (moderate certainty) [IMPORTANT]

Our interpretation of treatment effects was based on the following thresholds:

Standardised mean difference (SMD)

- 0.4 = a small but clinically important effect
- 0.7 = a moderate effect

Adverse events

- Mortality: 10 deaths per 1000 people treated
- ARIA-E and ARIA-H: 50 events per 1000 people treated
- Infusion-related reactions: 100 events per 1000 people treated

Summary

Balance of effects: Guideline Development Group judgement and discussion

The Guideline Development Group discussed whether the balance between desirable and undesirable effects favoured donanemab or the comparison. The discussion considered judgments across desirable effects, undesirable effects, certainty of the evidence, and values.

It was noted that the comparison was between donanemab and placebo, and that an assessment of equal effects was not applicable in this context. The Group discussed that desirable effects on critical outcomes were small or trivial, while important undesirable effects, particularly amyloid-related imaging abnormalities, were increased. The absence of quality-of-life data was also noted as a limitation when assessing the overall balance of effects.

The Group discussed that some judgments were influenced by the limited effect observed on critical outcomes, while others considered the magnitude of important undesirable effects. It was also noted that individual perspectives, including the value placed on potential benefit and patient expectations, contributed to variability in how the balance of effects was judged.

Overall, the Group judged that the balance of effects probably favoured the comparison (no donanemab), while acknowledging variability in views.

Desirable effects (benefits): Guideline Development Group judgement and discussion

The Guideline Development Group discussed how substantial the anticipated desirable effects of donanemab were, based on evidence from clinical trials enrolling people with MCI and mild dementia due to Alzheimer's disease.

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During the discussion, it was noted that the available trial evidence reports outcomes for a combined population of MCI and mild dementia, and that effect estimates cannot be separated for these two groups, as this reflects how the trials were designed and reported. It was clarified that the MCI population included in the trials consisted of individuals with early features of Alzheimer's disease, rather than unselected MCI.

The Group discussed that donanemab was associated with a substantial reduction in amyloid burden, while observed effects on clinical outcomes such as cognition and function were comparatively limited. The implications of this contrast between biological and clinical effects were considered as part of the judgment of desirable effects.

It was also noted that additional literature addressing other outcomes, including carer-related outcomes and adverse events, had been published since the evidence search was conducted, reflecting the rapidly evolving evidence base. The Group discussed that incorporation of emerging evidence could be addressed through a living guideline approach.

The Group achieved consensus that the anticipated desirable effects of donanemab were trivial, however, some members considered the effects to be small, particularly in people with earlier disease.

Undesirable effects (harms): Guideline Development Group judgement and discussion

The Guideline Development Group discussed that donanemab was associated with undesirable effects, including ARIA, which require monitoring, particularly during the early phases of treatment. The Group discussed that undesirable effects were more likely to occur during the initial infusions and that, if treatment is continued beyond the early treatment period without complications, the magnitude of undesirable effects may be lower. It was also noted that analyses of risk factors, such as APOE ε4 homozygosity, may help identify individuals at higher risk of ARIA and inform monitoring strategies.

The Group discussed the importance of clear communication and informed consent when considering treatment, including ensuring that individuals are aware of the potential for adverse reactions. It was noted that while undesirable effects were present, their perceived magnitude may be influenced by how risks are communicated and managed in clinical practice.

The Group also discussed that undesirable effects were classified as important rather than critical outcomes, and that judgments were made in the context of the overall pattern of effects observed across outcomes. It was noted that,

although views varied on the magnitude of undesirable effects, the relative weight given to critical outcomes was a key consideration in the overall assessment.

The Group then proceeded to vote on how substantial the anticipated undesirable effects of donanemab were. Overall, the Group judged that the anticipated undesirable effects of donanemab were moderate, noting that views ranged from small to moderate.

Certainty of the evidence

Moderate

Research evidence
CRITICAL OUTCOMES (we only consider critical outcomes when judging overall certainty)

High certainty

None

Moderate certainty

Dementia stage/severity progression

Global cognitive functional decline

Overall functional ability

Mortality

Low certainty

None

DRAFT

Summary
The overall certainty of the evidence for this question was judged to be **moderate.**

Values and preferences

Substantial variability is expected or uncertain

Research evidence
Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect evidence on how Aboriginal and Torres Strait Islander peoples living with dementia value outcomes related to donanemab.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect evidence on how people from culturally and linguistically diverse backgrounds value outcomes related to donanemab.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect evidence on how LGBTQIA+ people living with dementia value outcomes related to donanemab.

Considerations for people with Younger Onset Dementia

One study conducted in the Netherlands examining preferences of people with Younger Onset Dementia in general found that connectedness with others and dignity are recognised as being valued highly for this group *(777)*. A review of the literature in 2016 captures the various general issues in relation to outcomes for people with Younger Onset Dementia *(1016)*. These include loss or diminishment in roles such as provider, parent, and spouse; loss of income and financial problems; and loss of empowerment. There was a strong desire expressed by many to remain engaged and in control of their lives as best they could. Carer stress, burden and grief were considered important, as were psychosocial stress and anxiety for children of the affected person. All these factors combined to reflect the overall quality of life for the person and the family unit.

Considerations for people living with disability

A systematic review of experiences of people with intellectual disability (including Down's syndrome) and dementia (8 studies, 13 men and 18 women, 2 Australian studies) highlighted person-centred outcomes *(606)*. People experienced a narrowing of lives due to loss of abilities, stigma and marginalisation, loss of autonomy in decision-making for care. They valued relationships with others (including peers), and preferred to stay supported in their homes while avoiding frequent moves. For people with Down's Syndrome and dementia, person-centred outcomes such as being able to live one's best life with dementia, a sense of place and community, and having autonomy were highlighted in the recent Post-Diagnostic dementia support guidelines for people with an intellectual disability *(783)*.

Considerations for people living outside major cities

A study performed in rural Victoria found that engagement in meaningful activities (including social) was important to people living with dementia. Both people living with dementia and carers highly valued relationship-centred care support (e.g., a consistent care support person who treated them with respect) *(494)*.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- The Living/Lived Experience Advisory Group was very cautious about this intervention due to significant concerns about adverse events and uncertain benefit and unknown long-term impacts of the medication.
- No one from the Living/Lived Experience Advisory Group would opt for this intervention, but many recognised that for some people quantity of life may be more important than quality of life and they may want to choose this intervention.
- People need good information about the adverse events and likely evidence to ensure they can provide truly informed consent if this was to be made available.

Summary

Key points

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- There is substantial variation in how the clinical and research communities view the meaningfulness of the outcomes used in the clinical trials of anti-amyloid treatments. It has been suggested that there should be careful individualised discussions with patients about the range of outcomes that were tested and the changes that were observed, in the context of eligibility, side effects, treatment burden, costs - towards a patient-centred decision.
- No research evidence was found directly evaluating the perspectives of patients themselves about such outcomes.

Guideline Development Group judgement and discussion

The Guideline Development Group discussed whether there was important uncertainty about or variability in how much people value the main outcomes. It was clarified that this judgment refers to patients and their families, rather than clinicians or researchers.

The Group discussed that decisions about receiving donanemab were likely to vary between individuals. It was noted that some people might place high value on the possibility of benefit and might wish to try treatment despite uncertainty and potential harms, while others might place greater weight on the limited clinical benefit and the risk of adverse events.

Input from the Lived Experience Advisory Group was discussed, highlighting the importance of considering different perspectives and experiences when judging how people may value the outcomes. The Group also discussed that decisions might be influenced by emotional factors, including hope in the context of a progressive condition and limited treatment options.

It was noted that judgments about values were informed by the available evidence to date as well as emerging experience. The Group emphasised that the presence of differing values and perspectives supported the need for shared decision-making focused on balancing potential benefits and harms, rather than modifying the direction or strength of the recommendation.

Overall, the Group judged that there was **possibly important uncertainty or variability** in values.

Resources Important negative issues

Research evidence

International context

In a United State (US) based cost-effectiveness model of donanemab, conducted from both healthcare sector and societal perspectives costs included hospital and clinical services (e.g., treatment delivery, monitoring, and testing), as well as broader societal costs such as unpaid caregiving, and were found to be substantial *(999)*. They also found that, anti–amyloid monoclonal antibodies are unlikely to be cost-effective under current assumptions, although treatments with greater efficacy and limited-duration dosing may offer improved health economic value in the future *(999)*.

A study *(697)* in the United Kingdom (UK) estimated the scale of real-world demand for monoclonal antibodies for Alzheimer's disease. Eligibility for treatment was assessed using the inclusion criteria from the clinical trials of donanemab and lecanemab with consideratio given to diagnosis, cognitive performance, cerebrovascular disease, and willingness to receive treatment. The study examined the recor of 82,386 people referred to services covering some 2.2 million people. After applying the trial criteria, it was estimated a maximum of people per year would start treatment with monoclonal antibodies in the two services, equating to 30,200 people if extrapolated nationally. Monoclonal antibody treatments for Alzheimer's disease are likely to present a significant challenge for healthcare services t deliver in terms of the neuroimaging and treatment delivery. Clinical benefits of these treatments may be marginal, their introduction would require significant investment and system-wide planning to manage the anticipated demand and delivery challenges effectively.

Cost effectiveness

A study *(999)* based in the US found that donanemab would not be cost-effective for early Alzheimer's Disease in the US, when defined the maximum price at which a treatment would be cost-effective given a cost-effectiveness threshold of ICER of US$150 000/QALY (202 USD), equivalent to approximately AUD $217,500 (2020 AUD)*(38)*. While lifetime QALYs increased for both donanemab and Aducanum the total healthcare sector and societal costs of donanemab were significantly less than that for Aducanumab. The study concluded tha future treatments with improved efficacy and limited-duration dosing could provide good health economic value.

An economic evaluation *(998)* conducted in the US, based on phase 2 results and a projected launch price of US$28 000 (2020 USD) (equivalent to approximately AUD $40,600 in 2020)*(38)*, found that donanemab would not be cost-effective, with considerable uncertai due to factors such as unknown durability of benefit and risks to patients outside the highly controlled clinical trial context. Donanemal treatment protocol, in which therapy is ceased once amyloid plaques are cleared, improved its cost profile in clinical trials; whether this protocol will be adopted in the clinical setting is unknown *(998)*.

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In the UK, the National Institute of Health and Care Excellence (NICE) has advised that donanemab does not currently demonstrate valu for the NHS and more evidence is needed on the clinical and cost-effectiveness *(847)*.

Australian context

Donanemab received regulatory approval from the Therapeutic Goods Administration (TGA) in May 2025 *(80)(72)*. The Pharmaceutical Benefits Advisory Committee (PBAC) later assessed donanemab for inclusion on the Pharmaceutical Benefits Scheme (PBS) in August 2(but did not recommend its listing *(129)*.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect resource evidence in relation to donanemab for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect resource evidence in relation to donanemab for people from culturally and linguistically diverse backgrounds.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect resource evidence in relation to donanemab for LGBTQIA+ people living wit dementia.

Considerations for people with younger onset dementia

We did not identify studies that provided direct or indirect resource evidence in relation to donanemab for people with Younger Onset Dementia.

Considerations for people living with disability

We did not identify studies that provided direct or indirect resource evidence in relation to donanemab for people living with disability

Considerations for people living outside major cities

The cost to access services often includes travel costs, which makes the intervention prohibitively expensive for those living outside ma cities.

Resource requirements	
Resource	**Description**
Staff	• Diagnostic, genetic testing, imaging, administration staff, follow-up capacity would need to be established
Training	• Health services require expertise and resources to develop systems and training to establish models of care, to assess the suitability for treatment, access the necessary investigations to commence therapy and monitor, and manage adverse events.
Supplies [medical supplies]	• Intravenous drug administration and blood tests: ◦ Donanemab every 4 weeks • trials have been conducted for a duration of 18 months with donanemab
Equipment and infrastructure	• Treatment is time and resource-intensive • Pre-treatment investigations include MRI scans, amyloid-PET or CSF to exclude risk of bleeding (e.g., microhemorrhages). Access is limited, MRI for Alzheimer's Dementia work up is not rebate-supported when order by general practitioners, and CSF is not readily accessible. • Genetic testing (APOE4) is required prior to treatment. While it can be ordered by any medical practitioner (including general practitioner), there is no Medicare rebate; results take ~10 days and cost patients is approximately $155 out-of-pocket. • Blood tests are required before and during treatments at regular intervals • Treatment delivery requires intravenous infusion every 2-4 weeks • Donanemab is stopped once amyloid clearance is confirmed, (requiring another PET or CSF) Routine monitoring includes MRI scans to detect potentially serious brain changes. Additional visits for follow-up may be required if adverse events occur.
Time	• Patient & carer time, and transport costs - to attend appointments for therapy every 2-4 weeks, plus imaging appointments • Clinician time required to care for patients and guide therapy
Supervision and monitoring	• To assess the suitability for treatment, access the necessary investigations to commence therapy and monitor, and manage adverse events

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Amyloid-PET: Amyloid Positron Emission Tomography, *APOE4:* Apolipoprotein E epsilon-4, CSF: Cerebrospinal fluid, MRI: Magn Resonance Imaging, PET: Positron Emission Tomography

Additional considerations

Input from the Living/Lived Experience Advisory Group

- Living/Lived Experience Advisory Group members had concerns about the uncertain and limited benefits of anti-amyloid treatmer questioning whether taxpayer money should fund them through the PBS or if it could be better spent. Consensus was that taxpay money could be spent on other medications with higher benefit.
- There are a number of cost barriers, including administration, workforce, and imaging, making the treatment inaccessible to many recognising the equity implications.
- The unavailability of the correct scans may further limit monitoring and diagnosis.
- While mass screening could improve early detection, it's not feasible without an effective treatment.

Summary

Key points

- There are no published Australian data on costs of donanemab.
- The costs are likely to be large, and there is uncertainty whether or not the treatments will be cost-effective given current pricing models.
- Donanemab is associated with substantial healthcare and societal costs *(999)*.
- Anti-amyloid monoclonal antibodies are unlikely to be cost-effective under current assumptions, with potential improvement from more effective, shorter-duration treatments *(999)*.

- Donanemab administration is every 4 weeks

Guideline Development Group judgement and discussion

Resources

The Guideline Development Group discussed the resources required to administer donanemab. It was clarified that resource requireme include all components necessary for treatment delivery, the cost of the drug itself, and administration resources. These include imagin and blood tests required for eligibility assessment and ongoing safety monitoring.

Overall, the Group achieved consensus that the resource requirements associated with donanemab were **large**.

Cost effectiveness

The Guideline Development Group discussed whether the cost-effectiveness of donanemab favoured the intervention or the comparis based on the information currently available. It was noted that judgments were made in the context of existing evidence and analyses, acknowledging that further assessment may occur through formal reimbursement review processes.

The Group agreed that the use of donanemab was probably not cost-effective (**probably favours the comparison to not use donanemab**).

Equity Intervention likely increases inequity

Research evidence

Australian context

Donanemab received regulatory approval from the Therapeutic Goods Administration (TGA) in May 2025 *(80)(72)*. The Pharmaceutical Benefits Advisory Committee (PBAC) considered donanemab for listing on the Pharmaceutical Benefits Scheme (PBS) in August 2025 but did not recommend PBS listing *(129)*. As of April 2026, donanemab is not subsidised through the PBS. In the absence of PBS funding, patients who wish to access treatment may need to pay the full cost privately, which raises concerns regarding equitable access to therapy.

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Diagnosis of dementia for other patient groups is likely to be delayed if resources are prioritised for timely diagnosis, eligibility determination, treatment and monitoring of anti-amyloid antibody treatments for people with Alzheimer's Disease dementia. In 2023, only 13% of patients with dementia receiving diagnosis through Australian Dementia Network (ADeNET) had diagnosis within 1 year of symptoms. 30% received diagnosis at 3+ years. People living in Major Cities were slightly more likely to have an appointment within 1 year of symptom onset (17%) than those living in regional areas (12%). No difference otherwise in terms of age, gender, age group, region of birth. No information for Aboriginal and Torres Strait Islander peoples or LBGTQIA+ people *(67)*.

Considerations for Aboriginal and Torres Strait Islander peoples

Access to hospitals for IV therapy and imaging may be difficult for people who live in rural, regional and remote centres. This is likely to apply to Aboriginal and Torres Strait Islander people. The burden of care may be too much for Aboriginal and Torres Strait Islander peoples who are more likely to have multimorbidity.

Considerations for people from culturally and linguistically diverse backgrounds

Culturally and linguistically diverse (CALD) communities are often underrepresented in research trials, with most studies involving participants who are proficient in English. While people living with dementia and their carers from CALD backgrounds may speak English well, they may lack confidence to participate in research if approached *(231)*.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect equity evidence in relation to donanemab for LGBTQIA+ people.

Considerations for people living with younger onset dementia

People who live in rural and remote areas with Younger Onset Dementia are more likely to receive care from primary care physicians, suggesting that clinician training or consultative guidance to primary care clinicians may be needed to overcome neuroscience workforce deficiencies in rural areas *(1281)*.

Considerations for people living with disability

We did not identify studies that provided direct or indirect equity evidence in relation to donanemab for people with disability.

Considerations for people living outside major cities

Input from external interest holder organisations Inequity of access for people living in regional and rural areas as people are not able to travel to a hospital for infusion.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- The Living/Lived Experience Advisory Group concluded that anti-amyloid treatment does not aid people furthest behind and would lead to inequitable distribution as it is not implementable in Australia at the moment, given the size, population and distribution of resources.
- If approved, not having anti-amyloid on the Pharmaceutical Benefit Scheme will increase inequity, but the consensus was that it should not be on PBS given that money could be spent on other medications with stronger and proven benefits (i.e., some cancer medications).
- Evidence demonstrates Aboriginal and Torres Strait Islander peoples and culturally and linguistically diverse communities do not get timely/early diagnosis or access treatment and this may affect their ability to receive this intervention.
- LGBTQIA+ communities may not access treatment as they fear discrimination.

Input from the External Interest Holder Organisations

- Geographical accessibility was generally stated as an important consideration if implementing anti-amyloid treatments in Australia.
- Limited access to specialist services for people living in regional and rural areas. People may not be able to travel to a hospital for infusion, and hospitals may not be able to administer this service.

Summary

Key points

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There are no Australian sources of direct evidence that implementing (or not) anti-amyloid treatments will affect equity.

- There is the potential to increase inequity by affordability if PBS approval is denied, should the treatments become available for use in Australia.
- Directing finite resources to early diagnosis and complex management for Alzheimer's disease dementia may disadvantage those with Alzheimer's disease dementia who are ineligible for treatments including those with other co-morbidities (the majority), those with other types of dementia, and those with language barriers.
- Inequity of access, if treatments are approved, are likely to increase for people in regional and remote settings, Aboriginal and Torres Strait Islander peoples, and other communities who are presently disadvantaged *(67)*

Guideline Development Group judgement and discussion

The Guideline Development Group discussed the potential impact of donanemab on health equity. The discussion considered the current funding and access context, noting that judgments were based on existing circumstances in which donanemab is not publicly funded.

It was noted that limited access to treatment, specialist services, and associated diagnostic and monitoring requirements could disproportionately affect certain populations. The Group discussed that these considerations applied under current circumstances.

The Group agreed that the use of donanemab would **reduce** health equity.

Acceptability

Important issues, or potential issues not investigated

Research evidence

International context

In the US, studies demonstrated that treatment with anti-amyloid monoclonal antibodies was time and resource intensive *(1066)*. Donanemab is delivered monthly, typically over 18 months and discontinued once amyloid clearance was confirmed by PET or CSF. Intensive monitoring is required, including at least four MRI scans to detect potentially serious brain changes, with additional imaging and follow-up as needed. Blood tests are required before and during treatments, and baseline APOE4 testing, to assess the risk of adverse events. Therapy with donanemab requires specialised centres, trained staff and structural clinical pathways.

Advances in anti-amyloid therapy offer hope for individuals with Alzheimer disease, along with their carers and families *(206)*.

There may be delays in access to therapy while funding decisions are under consideration by the PBAC, which may contribute to uncertainty and anxiety for patients.

Considerations for Aboriginal and Torres Strait Islander peoples

The complexity and burden of treatment, access and costs may reduce acceptability. Cultural safety and a trauma-informed approach is key in devising assessments and delivering acceptable interventions *(734)*.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect evidence regarding the acceptability of donanemab for people from culturally and linguistically diverse backgrounds.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect evidence regarding the acceptability of donanemab for LGBTQIA+ people living with dementia.

Considerations for people with younger onset dementia

Services are not set up for people with younger onset dementia. They often need multiple specialists, and services are not age appropriate or connected. There are few settings that are set up to assess and manage people with younger onset dementia. Hence the complexity of these treatments could reduce their acceptability *(284)*. On the other hand, people with younger onset dementia often have loss of earnings before diagnosis *(170)*. People with younger onset dementia often are carers themselves, and need to navigate how to remain in employment *(284)*. Early diagnosis and such treatments may offer hope to alleviate the financial and professional challenges faced by individuals with dementia under age 65.

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Considerations for people living with disability

We did not identify studies that provided direct or indirect acceptability evidence in relation to donanemab for people with disability.

Considerations for people living outside major cities

We did not identify studies that provided direct or indirect evidence regarding the acceptability of donanemab for people living with dementia living outside major cities.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- The Living/Lived Experience Advisory Group was cautious about this intervention due to significant concerns about adverse events and uncertain benefit and unknown long-term impacts of the medication leads.
- There was variability in the acceptability of anti-amyloid antibody treatments among the Living/Lived Experience Advisory Group members expressed strong support for individuals to make their own decision on whether anti-amyloid treatment is the right choice for them.
- Living/Lived Experience Advisory Group members found it hard to give a clear yes or no response about acceptability while also considering values, resources, and equity.

Summary

Key points

- There is likely to be variability in how anti-amyloid treatments are viewed with respect to acceptability.
- They may offer hope for individuals with Alzheimer disease dementia, along with their carers and families, particularly for people with younger onset dementia *(284)*.
- The complexity and burden of treatment, access and costs may reduce acceptability
- Specific priority groups may have varying views on acceptability

Guideline Development Group judgement and discussion

The Guideline Development Group discussed whether donanemab was likely to be acceptable to key interest-holders. The discussion considered acceptability primarily from the perspective of patients and families.

It was noted that acceptability might be influenced by the absence of alternative disease-modifying treatment options. The Group discussed that, in this context, some individuals might be willing to consider treatment due to hope for potential benefit, particularly if they are able to access and afford the intervention.

There were variable responses in the voting by the Group, and ultimately selected "**Don't know**" was selected as the overall judgement for acceptability.

Feasibility

Intervention is likely difficult to implement

Research evidence

Australian context

Some patients in Australia are being treated with donanemab through clinical trials. Donanemab received regulatory approval by the TGA in May 2025 *(80)*. In Australia, donanemab is indicated for the treatment of patients with MCI due to Alzheimer's disease and Mild Alzheimer's dementia (Early Symptomatic Alzheimer's disease) who are apolipoprotein E Epsilon4 (ApoE ε4) heterozygotes or non-carriers. Beta amyloid evidence consistent with Alzheimer's disease should be confirmed using a validated test prior to initiating treatment *(72)(80)*).

Donanemab was considered by the Pharmaceutical Benefits Advisory Committee (PBAC) in August 2025, but was not recommended to be subsidised on the Pharmaceutical Benefits Scheme *(129)*. In the absence of PBS funding, Access to treatment is limited to private self-funding or participation in clinical trials, which may restrict feasibility in routine clinical practice.

Infrastructure, workforce and training

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If amyloid-targeting mAb therapies were to become available in Australia, improvement of current infrastructure capability, workforce and training would be required. Clinicians lack real-world experience in the use of amyloid-targeting monoclonal antibody therapy in the Australian healthcare system, and guidance is required in understanding the frequency of MRI monitoring to detect ARIA. Health services require expertise and resources to develop systems and training to establish models of care, to assess the suitability for treatment, access the necessary investigations to commence therapy and monitor, and manage adverse events *(808)*.

Clinical workforce considerations include:

- Patients require confirmation of Alzheimer disease pathology with amyloid positivity, validated by amyloid-PET or CSF. Neither are available on universal health care in Australia *(237)*.
- Genetic testing for APOE-ε4 allele is recommended, because individuals who are APOE-ε4 positive are at increased risk of ARIA with donanemab, and may require more intensive monitoring *(951)*.
- Patients receiving disease-modifying therapy require MRI prior to commencing treatment, and frequent monitoring with MRI brain scans (four or more per year), as there is a high rate of clinically significant ARIA, both ARIA-E and ARIA-H. Although most cases of ARIA are asymptomatic, close monitoring with MRI is mandated. They require fortnightly or monthly intravenous infusions, and infusion reactions are common *(237)*.
- Time commitments are considerable with donanemab, involving monthly clinic visits that include a 1-hour intravenous infusion in addition to pre- and post-infusion observations, for up to 18 months *(206)*.

Currently, only a minority of clinicians refer patients with MCI or suspected Alzheimer's Disease dementia for confirmatory Aß-and/or tau-PET imaging *(808)*.

There is an existing substantial unmet need in specialist multidisciplinary memory clinic services. Significant expansion of public sector memory and cognition clinics and private sector models would be required to service projected patient numbers that may be eligible for treatment with donanemab, if it were to become available and receive government subsidy in Australia. For general practitioners and emergency specialists who may be involved in the routine or inadvertent management and care of a patient receiving an amyloid targeting mAb therapy, education and training would be required for them to discern between mAb therapy related ARIA and ischaemic stroke *(808)*.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect feasibility evidence in relation to donanemab for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect feasibility evidence in relation to donanemab for people from culturally and linguistically diverse background.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect feasibility evidence in relation to donanemab for LGBTQIA+ people living with dementia.

Considerations for people living with younger onset dementia

Diagnostic and therapeutic management services are not set up for people living with younger onset dementia. They often need multiple specialists, and services are not age appropriate or connected. There are few settings that are set up to assess and manage people with younger onset dementia. Residential aged care is complicated for people with younger onset dementia *(739)*.

People diagnosed with younger onset dementia often have loss of earnings before diagnosis. Early diagnosis and robust social support systems are vital to alleviate the financial and professional challenges faced by individuals with dementia under age 65 *(284)*. People living with younger onset dementia often are carers themselves, and need to navigate how to remain in employment, and how to access NDIS services *(284)*.

Considerations for people living with disability

We did not identify studies that provided direct or indirect feasibility evidence in relation to donanemab for people with disability.

Considerations for people living outside major cities

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We did not identify studies that provided direct or indirect feasibility evidence in relation to donanemab for people living outside major cities.

Additional considerations

Input from External Interest Holder Organisations

State level factors to be considered if implementing this intervention is the ability of hospitals to administer this service. Sustainability of this intervention will be difficult considering equity, availability, accessibility, and cost.

Unknown side effects and risks. Training required for administration of this medication.

Summary

Key points

- There are no direct data sources addressing feasibility of implementation in Australia. However, there are sources of expert opinion and those of Living/Lived Experience Advisory Group
- There would need to be substantial investment and improvement in infrastructure, workforce, training in a manner that does not increase inequity for the various priority groups, and for others with dementia who are not eligible for these treatments *(808)*.
- Donanemab received regulatory approval by the TGA in May 2025 *(80)*. The therapy was subsequently considered by the PBAC in August 2025; ; however, PBS listing was not recommended *(129)*.

Guideline Development Group judgement and discussion

The Guideline Development Group discussed whether use of donanemab was feasible to implement. The discussion considered the existing health system context and infrastructure.

It was noted that feasibility judgments were based on what was currently in place, at a population level. The Group discussed that implementation would require substantial system-level capacity, including workforce, infusion services, monitoring, and diagnostic infrastructure.

The Group also discussed that differences in treatment regimens between anti-amyloid monoclonal antibodies, including dosing frequency, may have important implications for feasibility and resource use at a system level. It was noted that such differences were not explicitly reflected in the voting but would be relevant when considering implementation in practice.

The Group then proceeded to vote on feasibility and achieved consensus that implementation of donanemab was **probably not feasible** to implement.

Rationale

The Guideline Development Group judged that:

- Although donanemab reduced brain amyloid, there was insufficient evidence that donanemab benefits cognition and there was a large increase in the incidence of Amyloid-Related Imaging Abnormalities (ARIA). Therefore, donanemab resulted in trivial desirable effects and moderate undesirable effects, with low certainty evidence.
- There was important variability in how people living with dementia valued the desirable and undesirable effects of donanemab, and the balance of effects probably favoured the comparison, to not use donanemab.
- Successful implementation and monitoring of donanemab requires large resources, and use of donanemab probably reduces equity.
- Acceptability of donanemab was variable, and donanemab therapy is probably not feasible to implement.

Considering all judgments together, the Group agreed on a conditional recommendation against the routine use of donanemab for people with mild cognitive impairment or mild dementia due to Alzheimer's disease. The Group noted that a conditional recommendation against the intervention does not preclude treatment. If the use of donanemab is considered, the decision should be informed by careful discussion of potential benefits and harms, as well as cost and feasibility considerations. It was also noted that the evidence base is rapidly evolving, and will be impacted by emerging research.

Research needs

The following areas are recommended to be considered as potential future areas for research:

- Real-world safety, effectiveness and cost-effectiveness evaluation studies involving clinicians, people living with dementia and carers.
- Cost-effective models of care to implement and monitor translation of research into practice and promote timely and equitable access.

Clinical question/ PICO

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Population: people with mild cognitive impairment or mild dementia due to Alzheimer's disease
Intervention: Donanemab
Comparator: placebo

Outcome Timeframe	**Study results and measurements**	**Comparator** placebo	**Intervention** Donanemab	**Certainty of the evidence** (Quality of evidence)	**Summary**
Serious adverse events (mortality) 9 Critical	Relative risk 1.45 (CI 95% 0.69 — 3.06) Based on data from 1,983 participants in 2 studies. (Randomized controlled) Follow up: 76 weeks.	12 per 1000 Difference:	17 per 1000 **5 more per 1000** (CI 95% 4 fewer — 25 more)	**Moderate** Due to serious imprecision [1]	Donanemab likely results in little to no difference in mortality. (Threshold for an important effect: 10 deaths per 1000 people)
Adverse events of special interest (ARIA-E) 6 Important	Relative risk 12.87 (CI 95% 7.01 — 23.64) Based on data from 1,983 participants in 2 studies. (Randomized controlled) Follow up: 76 weeks.	19 per 1000 Difference:	245 per 1000 **226 more per 1000** (CI 95% 114 more — 430 more)	**Moderate** Due to serious risk of bias [2]	Donanemab likely results in a large increase in adverse events of special interest (ARIA-E). (Threshold for an important effect: 50 events per 1000 people)
Adverse events of special interest (ARIA-H)	Relative risk 2.86 (CI 95% 1.62 — 5.05) Based on data from 1,983 participants in 2 studies.	128 per 1000	366 per 1000	**Moderate** Due to serious risk of bias [3]	Donanemab likely results in a large increase in adverse events of special interest (ARIA-H).

Outcome Timeframe	**Study results and measurements**	**Comparator** placebo	**Intervention** Donanemab	**Certainty of the evidence** (Quality of evidence)	**Summary**
6 Important	(Randomized controlled) Follow up: 76 weeks.	Difference:	**238 more per 1000** (CI 95% 79 more — 518 more)		(Threshold for an important effect: 50 events per 1000 people)
Adverse events of special interest (infusion reactions) 6 Important	Relative risk 19.07 (CI 95% 7.42 — 49.03) Based on data from 1,983 participants in 2 studies. (Randomized controlled) Follow up: 76 weeks.	4 per 1000 Difference:	76 per 1000 **72 more per 1000** (CI 95% 26 more — 192 more)	**Moderate** Due to serious imprecision [4]	Donanemab likely results in little to no difference in the incidence of infusion-related reactions. (Threshold for an important effect: 100 events per 1000 people)
Clinical status: dementia stage/ severity 9 Critical	Measured by: CDR-SB (threshold: SMD 0.4; higher is better) Based on data from 1,453 participants in 2 studies. (Randomized controlled) Follow up: 76 weeks.	Difference:	**SMD 0.28 lower** (CI 95% 0.39 lower — 0.18 lower)	**Moderate** Due to serious risk of bias [5]	Donanemab likely results in little to no difference to dementia stage/severity. (Threshold for an important difference: SMD 0.4)
Cognitive function (global) 9 Critical	Measured by: ADAS-Cog13 Based on data from 1,470 participants in 2 studies. (Randomized controlled) Follow up: 76 weeks.	Difference:	**SMD 0.19 lower** (CI 95% 0.29 lower — 0.09 lower)	**Moderate** Due to serious risk of bias [6]	Donanemab likely results in little to no difference in global cognitive function. (Threshold for an important difference: SMD 0.4)
Functional ability (overall) 9 Critical	Measured by: ADCS-iADL Based on data from 1,436 participants in 2 studies. (Randomized controlled) Follow up: 76 weeks.	Difference:	**SMD 0.2 higher** (CI 95% 0.1 higher — 0.31 higher)	**Moderate** Due to serious risk of bias [7]	Donanemab likely results in little to no difference in overall functional ability. (Threshold for an important effect: SMD 0.4)
Changes in neuro-imaging biomarkers 6 Important	Measured by: Centiloid change on Amyloid PET Based on data from 1,084 participants in 2 studies. (Randomized controlled) Follow up: 76 weeks.	Difference:	**MD 87.77 lower** (CI 95% 90.55 lower — 84.98 lower)	**High** [8]	Donanemab results in a substantial reduction in brain amyloid levels as measured by PET imaging. (A credible minimally important difference could not be identified, and an SMD could not be calculated due to lack of arm-level data reporting)
Health-related QoL for the person with dementia 9 Critical		No studies reported on health-related quality of life for the person with dementia.			

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Outcome Timeframe	**Study results and measurements**	**Comparator** placebo	**Intervention** Donanemab	**Certainty of the evidence** (Quality of evidence)	**Summary**
Health-related QoL for the carer 9 Critical		No studies reported on health-related quality of life for the carer.			
Patient choice on receiving treatment 9 Critical		No studies reported on patient choice on receiving treatment.			

1. **Inconsistency: no serious. Indirectness: no serious. Imprecision: serious.** Serious imprecision (-1). The 95% confidence interval crosses the threshold for an important harm (10 more per 1000), so the result is compatible with little or no difference (4 fewer per 1000) and important harm (25 more per 1000).. **Publication bias: no serious.** Publication bias undetected. All trials are prospectively registered and all measured outcomes were reported or the trial is ongoing..
2. **Risk of Bias: serious.** Serious RoB (-1). Both trials were at high risk of bias for incomplete outcome data. Because ARIA-E is detected by scheduled imaging, loss to follow-up may have led to underdetection of events.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.** Publication bias undetected. All trials are prospectively registered and all measured outcomes were reported or the trial is ongoing..
3. **Risk of Bias: serious.** Serious RoB (-1). Both trials were at high risk of bias for incomplete outcome data. Because ARIA-H is detected by scheduled imaging, loss to follow-up may have led to underdetection of events.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.** Publication bias undetected. All trials are prospectively registered and all measured outcomes were reported or the trial is ongoing..
4. **Inconsistency: no serious. Indirectness: no serious. Imprecision: serious.** Serious imprecision (-1). The 95% confidence interval crosses the threshold for an important harm (100 more per 1000), so the result is compatible with little or no difference (26 more per 1000) and important harm (192 more per 1000).. **Publication bias: no serious.** Publication bias undetected. All trials are prospectively registered and all measured outcomes were reported or the trial is ongoing..
5. **Risk of Bias: serious.** Serious RoB (-1). Both included studies were at high risk of bias due to incomplete outcome data (attrition bias). Since CDR-SB is a subjective outcome, missing data may have influenced the treatment effect estimates + dropouts may not have been random. . **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.** Publication bias undetected. All trials are prospectively registered and all measured outcomes were reported or the trial is ongoing..
6. **Risk of Bias: serious.** Serious RoB (-1). Both trials were at high risk of bias due to incomplete outcome data. As the cognitive outcome (ADAS-Cog13) is subjective and sensitive to dropout, this may have introduced bias despite adequate blinding and protocol transparency. . **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.**
7. **Risk of Bias: serious.** Serious RoB (-1). Both trials were at high risk of bias for incomplete outcome data. Because functional ability (ADCS-iADL) is a subjective outcome that relies on informant input, missing data may have biased results, despite proper blinding and overall low risk in other domains.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.** Publication bias undetected. All trials are prospectively registered and all measured outcomes were reported or the trial is ongoing..
8. **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.** Publication bias undetected. All trials are prospectively registered and all measured outcomes were reported or the trial is ongoing..

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8.3.2 Lecanemab

What does lecanemab do?

Lecanemab selectively binds soluble Aβ protofibrils, which are considered neurotoxic intermediates in amyloid aggregation *(1389)*. By binding these aggregates, lecanemab promotes their clearance, primarily through microglial-mediated phagocytosis, leading to reduction in amyloid burden. This mechanism is consistent with disease-modifying approaches targeting upstream pathological processes rather than providing symptomatic benefit.

As with other anti-amyloid therapies, treatment is associated with amyloid-related imaging abnormalities (ARIA), including Amyloid-Related Imaging Abnormalities - Edema/Effusion (ARIA-E) and Amyloid-Related Imaging Abnormalities - Hemosiderin (ARIA-H), which require monitoring *(1385)*.

Who is eligible to receive lecanemab?

The Therapeutic Goods Administration approved lecanemab for individuals with early Alzheimer's disease, including mild cognitive impairment due to Alzheimer's disease or mild Alzheimer's dementia, in whom amyloid pathology has been confirmed using a validated test (e.g., amyloid Positron Emission Tomography - PET or Cerebrospinal fluid - CSF biomarkers) *(1391)(1389)*.

Approval is restricted to individuals who are apolipoprotein E ε4 (ApoE ε4) non-carriers or heterozygotes, and is not indicated in ApoE ε4 homozygous patients, due to a higher risk of amyloid-related imaging abnormalities (ARIA). Determination of ApoE ε4 genotype is required prior to treatment initiation, and patients should be counselled regarding the implications of genetic testing and associated risks *(1391)*.

Lecanemab is not indicated for individuals with moderate or severe Alzheimer's disease, and treatment should be reassessed or discontinued if disease progression occurs beyond the mild stage.

Treatment requires supervision by a physician experienced in Alzheimer's disease and should be administered in specialised centres with access to multidisciplinary care, including expertise in the detection and management of ARIA. A baseline brain MRI within 6 months prior to initiation is required, with additional MRI monitoring during treatment to detect amyloid-related imaging abnormalities *(1391)*.

Question 8
Should lecanemab (compared with placebo) be used in people with mild cognitive impairment or dementia due to Alzheimer's disease?

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Conditional recommendation against , Low certainty evidence

Recommendation 8
The use of lecanemab is not routinely recommended for people diagnosed with mild cognitive impairment or mild dementia due to Alzheimer's disease pathology.

Remarks

The clinical effect was deemed not to exceed the minimum important difference for the critical outcomes of cognitive function and functional ability.

There is an increased risk of Amyloid-related imaging abnormalities (ARIA), including ARIA-Edema (ARIA-E) and ARIA-Haemorrhage (ARIA-H) in people receiving lecanemab. The risk is higher in people with APOE4 homozygous state. APOE4 genotyping is required before treatment to inform eligibility discussions and risk-benefit discussions as part of gaining informed consent.

Confirming treatment eligibility and follow up monitoring requires sophisticated procedures and systems including amyloid-PET imaging, MRI scans, blood tests, APOE4 testing, genetic counselling, infusion delivery capability, and pathways for urgent assessment of new neurological symptoms during the course of therapy.

Practical info

Use shared or supported decision making to explain the potential benefits, risks, substantial out of pocket costs, procedures and logistical requirements associated with lecanemab treatment to the person, and their carer where appropriate. For example, as of March 2026, APOE4 testing, MRI monitoring and amyloid-PET scans for anti-amyloid therapy are not subsidised on the Medicare Benefits Scheme.

Lecanemab was approved by the Therapeutic Goods Administration (TGA) in September 2025 for use in people with mild cognitive impairment or mild dementia due to Alzheimer's disease who are APOE4 heterozygotes or non-carriers. As of March 2026, lecanemab is not subsidised on the Pharmaceutical Benefits Scheme (PBS).

Treatment with lecanemab requires amyloid-PET, CSF and blood tests, including APOE4 testing before treatment, regular intravenous infusions (every 2 weeks), MRI monitoring and ongoing clinical follow-up, which may involve a substantial treatment burden for both the person and their carer.

Infusion-related reactions may occur during administration of lecanemab and should be monitored and managed according to institutional infusion protocols. People receiving lecanemab require urgent medical assessment if new neurological symptoms occur (e.g., headache, confusion, dizziness, visual disturbance or focal neurological symptoms), as these may indicate ARIA.

Evidence to decision

Benefits and harms

Important harms

Research evidence

Desirable effects (benefits)

Compared to placebo

Lecanemab resulted in little to no difference in:

- Dementia stage/severity progression (low certainty) [CRITICAL]
- Global cognitive functional decline (low certainty) [CRITICAL]
- Health-related quality of life for the person with dementia (moderate certainty) [CRITICAL]
- Health-related quality of life for the carer (moderate certainty) [CRITICAL]

We are uncertain of the effects of lecanemab on overall functional ability (very low certainty) [CRITICAL]

Lecanemab resulted in a large reduction in amyloid load (high certainty) [IMPORTANT].

No studies reported on

- Patient choice on receiving treatment [CRITICAL]

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Our interpretation of treatment effects is based on the following thresholds:

- Standardised mean difference (SMD)
  - 0.4 = a small but clinically important effect
  - 0.7 = a moderate effect

We also calculated and interpreted MDs for dementia stage/severity, global cognitive function, and health-related quality of life for the person with dementia. Our findings for MD interpretation were consistent with the interpretation of the SMDs.

Undesirable effects (harms)

Compared to placebo:

Lecanemab resulted in little to no difference in mortality (moderate certainty) [CRITICAL]

Lecanemab resulted in a large increase in:

- ARIA-E incidence (moderate certainty) [IMPORTANT]
- ARIA-H incidence (moderate certainty) [IMPORTANT]
- Infusion reaction incidence (high certainty) [IMPORTANT]

Our interpretation of treatment effects is based on the following thresholds:

- Standardised mean difference (SMD)
  - 0.4 = a small but clinically important effect
  - 0.7 = a moderate effect
- Adverse events
  - Mortality: 10 deaths per 1000 people treated
  - ARIA-E and ARIA-H: 50 events per 1000 people treated

- Infusion-related reactions: 100 events per 1000 people treated

Summary

Balance of effects: Guideline Development Group judgement and discussion

The Guideline Development Group voted on whether the balance between desirable and undesirable effects favoured lecanemab or the comparison. The Group reached consensus that the balance between desirable and undesirable effects probably favours the comparison (no lecanemab).

Desirable effects (benefits): Guideline Development Group judgement and discussion

The Group considered the question of how substantial the anticipated desirable effects of lecanemab were. The Group achieved consensus that the anticipated desirable effects of lecanemab were trivial.

Undesirable effects (harms): Guideline Development Group judgement and discussion

The Group considered how substantial the anticipated undesirable effects of lecanemab were. The Group agreed there were moderate undesirable effects of lecanemab.

Certainty of the evidence

Low

Research evidence

CRITICAL OUTCOMES (we only consider critical outcomes when judging overall certainty)

High certainty

Mortality

Moderate certainty

Global cognitive functional decline

Health-related quality of life for the person with dementia

Health-related quality of life for the carer

Low certainty

Dementia stage/severity progression

Overall functional ability

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Summary

The certainty of evidence was **low**.

Values and preferences

Substantial variability is expected or uncertain

Research evidence

Considerations for Aboriginal and Torres Strait Islander peoples of Australia

We did not identify studies that provided direct or indirect evidence on how Aboriginal and Torres Strait Islander peoples living with dementia value outcomes related to lecanemab.

Considerations for people from culturally and linguistically diverse (CALD) backgrounds

We did not identify studies that provided direct or indirect evidence on how people from culturally and linguistically diverse backgrounds value outcomes relevant to lecanemab.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect evidence on how LGBTQIA+ people living with dementia value outcomes related to lecanemab.

Considerations for people living with younger onset dementia

One study conducted in the Netherlands examining preferences of people living with younger onset dementia in general found that connectedness with others and dignity are recognised as being valued highly for this

group *(777)*. A review of the literature in 2016 captures the various general issues in relation to outcomes for people with younger onset dementia *(1016)*. These include loss or diminishment in roles such as provider, parent, and spouse; loss of income and financial problems; and loss of empowerment. There was a strong desire expressed by many to remain engaged and in control of their lives as best they could. Carer stress, burden and grief were considered important, as were psychosocial stress and anxiety for children of the affected person. All these factors combined to reflect the overall quality of life for the person and the family unit.

Considerations for people living with disability

A systematic review of experiences of people with intellectual disability (including Down's syndrome) and dementia (8 studies, 13 men and 18 women, 2 Australian studies) highlighted person-centred outcomes *(606)*. People experienced a narrowing of lives due to loss of abilities, stigma and marginalisation, loss of autonomy in decision-making for care. They valued relationships with others (including peers), and preferred to stay supported in their homes while avoiding frequent moves. For people with Down's Syndrome and dementia, person-centred outcomes such as being able to live one's best life with dementia, a sense of place and community, and having autonomy were highlighted in the recent Post-Diagnostic dementia support guidelines for people with an intellectual disability *(783)*.

Considerations for people living outside major cities

A study performed in rural Victoria found that engagement in meaningful activities (including social) was important to people living with dementia. Both people living with dementia and carers highly valued relationship-centred care support (e.g., a consistent care support person who treated them with respect) *(494)*.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- The Living/Lived Experience Advisory Group was very cautious about this intervention due to significant concerns about adverse events and uncertain benefit and unknown long-term impacts of the medication leads.
- No one from the Living/Lived Experience Advisory Group would opt for this intervention, but did recognise that for some people quantity of life may be more important than quality of life and they may want to choose this intervention.
- People need good information about the adverse effects and likely evidence to ensure they can provide truly informed consent if this was to be made available.

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Summary

Key points

- There is substantial variation in how the clinical and research communities view the meaningfulness of the outcomes used in the clinical trials of anti-amyloid treatments. It has been suggested that there should be careful individualised discussions with patients about the range of outcomes that were tested and the changes that were observed, in the context of eligibility, side effects, treatment burden, costs - towards a patient-centred decision.
- No research evidence was found directly evaluating the perspectives of patients themselves about such outcomes.

Guideline Development Group judgement and discussion

The Guideline Development Group discussed whether there was important uncertainty about or variability in how much people value the main outcomes. During the discussion, the Group noted that the comments made for lecanemab were similar to those made for donanemab. Decisions about treatment are likely to vary, with some individuals valuing potential benefits despite uncertainty and harms, and others prioritising limited benefit and risk of adverse effects.

The Group then voted and reached consensus that there was **important uncertainty or variability** in how people would value the desirable and undesirable effects of lecanemab.

Resources Important negative issues

Research evidence

International context:

International experience tells us that the drug cost alone per year per person ranges between $20,000 USD to ~30,000USD *(855)*, equivalent to approximately AUD $29,000–$43,500 in 2022 *(38)*. Other financial costs that are relevant to consider are from the perspective of healthcare (hospital and clinical systems/ tests/ equipment/ training/ personnel), person with dementia (e.g., transport costs), and their carer (e.g., loss of income from usual employment) and hence the costs are likely to be large *(855)(1278)*.

Early simulation models from the US and Japan indicated that lecanemab could potentially improve long-term health outcomes and reduce formal and informal care costs *(1125)*, and could improve health and humanistic (quality of life) outcomes while reducing econo burden for patients and caregivers in early Alzheimer's Disease. There have also been cost-effectiveness modelling studies conducted i the US which indicate that the use of these treatments are currently not cost-effective from all healthcare perspectives *(855)(1278)*.

A UK study *(697)* estimated the scale of real-world demand for monoclonal antibodies for Alzheimer's Disease. Eligibility for treatment assessed using the inclusion criteria from the clinical trials of donanemab and lecanemab with consideration given to diagnosis, cogniti performance, cerebrovascular disease, and willingness to receive treatment. The study examined the records of 82,386 people referred services covering some 2.2 million people. After applying the trial criteria, it was estimated a maximum of 906 people per year would st treatment with monoclonal antibodies in the two services, equating to 30,200 people if extrapolated nationally. Monoclonal antibody treatments for Alzheimer's disease are likely to present a significant challenge for healthcare services to deliver in terms of the neuroimaging and treatment delivery. Clinical benefits of these treatments may be marginal, their introduction would require significan investment and system-wide planning to manage the anticipated demand and delivery challenges effectively *(697)*.

Lecanemab has been tested in patients (aged 50-90 years) with MCI due to AD and mild AD dementia with confirmed amyloid patholo in the brain which is detected by either an amyloid-PET scan or CSF *(360)*. MRI scans are performed before treatment is commenced to exclude brain changes that may increase the risk of bleeding - such as microhemorrhages. These tests require specialised equipment a trained personnel. People with various other conditions were ineligible or excluded from the trials. Overall, only 5-8% of people living w dementia attending memory clinics may be eligible to receive these treatments in the real world *(344)*.

Cost-effectiveness

Modelling studies have been conducted to estimate the potential long-term health outcomes, societal and economic value of lecanem but these are yet to be supported by longitudinal findings.

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An early US model (2022) *(1125)* predicted that lecanemab plus standard of care would potentially improve long-term health outcomes and reduce formal and informal care costs compared with standard of care alone, resulting in a range of value-based prices that reflect value of lecanemab to society. The long-term effects of lecanemab were based on the efficacy data from the 18-month Study 201 and expert opinion *(1125)*.

An update of the modelled economic evaluation was conducted using data from the phase III CLARITY AD trial in a US economic study (2023) *(1127)*, suggesting that lecanemab plus standard of care would improve health and humanistic (quality of life) outcomes and reduce economic burden for patients and caregivers in early Alzheimer's Disease compared to standard of care alone *(1127)*.

A study based in Japan (2023) *(596)* found that use of lecanemab plus standard of care would increase years of life and QALYs with reduced economic burden for patients and caregivers with early Alzheimer's disease compared with standard of care alone.

Considerations for Aboriginal and Torres Strait Islander peoples of Australia

We did not identify studies that provided direct or indirect resource evidence in relation to lecanemab for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect resource evidence in relation to lecanemab for people from culturally and linguistically diverse backgrounds.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect resource evidence in relation to lecanemab for LGBTQIA+ people living with dementia.

Considerations for people living with younger onset dementia

We did not identify studies that provided direct or indirect resource evidence in relation to lecanemab for people living with younger onset dementia.

Considerations for people living with disability

We did not identify studies that provided direct or indirect resource evidence in relation to lecanemab for people living with disability.

Considerations for people living outside major cities

The cost to access services often includes travel costs, which makes the intervention prohibitively expensive for those living outside ma cities.

Resource requirements	
Resource	**Description**
Staff	• Diagnostic, genetic testing, imaging, administration staff, follow-up capacity would need to be established
Training	• Health services require expertise and resources to develop systems and training to establish models of care, to assess the suitability for treatment, access the necessary investigations to commence therapy and monitor, and manage adverse effects.
Supplies [medical supplies]	• Intravenous drug administration and blood tests: ◦ Lecanamab every 2 weeks • trials have been conducted for a duration of 18 months for lecanemab • A model has simulated long-term health outcomes of lecanemab beyond 18 months
Equipment and infrastructure	• Treatment is time and resource-intensive • MRI scans, Amyloid PET / CSF are performed before treatment is commenced to exclude brain changes that may increase the risk of bleeding - such as microhemorrhages. These tests require specialised equipment and trained personnel. Currently, MRI brain cannot be ordered by general practitioners with a Medicare rebate for Alzheimer's Dementia work up. CSF is not readily accessible. • Genetic testing is required before treatment to see whether the person may have copies of the ApoE4 gene; currently there is no Medicare rebate for APOE testing but it can be ordered by any medical practitioner (includin general practitioner), with results in 10 days. The out-of-pocket cost to patients is approximately $155. • Blood tests are required before and during treatments at regular intervals • Intravenous infusion capability required for treatment every 2-4 weeks • Lecanemab may continue monthly. Four further MRI scans are routinely performed to monitor for the developme of potentially serious brain changes. Additional visits for follow-up may be required if adverse events occur.
Time	• Patient & carer time, and transport costs - to attend appointments for therapy every 2-4 weeks, plus imaging appointments • Clinician time required to care for patients and guide therapy
Supervision and monitoring	• To assess the suitability for treatment, access the necessary investigations to commence therapy and monitor, and manage adverse effects

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Additional considerations

Input from the Living/Lived Experience Advisory Group

- Living/Lived Experience Advisory Group members had concerns about the uncertain and limited benefits of anti-amyloid treatmer questioning whether taxpayer money should fund them through the PBS or if it could be better spent. Consensus was that taxpay money could be spent on other medications with higher benefit.
- There are a number of cost barriers, including administration, workforce, and imaging, making the treatment inaccessible to many recognising the equity implications.
- The unavailability of the correct scans may further limit monitoring and diagnosis.
- While mass screening could improve early detection, it's not feasible without an effective treatment.

Summary

Key points

- There are no published Australian data on costs of lecanemab.
- The costs are likely to be large, and there is uncertainty whether or not the treatments will be cost-effective given current pricing models *(855)(1278)*.
- International experience tells us that the drug cost alone per year per person ranges between $20,000 USD to ~30,000 USD *(855)*.
- Other financial costs that are relevant to consider are from the perspective of healthcare (hospital and clinical systems/tests/ equipment/training/personnel), the person with dementia (e.g., transport costs), and their carer (e.g., loss of income from usual employment) *(855)(1278)*

- Lecanemab administration is every 2 weeks.

Guideline Development Group judgement and discussion

Resources

The Guideline Development Group voted on the resource requirements associated with lecanemab. During the discussion, it was noted that there was no available data on resource use and that the treatment had not been approved for use. It was also noted that the Lived Experience Advisory Group expressed concerns regarding the resources required for this medication. The Group reached consensus that lecanemab was associated with large costs.

Cost-effectiveness

The Group voted on whether the cost-effectiveness of lecanemab favoured the intervention or the comparison. During the discussion, it was noted that evidence from a Japanese study and a US study indicated a lack of evidence supporting cost-effectiveness. It was also clarified that, for this domain, the relevant consideration was cost-effectiveness in the Australian context.

The Group reached consensus that the use of lecanemab was probably not cost-effective (**probably favours the comparison** to not use lecanemab).

Equity Intervention likely increases inequity

Research evidence

Lecanemab received regulatory approval from the Therapeutic Goods Administration (TGA) in September 2025 *(81)*. However, as of April 2026, lecanemab has not been recommended for subsidy on the Pharmaceutical Benefits Scheme (PBS). As a result, patients may need to pay out-of-pocket costs to access treatment, which raises concerns regarding equitable access to therapy.

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Diagnosis of dementia for other patient groups is likely to be delayed if resources are prioritised for timely diagnosis, eligibility determination, treatment and monitoring of anti-amyloid antibody treatments for people with Alzheimer's Disease dementia. In 2023, only 13% of patients with dementia receiving diagnosis through ADeNET had diagnosis within 1 year of symptoms *(67)*. 30% received diagnosis at 3+ years. People living in Major Cities were slightly more likely to have an appointment within 1 year of symptom onset (17%) than those living in regional areas (12%). No difference otherwise in terms of age, gender, age group, region of birth. No info for Aboriginal and Torres Strait Islander peoples or LBGTQIA+ people *(67)*.

Considerations for Aboriginal and Torres Strait Islander peoples of Australia

Access to hospitals for IV therapy and imaging may be difficult for people who live in rural, regional and remote centres. This is likely to apply to Aboriginal and Torres Strait Islander people. The burden of care may be too much for Aboriginal and Torres Strait Islander peoples who are more likely to have multimorbidity.

Considerations for people from culturally and linguistically diverse backgrounds

Culturally and linguistically diverse (CALD) communities are often underrepresented in research trials, with most studies involving participants who are proficient in English. While people living with dementia and their carers from CALD backgrounds may speak English well, they may lack confidence to participate in research if approached *(231)*.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect equity evidence in relation to lecanemab for LGBTQIA+ people.

Considerations for people living with younger onset dementia

People living in rural and remote areas with younger onset dementia are more likely to receive care from primary care physicians, suggesting that clinician training or consultative guidance to primary care clinicians may be needed to overcome neuroscience workforce deficiencies in rural areas *(1281)*.

Considerations for people living with disability

We did not identify studies that provided direct or indirect equity evidence in relation to lecanemab for people with disability.

Considerations for people living outside major cities

Inequity of access for people living in regional and rural areas as people are not able to travel to a hospital for infusion. We did not identify studies that provided direct or indirect equity evidence in relation to lecanemab for people living outside major cities.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- The Living/Lived Experience Advisory Group concluded that anti-amyloid treatment does not aid people furthest behind and would lead to inequitable distribution as it is not implementable in Australia at the moment, given the size, population and distribution of resources.
- If approved, not having anti-amyloid on the Pharmaceutical Benefit Scheme will increase inequity, but the general consensus was that it should not be on PBS given that money could be spent on other medications with stronger and proven benefits (i.e., some cancer medications).
- Evidence demonstrates Aboriginal and Torres Strait Islander peoples and culturally and linguistically diverse communities do not get timely/early diagnosis or access treatment and this may affect their ability to receive this intervention.
- LGBTQIA+ communities may not access treatment as they fear discrimination.

Input from the External Interest Holder Organisations

- Geographical accessibility was generally stated as an important consideration if implementing anti-amyloid treatments in Australia.
- Limited access to specialist services for people living in regional and rural areas. People may not be able to travel to a hospital for infusion, and hospitals may not be able to administer this service.

Summary

Key points

There are no Australian sources of direct evidence that implementing (or not) anti-amyloid treatments will affect equity.

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- There is the potential to increase inequity by affordability if Pharmaceutical Benefit Scheme (PBS) approval is denied, should the treatments become available for use in Australia.
- Directing finite resources to early diagnosis and complex management for AD dementia may disadvantage those with AD dementia who are ineligible for treatments including those with other co-morbidities (the majority), those with other types of dementia, and those with language barriers.
- Inequity of access, if treatments are approved, are likely to increase for people in regional and remote settings, Aboriginal and Torres Strait Islander peoples, and other communities who are presently disadvantaged.

Guideline Development Group judgement and discussion

The Guideline Development Group voted on the impact of lecanemab on health equity. During the discussion, it was noted that equity considerations were assessed in the current context and that lecanemab was not approved by the PBS. The Group reached consensus that use of lecanemab was likely to reduce health equity.

Acceptability

Important issues, or potential issues not investigated

Research evidence

We did not identify studies that provided direct evidence for the acceptability of anti-amyloid treatments in an Australian context.

International context

In the US, treatment is time and resource intensive requiring intravenous infusions bi-weekly for lecanemab over 18 months. Lecanemab may continue monthly thereafter. Four further MRI scans are routinely performed to monitor for the development of potentially serious brain changes (see below) and more may be required if adverse events occur. Additional visits for follow-up may be required if adverse events occur. There are also blood tests required before and during treatments at regular intervals. Genetic testing is required at the start to see whether the person may have copies of the ApoE4 gene, which if present carries a higher risk of adverse events. All this requires centres

with skilled healthcare professionals and specialised equipment, and very carefully designed and monitored clinical care pathways to ensure safety for the person *(1066)*.

Expert opinion - The emergence of these treatments has generated community anticipation around treatments that may slow the progression of Alzheimer disease. Advances in anti-amyloid therapy offer hope for individuals with Alzheimer disease, along with their carers and families *(206)*.

Considerations for Aboriginal and Torres Strait Islander peoples of Australia

No evidence - but the complexity and burden of treatment, access and costs may reduce acceptability. Cultural safety and a trauma-informed approach is key in devising assessments and delivering acceptable interventions *(734)*.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect evidence regarding the acceptability of lecanemab for people from culturally and linguistically diverse backgrounds.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect evidence regarding the acceptability of lecanemab for LGBTQIA+ people living with dementia.

Considerations for people living with younger onset dementia

Services are not set up for people living with younger onset dementia. They often need multiple specialists, and they are not age appropriate or connected. There are few settings that are set up to assess and manage people living with younger onset dementia. Hence the complexity of these treatments could reduce their acceptability *(284)*. On the other hand, people living with younger onset dementia often have loss of earnings before diagnosis *(170)*. People living with younger onset dementia often are carers themselves, and need to navigate how to remain in employment *(284)*. Early diagnosis and such treatments may offer hope to alleviate the financial and professional challenges faced by individuals with dementia under age 65.

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Considerations for people living with disability

We did not identify studies that provided direct or indirect acceptability evidence in relation to lecanemab for people with disability.

Considerations for people living outside major cities

We did not identify studies that provided direct or indirect evidence regarding the acceptability of lecanemab for people living with dementia living outside major cities.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- There was variability in the acceptability of anti-amyloid antibody treatments among the Living/Lived Experience Advisory Group
- Living/Lived Experience Advisory Group members expressed strong support for individuals to make their own decision on whether anti-amyloid treatment is the right choice for them.
- Living/Lived Experience Advisory Group members found it hard to give a clear yes or no response about acceptability while also considering values, resources, and equity.

Summary

Key points

- There is likely to be variability in how anti-amyloid treatments are viewed with respect to acceptability.
- They may offer hope for individuals with Alzheimer disease, along with their carers and families - particularly for people living with younger onset dementia *(284)*.
- The complexity and burden of treatment, access and costs may reduce acceptability *(1066)*.
- Specific priority groups may have varying views on acceptability

Guideline Development Group judgement and discussion

The Guideline Development Group voted on whether lecanemab was likely to be acceptable to relevant stakeholders. During the discussion, it was noted that there was likely to be variability in how lecanemab was

viewed in terms of acceptability, and that acceptability was difficult to categorise within a single response option. The Group discussed the available options and noted that, as in previous discussions, views were spread across multiple categories. The Group ultimately selected "**Don't know**" as the overall judgement for acceptability.

Feasibility

Intervention is likely difficult to implement

Research evidence

Are the treatments available in Australia?

Some patients in Australia are being treated with lecanemab through clinical trials. Lecanemab received regulatory approval from the Therapeutic Goods Administration (TGA) in September 2025 for the treatment of early Alzheimer's disease *(81)*. However, lecanemab was not recommended for subsidy by the Pharmaceutical Benefits Advisory Committee (PBAC) and is not currently subsidised through the Pharmaceutical Benefits Scheme (PBS) in Australia. In the absence of PBS funding, access to lecanemab may be limited to private self-funding or participation in clinical trials, which may affect the feasibility of implementation in routine clinical practice.

Infrastructure, workforce and training

If amyloid-targeting mAb therapies were to become available in Australia, improvement of current infrastructure capability, workforce and training would be required. Clinicians lack real-world experience in the use of amyloid-targeting monoclonal antibody therapy in the Australian healthcare system, and guidance is required in understanding the frequency of MRI monitoring to detect ARIA. Health services require expertise and resources to develop systems and training to establish models of care, to assess the suitability for treatment, access the necessary investigations to commence therapy and monitor, and manage adverse events *(808)*.

Clinical workforce considerations include:

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- Patients require confirmation of Alzheimer disease pathology with amyloid positivity, validated by amyloid-PET or CSF. Neither are available on universal health care in Australia *(237)*.
- Genetic testing for APOE-ε4 allele is recommended, because individuals who are APOE-ε4 positive are at increased risk of ARIA with lecanemab, and may require more intensive monitoring.
- Patients receiving disease-modifying therapy require MRI prior to commencing treatment, and frequent monitoring with MRI brain scans (four or more per year), as there is a high rate of clinically significant amyloid-related imaging abnormalities (ARIA), both brain oedema (ARIA-E) and macro-and microhaemorrhages (ARIA-H). Although most cases of ARIA are asymptomatic, close monitoring with MRI is mandated. They require fortnightly or monthly intravenous infusions, and infusion reactions are common *(237)*.
- Time commitments are considerable with lecanemab, involving fortnightly clinic visits that include a 1-hour intravenous infusion in addition to pre- and post-infusion observations, for up to 18 months *(206)*.

Currently only a minority of clinicians refer patients with MCI or suspected Alzheimer's Disease dementia for confirmatory Aß-and/or tau-PET imaging *(808)*.

There is an existing substantial unmet need in specialist multidisciplinary memory clinic services. Significant expansion of public sector memory and cognition clinics and private sector models would be required to service projected patient numbers that may be eligible for treatment with lecanemab, if it were to become available and receive government subsidy in Australia. For GPs and emergency specialists who may be involved in the routine or inadvertent management and care of a patient receiving an amyloid targeting mAb therapy, education and training will be required for them to discern between mAb therapy related ARIA and ischaemic stroke *(808)*.

Considerations for Aboriginal and Torres Strait Islander peoples of Australia

We did not identify studies that provided direct or indirect feasibility evidence in relation to lecanemab for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse (CALD) backgrounds

We did not identify studies that provided direct or indirect feasibility evidence in relation to lecanemab for people from culturally and linguistically diverse background

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect feasibility evidence in relation to lecanemab for LGBTQIA+ people living with dementia.

Considerations for people living with younger onset dementia

Diagnostic and therapeutic management services are not set up for people living with younger onset dementia. They often need multiple specialists, and services are not age appropriate or connected. There are few settings that are set up to assess and manage people with younger onset dementia. Residential aged care is complicated for people living with younger onset dementia *(739)*.

People diagnosed with younger onset dementia often have loss of earnings before diagnosis. Early diagnosis and robust social support systems are vital to alleviate the financial and professional challenges faced by individuals with dementia under age 65 *(284)*. People living with younger onset dementia often are carers themselves, and need to navigate how to remain in employment, and how to access the National Disability Insurance Scheme (NDIS) services *(284)*.

Considerations for people living with disability

We did not identify studies that provided direct or indirect feasibility evidence in relation to lecanemab for people with disability.

Considerations for people living outside major cities

We did not identify studies that provided direct or indirect feasibility evidence in relation to lecanemab for people living outside major cities.

Additional considerations

Input from External Interest Holder Organisations

- State level factors to be considered if implementing this intervention include the ability of hospitals to administer this service. Sustainability of this intervention will be difficult considering equity, availability, accessibility, and cost.
- Unknown side effects and risks. Training required for administration of this medication.

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Summary

Key points

- There are no direct data sources addressing feasibility of implementation in Australia. However, there are sources of expert opinion and those Living/Lived Experience Advisory Group
- There would need to be substantial investment and improvement in infrastructure, workforce, training in a manner that does not increase inequity for the various priority groups, and for others with dementia who are not eligible for these treatments
- Lecanemab received regulatory approval by the Therapeutic Goods Administration (TGA) in September 2025 *(81)*. As of April 2026, lecanemab has not been recommended for subsidy on the Pharmaceutical Benefits Scheme (PBS).

Guideline Development Group judgement and discussion

The Guideline Development Group voted on whether the use of lecanemab was feasible to implement. During the discussion, it was noted that feasibility considerations were similar to those discussed for donanemab.

The Group reached consensus that implementation of lecanemab was **probably not feasible**.

Rationale

The Guideline Development Group judged that:

- Although lecanemab reduced brain amyloid, there was insufficient evidence that lecanemab benefits cognition, and there was a large increase in the incidence of Amyloid-Related Imaging Abnormalities (ARIA) and infusion reactions. Therefore, lecanemab resulted in trivial desirable effects and moderate undesirable effects, with low certainty evidence.
- There was important variability in how people living with dementia valued the desirable and undesirable effects of lecanemab, and the balance of effects probably favoured the comparison, to not use lecanemab.
- Successful implementation and monitoring of lecanemab requires large resource requirements, and use of lecanemab probably reduces equity.
- Acceptability of lecanemab was variable, and use of lecanemab is probably not feasible to implement.

Considering all judgments together, the Group agreed on a conditional recommendation against the routine use of lecanemab for people with mild cognitive impairment or mild dementia due to Alzheimer's disease. The Group noted that a conditional recommendation against the intervention does not preclude treatment. If the use of lecanemab is considered, the decision should be informed by careful discussion of potential benefits and harms, as well as cost and feasibility considerations. It was also noted that the evidence base is rapidly evolving and will be impacted by emerging research.

Research needs

The following are potential future areas for research:

- Real-world safety, effectiveness and cost-effectiveness evaluation studies involving clinicians, people living with dementia and carers.
- Cost-effective models of care to implement and monitor translation of research into practice and promote timely and equitable access.

Clinical question/ PICO

Population: people with mild cognitive impairment or mild dementia due to Alzheimer's disease
Intervention: Lecanemab
Comparator: placebo

Outcome Timeframe	**Study results and measurements**	**Comparator** placebo	**Intervention** Lecanemab	**Certainty of the evidence** (Quality of evidence)	**Summary**
Serious adverse events (mortality) 9 Critical	Relative risk 0.76 (CI 95% 0.27 — 2.12) Based on data from 2,201 participants in 2 studies. (Randomized controlled)	8 per 1000 Difference:	6 per 1000 **2 fewer per 1000** (CI 95% 6 fewer — 9 more)	**High** 1	Lecanemab results in little to no difference in mortality risk over 18 months compared to placebo
Adverse events of special interest (ARIA-E) 6 Important	Relative risk 7.96 (CI 95% 4.84 — 13.11) Based on data from 2,201 participants in 2 studies. (Randomized controlled)	15 per 1000 Difference:	119 per 1000 **104 more per 1000** (CI 95% 57 more — 180 more)	**Moderate** Due to serious risk of bias [2]	Lecanemab likely results in a large increase in adverse events of special interest (ARIA-E). (Threshold for an important effect: 50 events per 1000 people)
Adverse events of special interest (ARIA-H) 6 Important	Relative risk 1.84 (CI 95% 1.45 — 2.34) Based on data from 2,201 participants in 2 studies. (Randomized controlled)	82 per 1000 Difference:	151 per 1000 **69 more per 1000** (CI 95% 37 more — 110 more)	**Moderate** Due to serious risk of bias [3]	Lecanemab likely results in a large increase in adverse events of special interest (ARIA-H). (Threshold for an important effect: 50 events per 1000 people)
Adverse events of special interest (infusion reactions) 6 Important	Relative risk 4.14 (CI 95% 2.61 — 6.55) Based on data from 2,201 participants in 2 studies. (Randomized controlled)	65 per 1000 Difference:	268 per 1000 **203 more per 1000** (CI 95% 104 more — 360 more)	**High** 4	Lecanemab results in a large increase in the incidence of infusion-related reactions. (Threshold for an important effect: 100 events per 1000 people)
Clinical status: Dementia stage/	Measured by: CDR-SB	Difference:	**SMD 0.33 lower** (CI 95% 0.42 lower	**Low** Due to serious risk	Lecanemab may result in little to no difference in

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Outcome Timeframe	**Study results and measurements**	**Comparator** placebo	**Intervention** Lecanemab	**Certainty of the evidence** (Quality of evidence)	**Summary**
severity 9 Critical	Based on data from 2,124 participants in 2 studies. (Randomized controlled) Follow up: 18 months.		— 0.24 lower)	of bias, Due to serious imprecision [5]	the progression of dementia severity over 18 months compared to placebo (Threshold for an important effect: SMD 0.4)
Cognitive function (global) 9 Critical	Measured by: ADAS-Cog14 Based on data from 2,123 participants in 2 studies. (Randomized controlled) Follow up: 18 months.	Difference:	**SMD 0.21 lower** (CI 95% 0.31 lower — 0.12 lower)	**Moderate** Due to serious risk of bias [6]	Lecanemab likely results in little to no difference in global cognitive decline over 18 months compared to placebo (MID: 0.4)
Functional ability (overall) 9 Critical	Measured by: ADCS-ADL-MCI Based on data from 1,579 participants in 1 studies. (Randomized controlled) Follow up: 18 months.	Difference:	**MD 2 higher** (CI 95% 1.33 higher — 2.67 higher)	**Low** Due to serious risk of bias, Due to serious imprecision [7]	Lecanemab may result in better overall functional ability compared to placebo.
Health-related QoL for the person with dementia 9 Critical	Measured by: QOL-AD (self-reported by person with AD) Based on data from 1,681 participants in 1 studies. (Randomized controlled) Follow up: 18 months.	Difference:	**SMD 0.11 higher** (CI 95% 0.01 higher — 0.21 higher)	**Moderate** Due to serious risk of bias [8]	Lecanemab likely/ probably results in little to no difference in health-related quality of life for the person with dementia.
Health-related QoL for the carer 9 Critical	Measured by: Zarit Burden Interview (ZBI) Based on data from 1,678 participants in 1 studies. (Randomized controlled) Follow up: 18 months.	Difference:	**SMD 0.18 lower** (CI 95% 0.28 lower — 0.08 lower)	**Moderate** Due to serious risk of bias [9]	Lecanemab likely/ probably results in little to no difference in health-related quality of life for the carer.
Changes in neuro-biomarkers 6 Important	Measured by: Centiloid change on Amyloid PET Based on data from 2,201 participants in 2 studies. (Randomized controlled) Follow up: 18 months.	Difference:	**MD 65.66 lower** (CI 95% 79.7 lower — 51.63 lower)	**High** [10]	Lecanemab likely results in little to no difference in health related QoL for the carer.
Patient choice on receiving treatment		No studies reported on patient choice on receiving treatment.			

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Outcome Timeframe	**Study results and measurements**	**Comparator** placebo	**Intervention** Lecanemab	**Certainty of the evidence** (Quality of evidence)	**Summary**
9 Critical					

1, 4, 10. **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.** Publication bias undetected for all outcomes. All trials are prospectively registered and all measured outcomes were reported or the trial is ongoing..
2. **Risk of Bias: serious.** Serious RoB (-1). One trial was at high risk of bias for incomplete outcome data. Because ARIA-E is detected by scheduled imaging, loss to follow-up may have led to underdetection of events.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.** Publication bias undetected for all outcomes. All trials are prospectively registered and all measured outcomes were reported or the trial is ongoing..
3. **Risk of Bias: serious.** Serious RoB (-1). One trial was at high risk of bias for incomplete outcome data. Because ARIA-H is detected by scheduled imaging, loss to follow-up may have led to underdetection of events.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.** Publication bias undetected for all outcomes. All trials are prospectively registered and all measured outcomes were reported or the trial is ongoing..
5. **Risk of Bias: serious.** Serious RoB (-1). One study was at high risk of bias for incomplete outcome data. Since the CDR-SB is a subjective outcome combining cognitive and functional domains, this raises concern that missing data may have influenced the results, despite appropriate blinding.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: serious.** Serious imprecision (-1). The 95% confidence interval crosses the threshold for an important benefit (SMD -0.4), so the result is compatible with both important benefit (SMD 0.42 lower) and little or no difference (SMD 0.24 lower).. **Publication bias: no serious.** Publication bias undetected for all outcomes. All trials are prospectively registered and all measured outcomes were reported or the trial is ongoing..
6. **Risk of Bias: serious.** Serious RoB (-1). One trial was at high risk of bias due to incomplete outcome data. As the ADAS-Cog14 is subjective and sensitive to dropout, this may have introduced bias despite adequate blinding and protocol transparency. . **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.** Publication bias undetected for all outcomes. All trials are prospectively registered and all measured outcomes were reported or the trial is ongoing..
7. **Risk of Bias: serious.** Measured in one study using a subjective measure - ADCS-MCI-ADL, with no comparison study.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: serious.** Serious imprecision (-1). The 95% confidence interval crosses the threshold for an important benefit (MD 2 to 3 points), so the result is compatible with both little or no difference (MD 1.33 higher) and important benefit (MD 2.67 higher).. **Publication bias: no serious.** Publication bias undetected for all outcomes. All trials are prospectively registered and all measured outcomes were reported or the trial is ongoing..
8. **Risk of Bias: serious.** Serious RoB (-1). The study was at high risk of bias for missing outcome data. (more than 5% missing). There are some concerns that dropout from the Lecanemab group may have been due to worsening of QoL, and are missing from the analysis.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.** Publication bias undetected for all outcomes. All trials are prospectively registered and all measured outcomes were reported or the trial is ongoing..
9. **Risk of Bias: serious.** Serious RoB (-1). The study was at high risk of bias for missing outcome data (more than 5%). There are some concerns that dropout rates from the Lecanemab group may be due to worsening of QoL of person with AD, and therefore carer burden may also increase. Missingness in ZBI could be related to worsening carer burden.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.** Publication bias undetected for all outcomes. All trials are prospectively registered and all measured outcomes were reported or the trial is ongoing..

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8.4 Referral for a practical driving assessment at the time of diagnosis of dementia

Risk of driving for people living with dementia

Driving is an instrumental activity of daily living that can be significantly impacted by dementia—it is a complex task requiring integration of multiple cognitive, perceptual and functional abilities *(565)(1103)*. A person living with dementia can make errors with navigation such as forgetting familiar routes and getting lost; experience gaps in concentration or inattention such as failing to respond to stop signs; make errors in judgement such as misjudging car speed when changing lanes; display impaired decision making for example when navigating intersections; and have slowed reaction times *(162)*. Distinct driving patterns (e.g., increased variability in mean speeds and out-of-lane drifting) have been identified that distinguish drivers living with dementia from drivers without dementia *(561)*.

Not all people living with dementia are unsafe to drive. Driving is considered an 'overlearned skill', and some people living with dementia may still be able to 'automatically' drive the vehicle at operational and tactical levels, continuing to drive safely after dementia diagnosis supported by periodic re-assessment. When driving, the person living with dementia is sharing the road with many other drivers resulting in unpredictable situations that may require the person living with dementia to make judgments, problem solve and react quickly. These strategic level skills required for driving can be more challenging for drivers living with dementia and safe driving may be considered no longer possible *(1173)*.

A person living with dementia may additionally lack insight into their condition and underplay or be unaware of their difficulties *(162)*. The capacity of people living with dementia to drive safely is therefore of concern for the broader public *(116)*. Not all people living with dementia are unsafe to drive.

Fitness to drive can depend on severity (people with moderate to severe dementia are considered unsafe to drive *(116)(1152)* and those with certain sub-types of dementia (with prominent frontal lobe and executive dysfunction or motor symptoms) are considered to have increased driving risk *(917)*. Determining the safety of driving for people with milder severity of dementia can be less certain *(116)(917)(962)(1152)*.

Current evidence does not adequately support medical practitioners in managing the uncertainty in determining whether individuals with mild to moderate dementia are fit to drive at the time of dementia diagnosis. This evidence gap is particularly relevant with respect to guidance for when (and how) to refer a person for a practical driving assessment *(1101)*.

Assessment of fitness to drive

At the time of making the diagnosis of dementia, a medical practitioner evaluates the person's fitness to drive in order to determine whether the person could continue driving. The aim is to find a balance between a person's safety on the road, maintaining the individual's mobility (for lifestyle, employment, access to healthcare, caring responsibilities, and engagement with communities) and minimising related road safety risks for both the individual and the broader public *(162)*.

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Cognitive assessments by themselves are not definitively predictive of on-road performance on an individual basis, and should not be used as the sole method of assessment for fitness to drive *(116)(375)(565)(962)(968)*. There are no specific cognitive tests that reliably predict future motor vehicle crash *(565)(775)(968)*.

Cognitive impairment may also be influenced by other health conditions (e.g., impaired vision or hearing, stroke, sleep disorders, restricted mobility or function, adverse effects of medications) *(116)*.

The fitness-to-drive assessment must therefore not only involve a driving history and discussion with family members or carers, but also a medical and medication history, including vision and hearing assessment, and cognitive testing *(162)*. Medical practitioners can benefit from having a list of points to consider to assist fitness to drive assessment and when monitoring progression of dementia, as outlined in the Austroads guidelines *(162)*. A combination of medical assessment (including specialist assessment as required) and practical driving assessments appears to give the best indication of driving ability *(162)*.

A common way to report on an individual's fitness to drive by classifying people into three groups depending on their driving ability – fit to drive (i.e., 'wait and watch'), undetermined requiring further assessment, or not fit to drive *(1103)*.

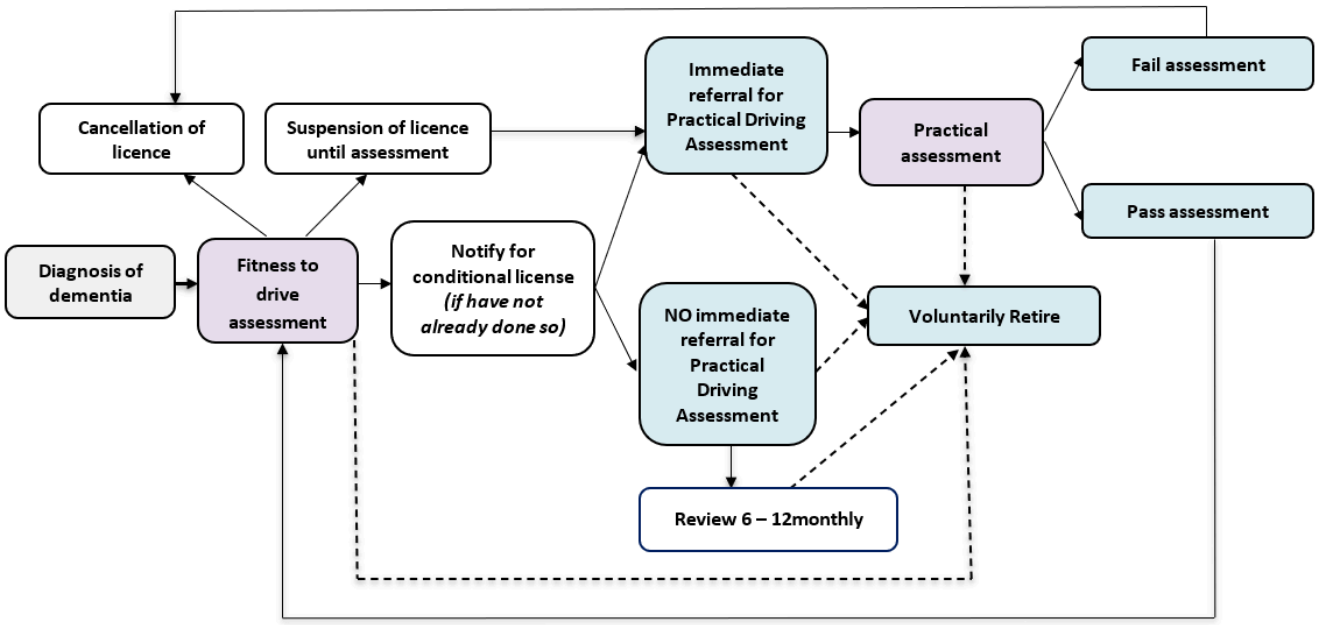
There are challenges for individuals living with dementia and their families and carers while transitioning from driving to not driving *(569)*, and consequently also for health practitioners assessing fitness to drive *(94)*. Not all people living with dementia require their licence to be revoked or restricted. People living with dementia may self-restrict their driving. Some people diagnosed with dementia may voluntarily retire from driving on their own, after discussion with carers or family members.

Healthcare professionals may need training to help them develop the skills and confidence to address the complex and possibly emotional discussion around driving with dementia *(569)*. Educational modules, decision aids *(278)* and decision support tools to assist these discussions, for both health professionals and consumers, are beneficial and may reduce the undesirable effects of driving retirement *(94)(259)(1188)*.

Who assesses fitness to drive?

Healthcare practitioners should initiate conversations about driving with people living with dementia and their family members/carers at the time of dementia diagnosis *(100)*. Figure 1 outlines the potential pathways for referral and possible outcomes.

Figure 1: Pathways for referral and possible outcomes at the time of dementia diagnosis



Assessors of fitness to drive include General Practitioners and other specialist dementia physicians. There may be a collaborative approach to fitness to drive assessments at Multidisciplinary Team specialist clinics. However, the responsibility of notification to driver licensing authorities lies with the medical practitioner (GP or specialist).

Multi-disciplinary Team driven clinics may include:

1. Memory / cognitive clinics (run by specialist practitioners such as geriatricians, neurologists with possible nursing/allied health support).
2. Specialised driving fitness assessment clinics (variable disciplines, can involve rehabilitation consultants/trainees).

These clinics are likely only available in larger urban centres, and there may be long waiting times *(1101)*.

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Occupational therapists (OTs) may assist medical practitioners in driving assessments *(396)*. While non-driver trained OTs are skilled in completing functional assessments of vision, cognition and physical capabilities, they lack the training and resources of driver-trained OTs (OT driver assessors) performing practical assessments to make recommendations about a person's suitability to continue driving, so referral to a specialised OT driver assessor is often needed *(1101)(1206)*.

Austroads guidelines for assessing fitness to drive

As per Austroads (the national apex organisation of road transport and traffic agencies), a person living with dementia cannot hold an unconditional private or commercial license. A person living with dementia can, depending on their capacity, hold a conditional license subject to periodic review (e.g., 12 monthly *(116)*), required due to the progressive nature and unpredictable trajectory of dementia *(162)*.

A person with mild cognitive impairment that is yet to impact on function can still hold an unconditional license *(162)*. The Austroads guidelines advise that having mild cognitive impairment does not significantly impair driving. However, where there is impairment across multiple cognitive domains such as visuospatial, attention and executive functions in the setting of mild cognitive impairment, it may be appropriate to consider the driver's fitness to drive and perform an assessment *(162)*.

Austroads guidelines recommend that the health professional advises and counsels the person diagnosed with dementia about the impact of their condition and the need to restrict driving, as appropriate *(162)*. The health professional completes a medical condition notification form for the person including details of requirements not met, provides a report and advises them to notify the Drivers' Licence Authority. The health professional advises the person diagnosed with dementia of their legal obligations and implication of failure to comply, and seeks family support for them if appropriate. In some states, practitioners are obligated to notify the Drivers' License Authority and do not require patient consent (e.g., South Australia) *(159)*.

The ANZSGM position statement notes that "Australian doctors are not legally obliged to report patients with a diagnosis of dementia, except in SA and Northern Territory which legislate an obligation to report to the transport authority any individuals who the practitioner believes are unfit to drive as a result of physical or mental impairment." *(116)*.

Austroads guidelines advise that the person living with dementia is regularly monitored, and consideration of fitness to drive remains a key feature of managing the progressive condition of dementia *(162)*.

What happens after the Fitness to drive assessment?

At the time of making the diagnosis of dementia, the medical practitioner may determine that the person is no longer able to hold a private driving license, even with conditions. In those instances, the medical practitioner writes to the Driver's License Authority cancelling the licence.

When making the recommendation for a conditional licence at the time of diagnosis of dementia, the options are EITHER to immediately refer the person living with dementia for a practical driving assessment OR take a 'wait-and-watch' approach *(1080)*.

Concurrently, the medical practitioner can recommend conditions for driving modifications, such as driving closer to home with familiar driving routes, not driving at night, or driving below certain speed limits. While these modifications may be important, there is not a large evidence base to support specific modifications. The medical practitioner may also temporarily suspend a licence, while awaiting practical assessment.

Practical driving assessment

A practical driving assessment (referred to from now as "practical assessment") refers to further examination to assess fitness to drive. There is a wide range of practical assessments available, including off-road, on-road and driving simulator assessments, each with strengths and limitations *(160)*. Driving simulators are more commonly used in the context of driving rehabilitation and so, will not be further considered in this section which focuses on other off-road and on-road assessments.

Assessments can be used in combination. For example, OT driver assessment usually involves an off-road screening (or 'clinical driving evaluation' *(1173)*) and an in-car practical driver assessment *(160)*.

As per Austroads, there are noted limitations of practical assessments, due to potential daily fluctuation of an individual's condition and the inability to re-create emergency situations to assess response *(162)*. Austroads caution that practical assessments are 'intended to inform but not necessarily override the clinical opinion' of medical practitioners (and other health professionals, such as OT driver assessors) *(162)*.

Off-road driving assessment component

The purpose of the off-road screening is to evaluate the nature, frequency and requirement for driving, underlying impairments, knowledge of road law, insight, medical history and requirements for the on-road test *(162)*. Off-road assessments are usually conducted by OT driver assessors and involve a number of different standardised tests that include visual, sensory, cognitive and physical/functional tests, as well as road knowledge, licence and vehicle details and projected needs for driving

Off-road tests often precede an on-road driving assessment *(1217)*. The purpose is to establish the person's sensory, physical, and cognitive strengths and weaknesses that may impact driving *(1173)*.

On-road driving assessment component

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On-road driving assessment is a practical driving assessment considered as the 'gold standard' for fitness to drive assessment *(1217)*. It is undertaken in a standard or dual-controlled vehicle, on a predetermined standardised route with a trained driver instructor or an OT driver assessor, depending on the jurisdiction and availability of OT driving assessors. On-road tests are designed to assess an individual's driving performance at an operational, tactical, and strategic level, and a recommendation will be made by the assessor regarding fitness to drive from pass/fail results test outcomes *(1173)*. This may result in a suspension or cancellation of a licence, or recommending conditions for a licence.

'Wait-and-Watch' approach

The 'wait-and-watch' approach is a strategy where medical practitioners do not make an immediate referral for practical assessment and decide to monitor an individual for dementia progression and regularly re-evaluate fitness to drive. As part of regular monitoring, conversation around alternatives to driving and voluntary restriction to driving or retirement from driving can be held. A risk with a wait-and-watch approach is that the person living with dementia may not be reviewed by the same medical practitioner, or frequently enough. Some people living with dementia may undergo a practical assessment after a period of time, and others may voluntarily retire without assessment as the disease progresses.

International guidelines recommend that people living with dementia who are deemed fit to continue driving should be re-evaluated every 6 to 12 months or sooner, if indicated *(1103)*. A systematic review on the frequency of follow-up assessment in people with mild dementia recognised a gap in the evidence on the timing of follow-up of drivers with mild dementia *(831)*. Three studies from the systematic review included advice for follow-up in 6 months or less.

People living with dementia have been shown to be unable to accurately rate their on-road driving performance *(179)* and may lack insight into their driving ability. This may limit the feasibility of applying a 'wait-and-watch' approach where it is difficult to obtain collateral history. Formal licence restrictions may be ineffective if the person forgets them; some people living with dementia continue to drive despite suspension *(292)*.

Family members, or carers, are in a unique position to observe driving performance of a person living with dementia, especially over time with new or progressing cognitive impairment *(179)*. A study *(179)* in the United States recruited people living with dementia for a comprehensive driving evaluation while at the same time administering a Likert-scale questionnaire to their caregivers on their opinion of their driving ability. When caregivers rated their driving quality as lower, participants living with dementia were more likely to fail the on-road assessment. The authors concluded that caregiver opinion of driving fitness and ratings of functional activities may be useful for clinicians in considering whether a person living with dementia should be more carefully assessed for fitness to drive.

A survey about driving retirement *(358)* in the US found that 36/85 (42.4%) of drivers living with dementia retired due to family encouragement. A randomised controlled study of a psychoeducation intervention in Massachusetts, USA, identified that some family members of people living with dementia, however, may be reluctant to report concerns about driving due to negative consequences on family relationships *(364)*.

Question 9

When making the recommendation for a conditional driver's license at the time of diagnosis of dementia, should medical practitioners immediately refer people with mild to moderate dementia for a practical driving assessment OR not immediately refer for a practical assessment (wait and watch approach)?

Conditional recommendation for , Very low certainty evidence

Recommendation 9
Consider immediate referral for a practical driving assessment at the time of diagnosis in people diagnosed with dementia.

Remarks

The recommendation provides guidance for medical practitioners at the time of making a dementia diagnosis. The recommendation does not apply when the medical practitioner is certain the person is not safe to continue driving. This recommendation does not apply to when an individual diagnosed with dementia chooses to fully retire from driving.

It is important to balance contextual factors while assessing fitness to drive. If a wait and watch approach is adopted, regular monitoring (e.g., 3-monthly) of cognition and assessment of fitness to drive should be undertaken, ideally by the same medical practitioner. Austroads includes advice on assessing whether a person with dementia can continue to drive.

Integrated care within Aboriginal and Torres Strait Islander health services supports culturally safe care and equitable access to fitness-to-drive assessments, including associated referrals for practical assessment.

Practical info

Legal obligations

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Medical practitioners should be aware of the current advice provided by Austroads on driving and dementia. As of March 2026, Austroads (2022 edition) advises that a person with dementia may not hold an unconditional license or commercial license, but may hold a conditional license subject to periodic review.

Medical practitioners should also familiarise themselves with current legal requirements in states or territories where they practice:

- As of March 2026, except in South Australia and the Northern Territory, it is a legal responsibility of the person diagnosed with dementia to notify the driver licensing authority of the dementia diagnosis. Medical practitioners advise people diagnosed with dementia (and their carers, if appropriate) of the legal obligation.
- In South Australia and the Northern Territory, it is the medical practitioner's legal responsibility to notify the licensing authority that the diagnosis has been made and that the person can no longer hold an unconditional license.

When a medical practitioner determines that an individual with dementia poses a safety risk on the road, they may report the individual to the relevant licensing authority without the individual's consent in the interests of public safety.

Having the conversation

Use shared decision-making with the person, and their carer if appropriate, to support planning for driving cessation, including discussion about the risks and myths of safe driving. Resources are available to help people plan their retirement from driving.

Discussions about driving can be challenging and emotive for a person diagnosed with dementia, as well as their carers. The language used in these discussions needs to be considered and appropriate. When communicating the referral for a practical assessment, it is important to be aware of related social, cultural and family factors.

Accessing practical assessments

Practical assessment may be accessed by referring either to the Driver Licensing Authority or an Occupational Therapy Driving Assessor, depending on the availability of these services. There may be variability in access to services across Australia.

The cost of practical assessment incurred by the individual may vary widely. As of March 2026, practical assessment is not a reimbursed item on the Medicare Benefits Scheme.

If a person diagnosed with dementia has concerns about undertaking an on-road practical assessment, a driving lesson or refresher course can help them gain confidence, or, conversely, help people with dementia self-determine whether it is time to retire from driving.

Useful resources

Austroads Assessing Fitness to Drive

Ageing Well On The Road | Ageing Well On The Road – an Australian website with information for older people to support driving and retiring from driving

Occupational Therapy Australia – Find an OT driver assessor service finder website, (Select 'driving' as area of practice). Find an OT

Aged Dementia Health Education and Research (ADHERe): Dementia and Driving decision aids - available in other languages than English - Chinese (mandarin), Greek, Italian and Taiwanese Dementia and Driving | Aged Dementia Health Education & Research

Funding | Drive Able Occupational Therapy

Royal Automobile Association of South Australia (RAA) Years Ahead Program – driving refresher course for older drivers

Evidence to decision

Benefits and harms

Substantial net benefits of the recommended alternative

Research evidence

Desirable effects (benefits)

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Immediate referral for practical assessment compared to a 'wait-and-watch approach' (no immediate referral) resulted in **possibly desirable effects** for:

- Road Motor Vehicle Collisions (MVC) [critical outcome]
- Person living with dementia having awareness of the risk of driving [important outcome]
- Carer awareness of the risk of driving with dementia [important outcome]
- Health-related Quality of Life of the carer [important outcome]

Undesirable effects (harms)

Immediate referral for practical assessment compared to a 'wait-and-watch approach' (no immediate referral) resulted in **possibly undesirable effects** for:

- Mobility of the person living with dementia [critical outcome]
- Functional ability and independence for the person living with dementia [important outcome]
- Mood and depression for the person living with dementia [important outcome]

There was **uncertain direction of effect** for:

- Mobility of the carer of the person living with dementia [critical outcome]
- Health related Quality of Life of the person living with dementia [important outcome]

Summary

Balance of effects: Guideline Development Group judgement and discussion

To decide on the balance of effects, the Guideline Development Group initially considered and made separate judgements about:

- the size of desirable anticipated effects (benefit) – **moderate to large**
- the size of undesirable anticipated effects (harm) – **small to moderate**
- the overall certainty of the evidence for critical outcomes – **very low**
- whether there is important variability (or uncertainty) in how much people value the main outcomes – **possibly important uncertainty or variability.**

The Group decided that the balance of effects probably favoured immediate referral for practical assessment.

Given the very low certainty of evidence, the Group discussed the reasoning behind their judgement. Given the potential consequences of serious injury or fatality from having a crash, the Group considered that the moderate effects attributed to the critical outcome of MVC and considerations of road safety outweighed other outcomes presented and discussed.

One member not favouring immediate referral highlighted individual contextual factors that are important to consider in the decision to refer. For example, the medical practitioner may determine that some individuals have a relatively low safety risk but a high need to continue driving, and the nuance of an individual's situation needs to be taken into account.

The Group noted that concerns about driving can be raised by relatives before the person presents. Discussions about driving cessation can be difficult and emotionally charged, and having a guideline can assist clinicians by providing external validation of the decision to refer. Referral for an assessment may also be beneficial where it allows for a less emotional evaluation by someone outside the therapeutic relationship.

The Group also acknowledged that variations between health service providers and states for referral pathways can influence decision-making about referral.

Desirable effects (benefits): Guideline Development Group judgement and discussion

The Group agreed that immediate referral for practical assessment results in moderate to large desirable anticipated effects.

This judgement was primarily based on the critical outcome of Road Motor Vehicle Collisions (MVC). The Group considered that any morbidity and mortality that could be prevented from early referral is desirable. Despite the low certainty of evidence, the outcome of MVC can have significant consequences on individual or community safety, including serious injury or death. It was considered that immediate referral may also prompt discussion about what is safe driving between the carer and the person living with dementia, which can protect all parties. The other important outcomes considered for desirable effects were less impactful on the Group's decision.

Undesirable effects (harms): Guideline Development Group judgement and discussion

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The Group agreed that immediate referral for practical assessment results in small to moderate undesirable effects.

This judgement was based on the Group's views of the critical outcome of mobility, the important outcomes of functional ability and independence, mood and depression, and health related quality of life for the person living with dementia. The Group's views on undesirable effects varied, and a number of variables were considered to have an impact on this variation.

The Group discussed the context of referral and whether the risk of undesirable effects associated with that context could be mitigated. For example, what systems are in place to support a person, such as availability of good public transport and family support; if a person's license needs to be suspended while awaiting assessment; the timing of diagnosis and referral (with early diagnosis and referral being favoured for mitigating undesirable effects); and the social context of the individual such as gender roles and the associated impact from loss of license. These factors were considered to be variable in relation to the size of undesirable effects.

The Group noted that some individuals may delay seeking medical advice about cognitive concerns if they are worried that doing so could lead to immediate referral and possible loss of their licence. However, the Group reaffirmed that referral for assessment does not necessarily result in loss of licence. Many people pass practical driving assessments, and this can provide reassurance and greater confidence in their ability to continue driving.

The Group also recognised that discussions about driving ability are often difficult, as people living with dementia may be reluctant to stop driving. In some cases, carers may rely on the person living with dementia for transport, meaning that referral and possible driving cessation may also affect the carer's mobility.

Certainty of the evidence

Very low

Research evidence

The overall certainty of the body of evidence is determined by the lowest certainty rating of all the critical outcomes.

Summary

The overall certainty of the body of evidence for this question is considered to be very low.

Values and preferences

Substantial variability is expected or uncertain

Research evidence

General considerations

From three qualitative systematic reviews *(708)(1150)(1242)* of what matters most to people living with dementia, we found that people living with dementia:

- place high value on the quality of life of their care partner
- value the ability to function independently, not only for themselves but because people living with dementia feel this facilitates a good relationship with their care partner
- place slightly less value on their own quality of life, self-efficacy, independence, and emotional well-being.

The three systematic reviews providing evidence did not report participant characteristics of the included studies. The majority of studies were conducted in the US, Canada, Western Europe and Australia *(708)(1150)(1242)*.

Outcomes	Values of people living with dementia
Critical	
Road motor vehicle collision (MVC)	• older people may be reluctant to share or discuss difficulties with driving, or potentially feel great shame o worry about difficulties faced on the road *(714)*
Mobility of the person living with dementia	• transportation is important for health and social inclusion of people living with dementia *(775)* • a US qualitative study that surveyed 1053 older drivers (mean age 74 years) [indirect evidence] may perceive that alternative transport options provide less mobility, convenience and security than driving, and have less experience with public transport *(670)*, and therefore may not value alternative transport options and their awareness of them • older drivers (mean age 74 years) [indirect evidence] who plan for when they can no longer drive are more likely to value having information and awareness of alternative transport options *(670)* • a scoping review *(694)* reported that transportation services (alternatives to private transport) for people living with dementia were needed by over 20% in multiple studies, up to 70% in some studies. Actual use of transport services was around 20-30% • some of the challenges faced by people living with dementia in accessing transport include short time during connections and having difficulty interpreting travel timetables and numbers *(694)*. • well-trained staff who can provide assistance in wayfinding and technology use with an attitude that is patient, kind and non-stigmatising could reduce anxiety and improve travel experience *(694)* • alternative transportation for people living with dementia can become a risk, including unaccompanied trips on public transport and risky pedestrian behaviour *(716)*
Mobility for the carer of the person living with dementia	• in some families, the carer of a person living with dementia was reliant on the person living with dementia as a driver and acted to promote continued driving *(716)* • family members as carers require support to adjust the retired driver to becoming a passenger *(716)* • many caregivers report missing work or ceasing work entirely in order to provide transportation for the person living with dementia *(1131)*
Important	
Person living with dementia having awareness of the risk of driving	• people living with dementia may be unable to rate their on-road driving performance and can lack of insight into their driving ability *(1046)* • awareness of driving risks and relationship to dementia affected by memory loss; formal licence restrictions may be ineffective if the person forgets them; some people living with dementia continue to drive despite suspension *(292)* • a New Zealand qualitative study including 7 participants interviewed within 1 month of driving cessation advice awareness found that while people living with dementia mostly disagreed with the medical decision to cease driving, there was a general consensus that the decision was to be respected "because a doctor had made it" *(292)*
Carer awareness of the risk of driving with dementia	• awareness of advice to cease driving, of dementia diagnosis and insight into driving ability can be affected by memory loss *(292)(1046)*, which will impact how people living with dementia value this outcome

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Outcomes	Values of people living with dementia
	• people living with dementia may not be aware or be able to accurately estimate the impact of their driving burden on carers *(292)*
Health -related QOL of the person living with dementia	• in general (not specific to practical assessment of driving), people living with dementia place slightly less value on their own quality of life, self-efficacy, independence, and emotional well-being *(708)(1150)(1242)*
Health-related QOL of the carer	• in general (not specific to practical assessment of driving), people living with dementia place high value on the quality of life of their care partner *(708)(1150)(1242)*
Functional ability and independence for the person living with dementia	• driving was seen as important for people living with dementia to facilitate work and leisure activities, as well as maintain social engagement *(292)* • social engagement and independence were highly valued for people living with dementia, to the extent that life could be seen as "not worth living" if • social connections couldn't be maintained *(292)* • continuation of licence is valued by people living with dementia - the loss of a recognised document for identification is a downstream consequence of cancellation of a license. In NSW, the state issues a photo-ID card as an alternative form of identification so people can maintain their 'personal and social identity' *(94)* • a US survey of n=1053 older drivers and former drivers [indirect evidence] found that older people may continue to drive as they highly value their mobility, independence and personal control, and do not want to feel they are a burden or indebted when they cannot reciprocate *(670)* • in general (not specific to practical assessment of driving), people living with dementia value the ability to function independently, not only for themselves but because people living with dementia feel this facilitates a good relationship with their care partner *(708)(1150)(1242)* • in general (not specific to practical assessment of driving), people living with dementia value quality of life of their care partner slightly higher than their own independence *(708)(1150)(1242)* • an Australian qualitative study of older people (over 65 years) without cognitive deficits [indirect evidence] still able to drive (n=14), found being able to drive was the second highest rated important IADL in an Australian study of 7 men and 26 women aged 66 to 95 years [use of transportation was the IADL rated the most important] *(484)*
Mood or depression for the person living with dementia	• in general (not specific to practical assessment of driving), people living with dementia value quality of life of their care partner slightly higher than their own emotional well-being *(708)(1150)(1242)*

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Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct evidence on how Aboriginal and Torres Strait Islander peoples living with dementia value the outcomes related to immediate referral for practical assessment.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct evidence on how people from culturally and linguistically diverse backgrounds living with dementia value the outcomes related to immediate referral for practical assessment.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct evidence on how LGBTQIA+ people living with dementia value the outcomes related to immediate referral for practical assessment.

Considerations for people living with younger onset dementia

One study examining preferences of people living with younger onset dementia in the Netherlands in general found that connectedness with others and dignity are recognised as being valued highly for this group *(777)*. A review of the literature in 2016 captured the various general issues in relation to outcomes for people living with younger onset dementia *(1016)*. These include loss or diminishment in roles such as provider, parent, and spouse; loss of income and financial problems; and loss of empowerment (restricted mobility may amplify these losses).

Considerations for people living with disability

A systematic review of experiences of people with intellectual disability (including Down's syndrome) and dementia (8 studies, 13 men and 18 women, 2 Australian studies) highlighted person-centred outcomes *(606)*. People experienced a narrowing of lives due to loss of

abilities, stigma and marginalisation, loss of autonomy in decision-making for care. People valued relationships with others (including peers), and preferred to stay supported in their homes while avoiding frequent moves. For people with Down's Syndrome and dementia, person-centred outcomes such as being able to live one's best life with dementia, a sense of place and community, and having autonomy were highlighted in the recent Post-Diagnostic *(783)*. The loss of driving ability and consequent restriction of mobility are likely to amplify these issues.

Considerations for people living outside major cities

A study performed in rural Victoria found that engagement in meaningful activities (including social) was important to people living with dementia. Both people living with dementia and carers highly valued relationship-centred care support (e.g., a consistent care support person who treated them with respect) *(494)*. Therefore, in rural settings, being mobile across large distances is essential for daily life and meaningful social connection. Loss of the ability to drive may differentially impact people in rural compared with those living in urban settings, and this will need to be considered in clinical decision-making.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- Community safety is the key outcome that should drive any decision. But this means that assessment should be based on driving record and skills rather than medical diagnoses.
- After a diagnosis, some people may benefit from regular practical assessments and not immediate loss of licence. Conditions like mild cognitive impairment (MCI) may still allow safe driving, and factors like where someone lives (e.g., rural vs. city roads) also matter.
- Significant work needs to be done to minimise the harm caused through loss of a licence, including:
  - loss of independence
  - emotional harm (e.g., grief)
  - increased challenges navigating service systems caused by a loss of accepted photo ID that may impact access to passports, changing address etc.
- A gradual, supported transition away from driving, rather than the sudden loss of licence, can help preserve independence and dignity.

Summary

Key points

DRAFT

People living with dementia:

- value the ability to function independently, not only for themselves but because people living with dementia feel this facilitates a good relationship with their care partner
- place slightly less value on their own quality of life, self-efficacy, independence, and emotional well-being *(708)(1150)(1242)*.

Guideline Development Group judgement and discussion

The Guideline Development Group agreed that there was possible important uncertainty or variability in how people value the outcomes associated with immediate referral for a practical driving assessment.

This variability may be influenced by differences in individual and social contexts. For example, the Group noted that driving and licence loss may be closely linked to identity and social roles which may affect how outcomes of referral are perceived.

The Group also noted variability related to geographic setting that may influence how individuals value the outcomes of referral for a practical assessment. In rural and regional areas maintaining a driver's licence may be particularly important for accessing essential services and maintaining independence where alternative transport options may be limited or non-existent.

Resources

Important negative issues

Research evidence

Cost of practical assessment

The cost of practical assessments varies across the states and territories and can range from no cost to more than $1900. The variability depends on the provider of the assessment and availability of driving assessors. There are three ways of accessing practical assessments – through the public system (Driver Licensing Authority or less commonly through services available through public hospital), or privately through direct referral to a trained OT driving assessor. OT driving assessment is often costly, time consuming and there is a shortage of assessors. Access in remote areas can be limited with long wait times in some urban areas *(1217)*.

Cost-effectiveness

We did not identify studies that provided direct evidence on the cost effectiveness of immediate referral for practical assessments

Funding for practical assessments may be available through relevant providers.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect resource evidence in relation to immediate referral for practical assessment for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect resource evidence in relation to immediate referral for practical assessment for people from culturally and linguistically diverse backgrounds.

Considerations for people living with younger onset dementia

We did not identify studies that provided direct or indirect resource evidence in relation to immediate referral for practical assessment for people living with younger onset dementia.

Considerations for people with disability

We did not identify studies that provided direct or indirect resource evidence in relation to immediate referral for practical assessment for people living with disability.

Considerations for people living outside major cities

Access to practical assessments in remote areas can be limited with long wait times in some urban areas *(1217)*.

Additional considerations

Input from the Living/Lived Experience Advisory Group

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- OT driving assessments should ideally be free, as the high cost can unfairly impact people with lower incomes. One Living/Lived Experience Advisory Group member shared that they may have been able to keep their licence but could not afford the cost of the test.
- Many drivers also "shop around" for assessors they believe will be more lenient, which adds inconsistency. Because licensing rules vary by state and are unlikely to align nationally, the system feels fragmented. Trust in General Practitioners (GPs) is low for some, as it is felt they will just write/say what you ask them to.
- Decisions about driving should involve a mix of professionals, medical and non-medical, just like other aspects of dementia care.
- If GPs are expected to manage fitness to drive assessments, they need proper training and community support. Losing a licence has major personal and financial impacts, including for carers who often have to take on extra responsibilities.
- Practical assessments are expensive and hard to access, sometimes a "wait-and-watch" approach may be more realistic unless there are clear signs that driving is unsafe.

Summary

Key points

- Practical assessments are often costly, time consuming and there is a shortage of OT driver assessors.
- Access in remote areas can be limited with long wait times in some urban areas *(1217)*.
- The cost of practical assessments varies across the states and territories. In some states, people living with dementia have to pay for the assessments, while in others it is free. The variability can depend on the provider of the assessment.

Guideline Development Group judgement and discussion

The Guideline Development Group agreed that the resource requirements (costs) for immediate referral for practical assessment were moderate.

The Group noted that assessing costs is challenging due to significant variation in pathways and funding arrangements.

At the individual level, there are many permutations of out-of-pocket costs. These include differences between public and private assessment options, variation between jurisdictions, and whether an OT driver assessor is required and available. In particular, OT driving assessments were noted to be relatively expensive, which can create financial barriers for some individuals.

The potential impact of system-level costs from increased referrals was raised. Without a clear triage process, this could increase demand on driving assessment services and create additional costs for the system. At this system level, one Group member noted costs may fall under different parts of government depending on how assessments are delivered. For example, assessments conducted through health services may be funded within the health system, whereas assessments managed through licensing centres may be absorbed within departments of transport and licensing.

Additional considerations included the possibility that greater demand for practical assessments could drive cost increases if the assessment sector expands, as well as societal costs, as there is often need for family members or carers to accompany individuals to assessments.

Equity

Intervention likely increases inequity

Research evidence

General considerations

No direct research was found assessing the impact of practical assessment on health equity.

Considerations for Aboriginal and Torres Strait Islander peoples

There is limited availability of OT driving assessments for people outside of major cities, especially for Aboriginal and Torres Strait Islander people living in remote area communities.

Being sensitive to cultural safety, communicating well, and starting the conversation early about fitness to drive assessments help to prepare Aboriginal and Torres Strait Islander people. Aboriginal and Torres Strait Islander people are more likely to also have other health conditions that may impact (e.g., diabetes and related vision difficulties).

Considerations for people from culturally and linguistically diverse backgrounds

Practical assessments may be less acceptable to some people from culturally and linguistically diverse communities, e.g., Muslim women wearing a hijab may not be comfortable getting into a car with a male assessor. This may then cause early loss of licence as the person living with dementia may forgo the practical assessment.

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Considerations for LGBTQIA+ people

Practical assessments may be less acceptable to LGBTQIA+ people, particularly transgender people who may not be comfortable getting into a car with a particular assessor. This may then cause early loss of licence as the person living with dementia may forgo the practical assessment.

Considerations for people living with younger onset dementia

People living with younger onset dementia are often more aware of the impact of their diagnosis and take a proactive approach. Losing the ability to drive can be especially disruptive for people living with younger onset dementia, as it may affect their ability to keep working and maintain independence. A “wait-and-watch” approach early on is important, giving the person time to adjust and plan for the future. The consequences of losing a license can be more severe for younger people than for older adults, making sensitive and supportive handling essential.

Considerations for people with disability

We did not identify studies that provided direct or indirect equity evidence in relation to immediate referral for practical assessment for people living with disability.

Considerations for people living outside major cities

Rural and regional residents face limited access to OT driving assessors and longer travel/wait times. The costs of on-road assessments are usually much higher in rural and remote areas as assessors may need to travel to these regions (due to the lack of available assessments in these areas) and this time needs to be paid for *(94)*.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- Cost of practical assessments creates inequity, as some people may not be able to afford to pay for a practical assessment and lose their licences earlier
- Driving test needs to be bulk billed so as not to disadvantage socially, financially and emotionally disadvantaged people
- Many rural residents and farmers hold onto their licenses longer than they should.
- Driving assessments may not reflect someone’s true ability, especially if the person living with dementia is having a “bad day,” and GPs may be too emotionally involved to assess objectively

Input from External Interest Holder Organisations

- Limited funding for driving assessments a significant barrier to equitable access
- People living with dementia unable to afford private assessments risk having their licences lapse before they can secure a publicly funded appointment, as wait times can extend up to 12 months

Summary

Key points

We did not identify studies that provided direct evidence about the impact of immediate referral for practical assessment on health equity in general or priority population groups.

Guideline Development Group judgement and discussion

The Guideline Development Group reached a high level of consensus that there was probable reduction in equity from immediate referral for practical assessment.

Acceptability

No important issues with the recommended alternative

Research evidence

General considerations

The process of practical assessment can be stressful, and it has been reported that failure [of a road test] can lead to anger and reluctance to pay for the assessment" *(94)*.

The person living with dementia may continue driving without a license and insurance as they may not have memory or insight about their licence being cancelled.

Doctor patient relationship

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Medical practitioners, especially GPs where an established doctor-patient relationship exists, face difficult decisions and ethical dilemmas when considering a 'wait-and-watch' or referral for practical assessment, due to trying to simultaneously advocate for their patients while also prioritising public safety. Doctors may feel coerced into a 'wait-and-watch' situation for unsafe drivers; an individual may visit several doctors to find a GP without knowledge of their diagnosis until the person gets the outcome they want; and patients may not disclose symptoms to practitioners to ensure that certification of fitness to drive is provided *(277)(1046)(1100)(1217)*.

There may be a reluctance on the part of GPs to raise the issue of driving with people living with dementia due to perceived potential negative consequences on the doctor-patient relationship, and a preference to seek an external, independent assessment. This can provide doctors with more confidence, and the decision is less personalised, i.e., the GP can't be blamed for it *(1046)*.

Family members and carers

Family support is one of the key influences that impacts the transition of driving to not driving *(569)*. According to interviews with GPs (in south east Queensland regional and urban centres), family members were not always supportive of driving retirement decisions, especially where they may be inconvenienced with supporting their relative's transport needs *(1100)*. There may also be reduced mobility for family members who were previously dependent on the person living with dementia for transport.

Carers and families required support to help deal with the added stress and burden they experience during this life transition and this may be met through Carer Support Groups *(292)(716)*.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect acceptability evidence in relation to cognitive rehabilitation for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

In some communities, cultural norms may mean that elderly people with and without dementia may tend to stop driving voluntarily and, women are less likely to drive than older Anglo-Australian women [expert opinion]; driving cessation for men may impact and place additional pressures on their partners [carers] who might need to return to driving, but were not confident *(94)*.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect acceptability evidence in relation to immediate referral for practical assessment for LGBTQIA+ people.

Considerations for people with disability

We did not identify studies that provided direct or indirect acceptability evidence in relation to immediate referral for practical assessment for people living with disability.

Considerations for people living with younger onset dementia

People living with younger onset dementia and their carers face particular challenges that make it difficult to meet their needs. The National Disability Insurance Scheme (NDIS) may allow for people living with younger onset dementia to include transport options in their NDIS plan, which would help them to remain engaged for as long as possible *(94)*. Driving cessation may impact employment, income, ability to care for children, and associated financial and family stress.

A scoping review of lived experiences of people with younger onset of dementia and their family members identified 6 key areas of concern for driving cessation from dementia - loss of independence (the most concerning); role change; threat to self-identity; feelings of isolation, grief; and acceptance *(1045)*. The authors identified predictors of driving cessation related to gender (i.e., women were more likely to accept the outcome) and impaired comprehension (described by Scott et al as a 'deficit in praxis') *(1048)*.

As a result, these concerns can impact on the acceptance or understand the need to cease driving that may be more pronounced in younger people living with dementia.

Considerations for people living outside major cities

People who live outside major cities may have challenges accessing medical and social support, and long distances that may need to be driven to reach services. Drivers living with dementia may be reluctant to stop driving, and the carer may even encourage the person living with dementia to continue to drive *(94)*. People on rural properties may want to continue to drive on their property unlicensed.

For people living with younger onset dementia, the experience of loss of independence from driving cessation is exacerbated in rural and regional areas due to the scarcity of public transport *(1045)*. The experience of isolation is also a factor for people living in rural areas that can be worsened and contributed to loss and disconnection to community.

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Additional considerations

Input from the Living/Lived Experience Advisory Group

- The Living/Lived Experience Advisory Group had mixed opinions about when in the process of diagnosis any assessment of driving should occur. Some felt that on diagnosis of any cognitive impairment, fitness for driving and a possible practical assessment should occur. For others, this should occur when a person is diagnosed with dementia.
- The wait-and-watch approach was not generally acceptable to the Living/Lived Experience Advisory Group as they value community safety and had questions around insurance in the case of accidents.
- The burden on carers when using the wait-and-watch approach is large.
- Practical assessments may be less acceptable to LGBTQIA+ people, particularly transgender people, who may not be comfortable getting into a car with a particular assessor. This may lead to early loss of licence as the person may forgo the practical assessment.
- Linking the referral with the diagnosis "this is what we do" (i.e., immediate referral) may be easier than referring at a later stage, and may reduce barriers for discussions about planning for driving retirement. Having a pathway to follow to change driving patterns because of potential future safety would provide clarity for people living with dementia.

Input from the External Interest Holder Organisations

Healthcare institutions and organisations need to clearly understand their roles, responsibilities, and obligations in reporting driving concerns for people living with dementia.

Summary

Key points

- Practical assessments can be highly stressful for people living with dementia *(94)*.
- Balancing autonomy/identity with safety requires early, sensitive discussions; many people living with dementia accept gradual restriction of driving when handled well.
- Legal/insurance duties (self-reporting, documentation, confidentiality limits) influence perceptions of fairness and trust.

- GPs face conflicts between advocating for their patients and ensuring public safety *(277)(1046)(1100)(1217)*.
- Family play a key role in supporting successful transition from driving for their relative, and also need to be supported in this process *(1100)(292)(716)*.
- Assessments and decisions should be culturally appropriate, safe and trauma-informed where necessary *(734)(94)*.
- Groups such as those with younger onset and people living outside major cities face particular difficulties if they cannot drive, needing special consideration and support *(94)*.

Guideline Development Group judgement and discussion

The Guideline Development Group agreed that immediate referral for practical assessment was probably acceptable to key-interest holders (i.e., people living with dementia, carers, clinicians, anyone impacted by the assessment).

Individual medical practitioners may have different preferences or approaches, and clinicians often require support when making decisions about driving in people living with dementia as decisions about driving fitness can be complex. In this context, guidance can help support more consistent and confident decision-making. Presenting referral as part of a standard process ("this is what we do") may help reduce barriers to discussions about planning for eventual driving retirement.

The Group recognised that acceptability may vary between individuals and families. Some people may require time to process the implications of referral and to make alternative transport arrangements, particularly where carers may need to take on additional responsibilities, such as transporting the person to appointments. The Group emphasised that referral for assessment does not necessarily mean loss of licence, although if driving cessation does occur, the impact on the individual and their support network may need to be considered.

In addition, the Group noted that geographic location may influence acceptability. In regional and remote areas, there may be longer waiting times for practical driving assessments and limited alternative transport options. These factors may affect the willingness of medical practitioners to refer patients for assessment.

Feasibility

Important issues, or potential issues not investigated

DRAFT

Research evidence

General considerations

Driving cessation was found by Liddle et al *(715)* to be a process, not a single event, determining negative consequences on wellbeing for example with '*acute difficult aspects, ongoing challenges, and (sometimes) adjustment implications*' *(1048)*. It can be challenging for clinicians to have time to assess fitness to drive of a person living with dementia *(1101)*.

Accessibility of practical assessment

Conditional licensing with planned practical assessment is constrained by workforce shortages and inconsistent funding. On-road OT assessments are resource-intensive, limiting access.

Access to OT driving assessments varies by state:

- In Victoria, the Department of Transport and Planning (DPT) contacts drivers when an assessment is required and provides a list of registered driving assessors in the state *(1163)*. Service Tasmania also provides a letter with a list of OT driving assessors in Tasmania when a driving assessment is required *(1162)*.
- In the ACT, drivers are referred to the Fitness to Drive Medical Clinic for assessment, based at the Canberra Hospital *(516)*.

Occupational Therapy Australia has a service finder website, where individuals can select 'Driving' Occupational Therapists to find one in their postcode *(871)*.

Wait times for practical assessment vary across states and depending on the service provider.

Delay in practical assessment is further impacted if a person is referred to a specialist for diagnosis of dementia. The Australian Dementia Network Registry reported increased wait times from referral to initial appointment with a specialist diagnostic service for people living outside major cities: 48% of people living outside major cities had their initial appointment within 3 months of referral compared with 64% of people living in Major Cities. The registry does not include services in remote and very remote locations *(67)*.

Lack of awareness about processes of referral and availability of practical assessments may favour delaying the referral *(1014)*.

Annual medical assessment to renew drivers' licence

In some states, there is a requirement for people to have an annual medical assessment with a doctor before their licence is renewed once they reach a certain age *(161)*. This may facilitate discussions about driving cessation.

Medicare recommends that people older than 65 years have an annual eye test every year *(130)*.

Considerations for Aboriginal and Torres Strait Islander peoples

There are no known resources to help support Aboriginal and Torres Strait Islander peoples have a practical assessment or to transition from driving.

We did not identify studies that provided direct or indirect feasibility evidence in relation to immediate referral for practical assessment for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

Culturally and linguistically diverse communities require culturally sensitive education campaigns to raise awareness and reduce stigma around driving and for people diagnosed with dementia, and their carers. Clinicians report challenges assessing non-English speakers due to lack of validated resources *(1101)*.

Considerations for LGBTQIA+ people

Due to rejection and loss of family of origin relationships, some LGBTQIA+ people may have less access to support and care from family of origin. A strength of the LGBTQIA+ community is developing support networks and communities outside of their families of origin *(1090)*.

Considerations for people with disability

We did not identify studies that provided direct or indirect feasibility evidence in relation to immediate referral for practical assessment for people living with disability.

DRAFT

Considerations for people living with younger onset dementia

We did not identify studies that provided direct or indirect feasibility evidence in relation to immediate referral for practical assessment for people living with younger onset dementia

Considerations for people living outside major cities

People living with dementia living outside major cities may not have access to a service or support, access to public transport is a more significant issue in rural areas *(569)*.

GP-patient relationships outside of major cities may differ, influencing decision-making from GPs. This may be due to high turnover (locums) or one GP in town *(1046)* and wanting to maintain therapeutic relationships with the person and their family.

Additional considerations

Input from the Living/Lived Experience Advisory Group

Clinicians should be aware of the legal requirements in their jurisdiction. The legal implications for medical practitioners referring or not referring immediately for a practical assessment is beyond the scope of this guideline.

Drivers should seek clarity with their vehicle insurance company regarding vehicle insurance claims if they have a diagnosis of dementia.

Input from External Interest Holder Organisations

- Limited funding to practical assessment creates barriers to access.
- Assessments are time-intensive, which can strain already busy clinical environments.
- People diagnosed with dementia may be discouraged from undergoing practical assessment due to fear of losing their license.
- Access to practical assessment services in rural and remote regions is limited due to:
  - a shortage of trained professionals and lower household incomes.
  - long travel distances
  - high costs and lower household incomes
  - limited transport alternatives such as taxis and aged care services.

Summary

Key points

- Referral for practical assessment is constrained by workforce shortages and inconsistent funding. On-road OT assessments are resource-intensive, limiting access.
- Access to practical assessments varies widely by state with variable wait times.
- People referred for specialist dementia diagnosis face longer delays outside major cities.
- Services are fragmented and often inappropriate for groups including people living with younger onset dementia, people with culturally and linguistically diverse backgrounds, and LGBTQIA+ people *(1045)(1101)(1090)*.
- Access to OT driving assessors is limited in rural and remote areas *(569)*. Alternative transport services are overstretched, and GP turnover may affect decision-making continuity *(1045)*.

Guideline Development Group judgement and discussion

The Guideline Development Group had mixed responses about the feasibility of implementing immediate referral for practical assessment. Results were split between probably yes, probably no, and varies, with no consensus reached.

The Group completed two rounds of voting. The decision to have a second round of voting was made after post-voting Group discussion raised additional points based on members' experience highlighting complexities, including situations where referrals do not proceed to assessment. For example, where individuals do not go ahead with the practical assessment as they cannot afford it, or the driver licensing authority cancels a person's licence without a practical assessment occurring.

The Group distinguished between current feasibility and potential future feasibility. While implementation may be more achievable if additional resources and system supports are introduced, Group members discussed that feasibility covered the action of the referral as well as the downstream processes and capacity to complete practical assessments after the referral.

It was noted that while the action of referral may appear feasible in theory, in practice there can be barriers that influence this feasibility. These barriers range from logistical challenges, such as knowing where and how to refer, to limited availability of assessment services and the cost of practical driving assessments. Group members also noted substantial variability in feasibility across different practice settings, including differences between jurisdictions, between individual practices, and between urban and rural or remote areas.

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From a systems perspective, the Group considered that current infrastructure may not support an increase in the number of referrals. If all individuals with mild to moderate dementia were referred for a practical driving assessment, the existing capacity within Australia would likely be insufficient. This may have the unintended consequence of delaying time to assessment for people with higher risk of MVC if no triage system is implemented. Overall, the Group considered that cost and availability of practical assessments were key factors affecting feasibility.

Rationale

The Guideline Development Group judged that:

- Immediate referral for practical assessment would likely result in moderate to large desirable effects and small to moderate undesirable effects, with very low certainty evidence.
- There may be serious downstream consequences of Motor Vehicle Crashes that may be prevented by immediate referral for a practical driving assessment.
- Immediate referral may lead to other desirable effects such as increased awareness of risk of driving in both people living with dementia and their carers, and improved quality of life for the carer through reduced psychological stress.
- Immediate practical referral may also lead to the undesirable effects of loss of mobility, functional ability and independence, low mood and depression for the person living with dementia.
- There was possibly important variability in how much people living with dementia valued the desirable and undesirable effects of immediate referral, and this may be influenced by individual contexts. Overall, the balance of effects probably favoured immediate referral.
- Immediate referral for practical assessment was associated with moderate costs with variability across states and territories, and immediate referral probably reduces equity
- There may be variability in acceptability that may be influenced by geographic location, but overall immediate referral was probably acceptable.
- Feasibility was unknown and likely to vary across states and territories, as well as urban, rural, and remote areas.

Considering all judgements together, and in the absence of an accurate or validated office-based test of safety to continue driving, the Group agreed on a conditional recommendation for immediate referral for practical assessment.

Research needs

The following are potential future areas for research:

- Developing a national registry of people diagnosed with dementia undergoing practical driving assessment to study outcomes (including motor vehicle crash rates) and system related factors.
- Implementation research to support uniform policies and processes for the practical assessment of driving across states and territories, to support equity for people diagnosed with dementia across Australia.
- Understanding the potential effects of the timing of practical assessment on health-related quality of life and mobility in people diagnosed with dementia.

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9. Post-diagnostic care

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9.1 Rehabilitation for people living with dementia

WHO definition of rehabilitation

The WHO defines rehabilitation as a set of interventions designed to optimize functioning and reduce disability in individuals with health conditions in interaction with their environment *(1277)*. Rehabilitation helps a person to be as independent as possible in everyday activities that are meaningful to them. It enables participation in life roles such as leisure activities and work. It includes exercise, skill training, problem solving and compensatory strategies, modifying the environment, assistive technologies, educating the person and families.

The International Classification of Functioning, Disability and Health (ICF) is a framework for describing and organising information on functioning and disability. The ICF Framework has been referred to when considering the evidence for rehabilitation to ensure the language and concepts align for the definition and measurement of health and disability. https://www.cdc.gov/nchs/data/icd/icfoverview_finalforwho10sept.pdf

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9.1.1 Physical rehabilitation

What is Physical Rehabilitation?

Physical rehabilitation focuses on optimising body functions, activities and participation such as strength and balance, mobility, endurance, activities of daily living, leisure and other activities. Interventions may include aerobic, balance, and resistance training, cognitive-motor training, or practicing functional activities such as getting up from a chair, walking or climbing stairs.

Physical rehabilitation interventions may be referred to by using alternative terms such as reablement, rehabilitation or remediation. Physical rehabilitation can be delivered alongside other interventions such as cognitive rehabilitation or cognitive stimulation therapy to achieve personal goals.

Question 10
Should physical rehabilitation (versus inactive control) be used for people living with dementia?

Conditional recommendation for , Very low certainty evidence

Recommendation 10
Consider offering physical rehabilitation to people living with dementia in order to optimise physical function and independence.

Remarks

People living with dementia living in the community or residential aged care facilities may benefit from physical rehabilitation.

People living with mild, moderate or severe dementia may benefit from physical rehabilitation.

Physical rehabilitation interventions considered in the evidence review included:

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- *activities of daily living / functional training*
- *aerobic / cardiorespiratory training*
- *multimodal exercise*
- *neuromotor / balance / gait training*
- *resistance / strength training.*

Practical info

Use shared or supported decision-making to carry out a holistic assessment and determine personalised goals in partnership with the person living with dementia, and their carer if appropriate.

Where appropriate, begin physical rehabilitation early after diagnosis of dementia or after an injury or medical event to maximise function.

Involve carers in physical rehabilitation when possible and appropriate, to support the person living with dementia in practicing the physical rehabilitation interventions. For those without a carer, ensure other supports are in place (e.g. increase frequency, allied health assistant support, paid carer involvement).

Reassess function and personal goals of the person living with dementia on a regular basis to meet the needs of the person living with dementia, using standardised and functional outcome measures (e.g., Timed up and Go, Short Physical Performance Battery, Barthel Index).

Take into account that people living with dementia are at a higher risk of falls. Adjust physical rehabilitation to suit the capacity of the person living with dementia.

Physical rehabilitation is usually delivered by a physiotherapist or exercise physiologist, in collaboration with other health professionals (e.g., nurses, speech pathologists, physicians), support workers, or carers can support, as well as promote and maintain functional and social independence.

Ideally, staff delivering physical rehabilitation should be consistent over time.

Useful resources

Dementia Rehabilitation Evidence-Based Interventions and Clinical Recommendations

Rehabilitation, Ageing and Independent Living project resources

Alzheimer's Disease International World Alzheimer Report 2025

Dementia Training Australia: Introduction to Dementia Rehabilitation

Australian Physiotherapy Association - Find a physio today

Evidence to decision

Benefits and harms

Small net benefit, or little difference between alternatives

Research evidence

Desirable effects (benefits)

Physical rehabilitation compared to no physical rehabilitation resulted in small improvements in:

- overall functional ability and participation [critical outcome]
- specific physical functions [critical outcome]
- global cognitive function [important outcome]

Physical rehabilitation compared to no physical rehabilitation had little to no (trivial) effect on:

- health-related quality of life of the person living with dementia [critical outcome]
- health-related quality of life of the carer (carer burden) [critical outcome]
- specific cognitive functions (executive function and memory) [important outcome]
- overall behavioural and psychological symptoms [important outcome]

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The results are too inconsistent to interpret the combined effect estimate for:

- specific behavioural and psychological symptoms (agitation, aggression, anxiety and depression) [important outcome]

No studies reported on:

- goal of the person living with dementia (functional ability in targeted activities) [critical outcome]
- experience and satisfaction of the person living with dementia [important outcome]

Our interpretation was based on a threshold for a small but important effect of 0.4 Standardised Mean Difference (SMD) and a moderate effect of 0.7 SMD.

Undesirable effects (harms)

The results were too inconsistent to interpret the combined effect estimate of physical rehabilitation compared to no physical rehabilitation for the mean number of falls [important].

There were no undesirable effects of physical rehabilitation on any of the other prioritised outcomes for which data were available.

Summary

Balance of effects: Guideline Development Group judgement and discussion

To decide on the balance of effects, the Guideline Development Group initially considered and made separate judgements about:

- the size of desirable anticipated effects (benefit) – **small**
- the size of undesirable anticipated effects (harm) – **trivial / small**
- the overall certainty of the evidence for critical outcomes – **very low**
- whether there is important variability (or uncertainty) in how much people value the main outcomes – **possibly important uncertainty or variability.**

The Group decided that the balance of effects probably favoured physical rehabilitation.

The Group noted there were small but important effects noted for 2 of the 5 critical outcomes (both of which relate to overall function [IADLS/ADLs] and physical function), and no evidence of harm for any of the outcomes, although uncertainty remained about the risk of falls. On balance, this would indicate that the effects probably favour physical rehabilitation.

Given the low level of certainty of the evidence, significant clinical judgement based on individual person preferences, goals, values and risk of harm would be needed when considering whether to offer physical rehabilitation. It was also important to note that physical rehabilitation needs to be individually tailored (even if delivered in a group setting) to maximise safety. A Living/Lived Experience Advisory Group member noted that for motivated people, a small improvement may seem worthwhile.

Desirable effects (benefits): Guideline Development Group judgement and discussion

The Guideline Development Group judged that physical rehabilitation resulted in small desirable anticipated effects.

This judgement was based on the Group's understanding of the definition of physical rehabilitation, the evidence, and the results for critical outcomes. It was noted that an important benefit was found for the critical outcomes of function (overall function and participation; specific physical function) and global cognition, while there was little to no effect on the critical outcomes of health-related quality of life of the person with living dementia and carers.

Undesirable effects (harms): Guideline Development Group judgement and discussion

The Guideline Development Group had mixed responses about undesirable effects, with about half judging that physical rehabilitation results in trivial undesirable anticipated effects and the other half judging that it results in small undesirable effects.

The Group did a second round of voting after the first vote resulting in a majority judgment of 'Don't know'. The Chair clarified if Group members were concerned about potential adverse effects. It was noted that the 3 studies measuring falls were not powered for this outcome. The Chair highlighted a systematic review on the safety of physiotherapy in people living with dementia that measured discomfort/pain, dizziness and other adverse events (some of which were not prioritised as outcomes for this question) *(1021)*. It found that the most common adverse events were discomfort/pain (41.7%), dizziness (16.2%), falls (8.2%), stress, anxiety, and depression (6.8%) occurring during and after exercise. The Chair noted that the adverse effects may not have been specifically as a result of the intervention.

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Group members noted that people living with dementia are at high risk of falls, and that if physical rehabilitation therapists do not take this into account, falls risk can be further increased. Soft tissue and musculoskeletal pain are common among people participating in physical exercise programs; however, it is usually transient and able to be managed. Physical rehabilitation therapists should always monitor progress and adjust the intervention to suit the capacity of the person living with dementia to reduce the possibility of adverse effects.

It was noted that even in the absence of complete evidence for adverse/undesirable events (other than the result for falls that was too inconsistent to interpret), none of the other prioritised outcomes showed worsening (i.e., harm, undesirable effects) with physical rehabilitation.

Certainty of the evidence

Very low

Research evidence

The overall certainty of the body of evidence is determined by the lowest certainty rating of all the critical outcomes.

Low certainty:

- overall functional ability and participation
- specific physical function
- health-related quality of life of the person living with dementia

Very low certainty:

- health-related quality of life of the carer

No studies reported on the goals of the person living with dementia (functional ability in targeted activities).

Summary
The overall certainty of the body of evidence for this question is considered to be **very low**.

Values and preferences

Substantial variability is expected or uncertain

Research evidence
General considerations

From three qualitative systematic reviews of what matters most to people living with dementia, people living with dementia:

- place high value on the quality of life of their care partner.
- value the ability to function independently, not only for themselves but because they feel this facilitates a good relationship with their care partner.
- place slightly less value on their own quality of life, self-efficacy, independence, and emotional well-being than that of their care partner.

These reviews providing evidence did not report participant characteristics of the included studies. The majority of studies were conducted in the US, Canada, Western Europe and Australia *(709) (1150) (1242)*. We know that enrolment of participants into clinical trials for dementia prevention and treatment does not reflect the population at large (e.g., in the US approximately 95% of subjects enrolled in clinical trials are White) *(875)*.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct evidence on how Aboriginal and Torres Strait Islander peoples living with dementia value physical rehabilitation related outcomes.

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Considerations for people from culturally and linguistically diverse (CALD) backgrounds

We did not identify direct evidence about how Australians living with dementia from CALD backgrounds value the outcomes relevant to physical rehabilitation.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct evidence on how LGBTQIA+ people living with dementia value physical rehabilitation related outcomes.

Considerations for people with younger onset dementia

One study examining preferences of people with younger onset dementia in general found that connectedness with others and dignity are recognised as being valued highly for this group *(777)*. A review of the literature in 2016 captures the various general issues in relation to outcomes for people with younger onset dementia *(1016)*. These include loss or diminishment in roles such as provider, parent, and spouse; loss of income and financial problems; and loss of empowerment. There was a strong desire expressed by many to remain engaged and in control of their lives as best they could. Carer stress, burden and grief were considered important, as were psychosocial stress and anxiety for children of the affected person. All these factors combined to reflect the overall quality of life for the person and the family unit.

Considerations for people living with disability

A systematic review of experiences of people with intellectual disability (including Down's syndrome) and dementia (8 studies, 13 men and 18 women, 2 Australian studies) highlighted the importance of person-centred outcomes *(607)*. People experienced loss of abilities, stigma and marginalisation, loss of autonomy in decision-making for care. They valued relationships with others (including peers) and preferred to stay supported in their homes while avoiding frequent moves.

For people with Down's Syndrome and dementia, person-centred outcomes such as being able to live one's best life with dementia, a sense of place and community, and having autonomy were highlighted in the recent post-diagnostic dementia support guidelines for people with an intellectual disability *(783)*.

Considerations for people living outside major cities

We did not identify studies that provided direct evidence on the impact of living outside major cities for people living with dementia on how they value physical rehabilitation related outcomes.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- Some group members (n=3) thought that "behavioural and psychological symptoms" should be strongly considered, suggesting this is a critical outcome rather than an important outcome. They noted that the terminology is not appropriate because symptoms may reflect "unmet needs", such as pain.
- Safety in physical rehabilitation is very important, recognising that it is hard work.

Summary

Key points

- Some people living with dementia:
- place high value on the quality of life of their care partner
- value the ability to function independently, not only for themselves but because they feel this facilitates a good relationship with their care partner
- place slightly less value on their own quality of life, self-efficacy, independence, and emotional well-being *(709) (1150) (1242)*.

Guideline Development Group judgement and discussion

The Guideline Development Group judged that there was possibly important uncertainty or variability in how people receiving physical rehabilitation value the different outcomes.

The Group did two rounds of voting after the first vote resulted in a split judgment of 'possibly important uncertainty or variability', and 'probably no important uncertainty or variability'.

There was additional discussion to clarify the interpretation of this factor and judgement options. It was noted that it is very unusual for people to not value outcomes related to physical rehabilitation differently.

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In the case of physical rehabilitation, there were some small but important effects on function and global cognition, but little to no difference in other outcomes. This means that people may make different choices about receiving physical rehabilitation if, for example, they placed a higher value on health-related quality of life for themselves and their carer over function, particularly if physical rehabilitation meant additional burden in terms of time, effort and cost.

Resources

Important issues, or potential issues not investigated

Research evidence

General considerations

A systematic review of studies looking at the knowledge, confidence, attitudes and beliefs of physiotherapist in working with people liv with dementia reported:

- Staff need training to be knowledgeable and skilled in dementia rehabilitation
- There may need to be more time allocated to physical rehabilitation for people living with dementia
- People living with dementia may require a specific environment for physical rehabilitation (e.g., at home or a quiet environment w reduced clutter) *(945)*.

Another study found similar barriers, and also that lack of transport and funding were barriers to accessing rehabilitation for people livi with dementia *(702)*.

A comprehensive assessment to identify and manage relevant and medically reversible conditions (e.g., untreated medical problems, adverse drug reactions, delirium, vision/hearing impairments) is required prior to the commencement of physical rehabilitation in peop with dementia *(1311)*.

Resource requirements	
Resource	**Description**

Resource requirements	
Staff	• Need to be knowledgeable in working with people living with dementia • More time and possibly human resources may be required to deliver physical rehabilitation for peop living with dementia • May need an informal or formal care partner to attend with the person living with dementia or to he them carry out the program.
Training	• Staff require training in working with people living with dementia and in dementia rehabilitation *(94*
Supplies [medical supplies]	Not required
Equipment and infrastructure	• Equipment such as hand or leg weights, weighted vests or belts, TheraBand, chair, walking aides • Stairs, step • Balls, canes, and balance pillows, obstacles • Access to a gym with weight machines • Static bike with or without an assistance motor • Space to walk for exercise like a hallway or outdoor track • Safety belt • Music • May need a quiet area to deliver the physical rehabilitation. • Physical rehabilitation is best in the person's own environment
Time	• May require greater time to deliver physical rehabilitation to people living with dementia, than for people who do not have dementia. • The average length of the program across the included studies was 18 weeks, with 45 minutes sessions scheduled 3 times per week
Supervision and monitoring	• People living with dementia may require more supervision during physical rehabilitation because th have an increased risk of falls than people who do not have dementia • People living with dementia may require greater supervision during physical rehabilitation to promp regarding each exercise or use walking aide appropriately

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We did not identify studies that provided direct evidence on the cost-effectiveness of physical rehabilitation in Australia for people livi with dementia.

There is some evidence in the literature from non-Australian settings regarding the cost-effectiveness of physical rehabilitation interventions in people with mild dementia. A Dutch trial of an intervention "exergaming" which uses interactive cycling was found not be cost-effective from a societal perspective (healthcare utilisation, informal care, lost productivity for informal carer) when compared w usual types of physical activity for improving outcomes of quality-adjusted life years, physical performance and duration of physical activity *(1185)*. However, there was substantial uncertainty in conclusions as the sample was small. A Danish trial of supervised high-intensity aerobic exercise also suggested a lack of cost-effectiveness from a healthcare perspective for improving quality-adjusted life years *(1097)*. A trial of a supervised exercise regimen for both the person living with dementia and their carer in the UK was found not t be cost-effective for improving quality-adjusted life years, but suggested cost-effectiveness for the outcome of behavioural and psychological symptoms of dementia *(367)*. Overall, the international evidence is uncertain about the cost-effectiveness of exercise interventions that require supervision by expert workforce.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect resource evidence in relation to physical rehabilitation for Aboriginal and To Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect resource evidence in relation to physical rehabilitation for people from culturally and linguistically diverse backgrounds.

Considerations for people with younger onset dementia

Age-appropriate environments and programs may need to be considered.

People with younger-onset dementia in Australia face significant challenges due to inconsistencies in diagnostic and post-diagnostic ca These challenges stem from a general lack of knowledge of younger-onset dementia, limited age-appropriate supports, and inconsiste services that are available for people with younger-onset dementia. There is a need for a nationally consistent care pathway to address younger-onset diagnostic and post-diagnostic care *(189)*.

Considerations for people with disability

We did not identify studies that provided direct or indirect resource evidence in relation to physical rehabilitation for people living with disability.

People living with dementia who have a disability may require higher level of resources (staff and time).

Considerations for people living outside major cities

There may be fewer services and experienced staff outside major cities *(527)*. A recent trial of physiotherapy by telehealth found it had greatest impact in rural and remote regions because of the workforce shortages to provide physical rehabilitation, but it was not recommended for people living with dementia because of challenges specific to this cohort accessing rehabilitation services by telehealth *(375)*.

Additional considerations

Input from the Living/Lived Experience Advisory Group

The Living/Lived Experience Advisory Group reported that the financial cost of physical rehabilitation to the person living with dementi a major barrier to access. Members of the Living/Lived Experience Advisory Group highlighted that cost include the direct cost of payin for physical rehabilitation, as well as time and travel costs, to both the person living with dementia and their carers.

Personal costs vary based on how the person living with dementia's care is funded. Specifically, it should already be included in the car funding for people living in residential aged care (although the intensity and quality is unclear), may be negatively affected by the NDI cuts to funding for certain interventions, and should soon be free for people who are assessed as needing physical rehabilitation under new Aged Care Act. General Living/Lived Experience Advisory Group understanding is that dementia isn't classified as a disability in age care, so is not eligible for additional funding.

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The Living/Lived Experience Advisory Group discussed that the resources likely vary a lot by the physical rehabilitation program structu and location (including specialist staff, facilities and equipment that may be required). One-on-one physical rehabilitation delivered by allied health in specialised facilities may be very time and cost intensive, but group programs and online self-directed or carer-supporte interventions possibly reduce resource requirements and increase access.

Key human resources include sufficient qualified staff (geographically spread to allow access) to design and supervise a physical rehabilitation program, and paid carers or unpaid care partners who can support people living with dementia to undertake the physica rehabilitation exercises.

Summary

Key points

We did not identify studies that provided direct evidence with respect to resources, costs or cost-effectiveness relevant to physical rehabilitation for people living with dementia in Australia either generally or for specific priority population groups.

- The average length of the program across the included studies was 18 weeks, with 45 minutes sessions scheduled 3 times per wee
- Greater therapist time may be required to work with people living with dementia *(945)*
- Equipment like exercise bikes or weights might be required
- More training is needed for staff providing physical rehabilitation to people living with dementia *(945)*
- A lack of funding is a barrier to accessing rehabilitation for people living with dementia *(702)*
- For people with younger onset dementia, there are limited age-appropriate supports and inconsistent services available *(189)*.
- There is less access to therapists with expertise in rural areas *(527)*.

Guideline Development Group judgement and discussion about Resources

The Guideline Development Group judged that resources required for physical rehabilitation results in moderate cost.

The Group was reminded to consider costs at the health systems level, as well as any out-of-pocket costs to the individual. While there were no benchmarks for negligible (small), moderate or large costs, Group members could compare physical rehabilitation costs to oth available treatments, e.g., emerging pharmacotherapies. It was noted that resources were limited in regional areas, however a recommendation for physical rehabilitation could drive change in this regard. Different forms of physical rehabilitation would have different costs.

A Living/Lived Experience Advisory Group member noted that it would be an important opportunity for Dementia Australia to consider funding for rehabilitation programs, similar to the Cancer Council.

Guideline Development Group judgement and discussion about cost-effectiveness

The Guideline Development Group voting was split between cost-effectiveness favouring physical rehabilitation, not favouring physical rehabilitation and not favouring either. It was noted that there were no included studies and the vote was based on trials of very specif forms of physical rehabilitation in international settings. It was agreed that there was uncertainty about cost-effectiveness in the Austra context.

Equity No important issues with the recommended alternative

Research evidence

General considerations

Many barriers exist to accessing rehabilitation for people living with dementia. These include stigma, therapeutic nihilism, age, funding, transport, living outside a major city, lack of trained therapists, lack of appropriate services and pathways *(702) (945)*.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect equity evidence in relation to physical rehabilitation for Aboriginal and Torres Strait Islander peoples.

The Living/Lived Experience Advisory Group noted that access to physical rehabilitation may be affected by avoidance of mainstream medical services due to negative past experiences, and understaffing of Aboriginal services which may not have the capacity to offer physical rehabilitation.

Remote indigenous communities in some cases have trouble even getting health information let alone having treatments.

Considerations for people from culturally and linguistically diverse (CALD) backgrounds

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We did not identify studies that provided direct or indirect equity evidence in relation to physical rehabilitation for people from CALD backgrounds.

The Living/Lived Experience Advisory Group noted that people from culturally and linguistically diverse backgrounds may receive similar access to physical rehabilitation when living in residential aged care, but this may not be the case in the community.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect equity evidence in relation to physical rehabilitation for LGBTQIA+ people.

Considerations for people with disability

We did not identify studies that provided direct or indirect equity evidence in relation to physical rehabilitation for people with disability.

The Living/Lived Experience Advisory Group noted that physical rehabilitation must be modified to meet the physical capabilities and personal preferences of the person living with dementia.

Considerations for people living with younger onset dementia

People who live in rural and remote areas with younger onset dementia are more likely to receive care from primary care physicians, suggesting that clinician training or consultative guidance to primary care clinicians may be needed to overcome neuroscience workforce deficiencies in rural areas *(1281)*.

People with younger onset dementia contend with delays in diagnosis and difficulty navigating the complex health, aged and disability care systems, while often also caring for or supporting children or young people. Improved access to appropriate post-diagnosis care can have important benefits for improving function and quality of life *(1395)*.

For people with younger onset dementia, physical rehabilitation can become more important, particularly the social and peer support that it can involve. People with younger onset dementia often cannot participate in groups that are designed for older people. They are excluded because they are a different age, and they may have limited time to participate because they are *(501) (1104)*.

The Living/Lived Experience Advisory Group noted that people with younger onset dementia might be more tuned into exercise - might be more important to them. Stigma is a big issue for people with younger onset dementia.

If someone with younger onset dementia is still working, that may affect access to physical rehabilitation.

Considerations for people living outside major cities

The cost to access services often includes travel costs, which makes the intervention prohibitively expensive for those living outside major cities *(989)*.

The Living/Lived Experience Advisory Group noted that lack of access to qualified staff and the high cost of access is greater for those living in rural and regional areas.

We did not identify studies that provided direct or indirect equity evidence in relation to physical rehabilitation for people living outside major cities.

Additional considerations

Input from the Living/Lived Experience Advisory Group

The Living/Lived Experience Advisory Group reported that the financial cost of physical rehabilitation to the person living with dementia contributes to inequity of access. Many of the Living/Lived Experience Advisory Group strongly argued that if there is good evidence of the effectiveness of physical rehabilitation then it should be freely available to all people living with dementia who need it.

The cost of physical rehabilitation creates significant inequity based on a person living with dementia's personal wealth, funding type and access to private health insurance.

Access to physical rehabilitation is also limited, even when living in major cities, by the lack of qualified clinicians and clear pathways to identify and contact these clinicians to initiate physical rehabilitation services. This is exacerbated by the need to have regular and frequent physical rehabilitation over a prolonged period of time.

Lack of access to paid or unpaid carers who can support people living with dementia to access and undertake the physical rehabilitation exercises can also contribute to inequity.

How much knowledge a person living with dementia and/or their carer has about physical rehabilitation and how to access it will also affect a person's ability to access and receive a benefit from physical rehabilitation, affecting inequity.

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The Living/Lived Experience Advisory Group strongly feels that everyone should have the access to services in the way they want to have them regardless of who they are or where they live.

Summary

Key points

We did not identify studies that provided direct evidence examining the impact of physical rehabilitation as an intervention on health equity for people living with dementia.

- People living with dementia are often denied access to rehabilitation due to stigma and therapeutic nihilism *(702) (945)*
- A number of barriers exist to access including funding, living in regional areas, lack of transport and age (less funding through aged care) *(702) (945)*
- We did not identify studies that provided direct evidence regarding the equity of physical rehabilitation for different priority population groups.
- For people with younger onset dementia, physical rehabilitation can become more important, particularly the social and peer support that it can involve. People with younger onset dementia often cannot participate in groups that are designed for older people *(501) (1104)*.
- People with younger onset dementia may need to care for young children, may still be working, navigating complicated age and disability system *(1395)*.
- People who live in rural and remote areas with younger onset dementia are more likely to receive care from primary care physicians, suggesting that clinician training or consultative guidance to primary care clinicians may be needed to overcome neuroscience workforce deficiencies in rural areas *(989)*.

Guideline Development Group judgement and discussion

The Guideline Development Group judged that physical rehabilitation would probably increase equity.

Group members were concerned that people in rural areas have less access to physical rehabilitation. However, if all groups could receive the intervention (potentially through increased support and funding to regional areas following a recommendation), it would improve health equity.

Acceptability No important issues with the recommended alternative

Research evidence

General considerations

Personal factors that might influence acceptability include:

- Lack of knowledge about rehabilitation
- Self- and community-stigma
- Other health conditions
- Cognitive and physical impairments
- Transport and funding
- Geographical inequity
- Care partner availability/support
- Difficulty with navigating the health and social care system *(702)*.
- Individual preferences - Enjoyment, reducing caregiver burden
- Social identification – being with others in the same situation *(1174)*.

Considerations for Aboriginal and Torres Strait Islander peoples

Cultural safety and a trauma-informed approach is key in devising assessments and delivering acceptable interventions *(735)*.

Considerations for people from culturally and linguistically diverse (CALD)backgrounds

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There is little direct evidence about the acceptability of physical rehabilitation for Australians living with dementia from CALD backgrounds. There is indirect evidence from a scoping review about physical exercise that social cultural factors can affect how Australian people in general from CALD backgrounds perceive physical activity and exercise *(1228)* in the context of improving health. They may not be familiar with guidelines for activity or exercise as promoted in a traditional western fashion. At times, they may feel that exercise may be detrimental to their health, even though many recognise its benefits on health in general. An Australian systematic review that investigated cultural influences on exercise participation and falls prevention in older people in general, found that program participation is influenced by cultural values and motivational, social and environmental factors, and the meaning and importance of exercise can vary between and within cultures *(612)*.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct evidence regarding the acceptability of physical rehabilitation for LGBTQIA+ people living with dementia. The Living/Lived Experience Advisory Group noted that for physical rehabilitation, trans people may be fearful of disclosing who they are and disclosing their body differences. Unless they know the organisation, they are going to approach is safe and welcoming.

Considerations for people with disability

We did not identify studies that provided direct or indirect acceptability evidence in relation to physical rehabilitation for people with disability.

Considerations for people with younger onset dementia

We did not identify studies that provided direct evidence regarding the acceptability of physical rehabilitation for people living with younger onset dementia. For people with younger onset dementia, physical rehabilitation can be more important, particularly the social and peer support that it can involve. But they are excluded from groups that are designed for older people. They may have limited time to participate because they are parents *(1104)*. The Living/Lived Experience Advisory Group noted that people with younger onset dementia might be more tuned into exercise, and it might be more important to them.

Considerations for people living outside major cities

We did not identify studies that provided direct evidence regarding the acceptability of physical rehabilitation for people living with dementia living outside major cities. A study performed in rural Victoria found that engagement in meaningful activities (including social) was important to people living with dementia. Both people living with

dementia and carers highly valued relationship-centred care support (e.g., a consistent care support person who treated them with respect) *(495)*.

Additional considerations

Input from the Living/Lived Experience Advisory Group

While the Living/Lived Experience Advisory Group agrees that physical rehabilitation was generally acceptable, it may not be a personal priority for each person living with dementia or their carers.

Things that may impact a person's choice to receive physical rehabilitation include costs, access and how tailored the rehabilitation program is to their type of dementia, comorbidities and personal priorities.

For example, people with limited resources may choose a healthy diet over physical rehabilitation, someone with Alzheimer's disease dementia may need someone to accompany them on bicycle rides or someone with vascular dementia needs a program tailored to their increased cardiovascular risks.

Summary

Key points

- To be acceptable physical rehabilitation should be tailored to individual needs, values and preferences (inclusive of priority populations).
- Rehabilitation is by nature designed to address goals that are meaningful to the person.
- Physical rehabilitation may not be a personal priority for some individuals
- Personal factors might affect acceptability of accessing physical rehabilitation (e.g., lack of knowledge about rehabilitation, stigma, other health conditions, geography, carer support, difficulty navigating the health system) *(702)*.
- Cost, distance, time, and transport availability might affect acceptability *(702)*

For people with younger onset dementia, physical rehabilitation may be highly valued, particularly the social and peer support that it can involve.

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Guideline Development Group judgement and discussion

The Guideline Development Group judged that physical rehabilitation would probably be acceptable to key interest holders.

There was no additional Group discussion for this factor.

Feasibility

No important issues with the recommended alternative

Research evidence

General considerations

Barriers for people living with dementia to participating in physical activity include:

- Physical function - health conditions like pain or risk of falls, pre-existing or acute health conditions, impaired body function, decreased energy levels, tiredness
- Mental and cognitive health – impaired orientation, problems with attention and memory, lack of insight and trust, emotional barriers, negative feelings., loss of motivation and resources, stigma
- Time, transportation, environmental barriers, geographical inequity
- General support from informal caregiver, family or health professionals
- Structural and organisational factors - lack of knowledge about rehabilitation, difficulty navigating the system, lack of clear pathways and skilled health professionals, long waitlists, services not set up for changing rehabilitation needs, lack of confidence referring to or delivering rehabilitation *(448) (702)*.

Presence of these barriers does not preclude participation in physical rehabilitation – but rather that there may need to be some special tailoring to address these as potential barriers if present.

To effectively engage people living with dementia with physical rehabilitation:

- Physical activity needs to have a purpose relevant to the individual and to be fun.
- It is delivered in a welcoming and inclusive environment.
- The initial experience must be positive, with care taken to minimise pain and fatigue.

- One must aim for mastery, relating goals to independence, quality of life and doing what they love.
- It is necessary to understand variable funding options to assist with costs.
- There is an option to have a 'try before buying' *(807)*.

Adherence

Of the 74 studies included in the evidence review, 7 studies reported on adherence to the physical rehabilitation in people living with dementia. The meta-analysis of these findings shows that there was little to no difference in adherence to physical rehabilitation compared to people not receiving physical rehabilitation.

In a study of exercise for people living with dementia living in residential aged care, there was 86.6% adherence to the intervention *(218)*. In a study of exercise in n=22 people with mild dementia living in the community, 72% were still exercising at 12 weeks *(1255)*. In another 16-week home based exercise program, of the n=16 people living with dementia in the exercise group, 80% completed the training, and one did not complete >70% of sessions *(291)*.

Healthcare professionals identified effective communication with people living with dementia as their greatest training need *(173) (456)*.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect feasibility evidence in relation to physical rehabilitation for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse (CALD) backgrounds

We did not identify studies that provided direct or indirect feasibility evidence in relation to physical rehabilitation for people from culturally and linguistically diverse background.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect feasibility evidence in relation to physical rehabilitation for LGBTQIA+ people.

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Considerations for people with disability

We did not identify studies that provided direct or indirect feasibility evidence in relation to physical rehabilitation for people with disability.

Considerations for people living with younger onset dementia

Diagnostic and therapeutic management services are not set up for people living with younger onset dementia. They often need multiple specialists, and they are not age appropriate or connected. There are few settings that are set up to assess and manage people with younger onset dementia *(739)*.

People diagnosed with younger onset dementia often have loss of earnings before diagnosis. Early diagnosis and robust social support systems are vital to alleviate the financial and professional challenges faced by individuals living with dementia under age 65 *(285)*. People living with younger onset dementia often are carers themselves, and need to navigate how to remain in employment, and how to access NDIS services *(285)*.

Considerations for people living outside major cities

We did not identify studies that provided direct or indirect feasibility evidence in relation to physical rehabilitation for people living outside major cities.

People living outside major cities may not have access to a service or support.

Additional considerations

Input from the External Interest Holder Organisations

Coordination of care needs to improve. More timely referrals - often reactive (after a fall) rather than proactive in offering strength and balance training early after diagnosis.

Enablers for physical rehabilitation:

- Workforce training commitment
- Time, flexibility and adaptability of clinicians
- Community rehabilitation teams

Barriers to physical rehabilitation:

- Stigma and therapeutic nihilism
- Lack of skilled and adequate workforce in dementia care
- Inadequate infrastructure (some healthcare professionals may need to consider external locations)
- Silo of allied health professionals from aged care (i.e., not funded adequately or built into the aged care teams being offered to people living in residential aged care)
- People living in residential aged care are not eligible to use community rehabilitation or community health services
- Lack of integration of community, tertiary and aged care funding to support these interventions and initiatives, delivered consistently, equitably and based on evidence
- Dementia may be considered an ineligible co-morbidity to access broader physical rehab programs

Workforce requires significant investment and commitment across the following areas:

- Increasing awareness and reducing stigma
- Equitable access to services
- Trained clinicians to support implementation
- Establishing infrastructure to support delivery
- Creating a range of opportunities that support the wide-ranging functional performance needs of people living with dementia, across stages of dementia. Otherwise, they run the risk of being available only to a select group of people in the very early stages of diagnosis.
- Upskilling and educating professionals who may not routinely look at a person's cognitive performance or functional cognition - i.e., physiotherapists, podiatrists, exercise physiologists to ensure approaches to physical interventions and rehabilitation are tailored and delivered to meet the changing cognitive needs of the older person.

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Accessibility: Location with appropriate resources, funding, promotion at state and community levels and within peak bodies, gatekeepers and referral pathways to clarify how consumers can get access.

Factors to consider for sustainability:

- System-wide commitment with accountability at a site level
- Teams of professionals leading implementation of intervention so it does not stop if people take leave or resign
- Practical recommendations to implement and evaluate
- Interventions need to be delivered frequently - resource intensive to ensure safety of the older person and effective delivery
- It ultimately relies on consistent and sustainable funding that does not restrict or limit access or clinician practice
- There needs to be clarity about physical rehabilitation availability for people living with dementia (e.g., post fall or other morbidity)

Specific state-level factors for consideration:

- State based plans for the implementation of the National Dementia Action Plan (some States will have priority areas) which may impact funding allocation
- State and territory differences in how they administer and run community aged care and community rehabilitation services makes it difficult to ensure these opportunities can be modelled and expanded nationally.

Legal considerations: consent to participate, legally appointed decision makers may choose not to support this intervention, risk of injury with this cohort of people is higher.

Summary

Key points

- Physical rehabilitation interventions can usually be tailored to individual's ability
- Reported evidence suggests acceptable adherence to physical rehabilitation in people living with dementia.

There are barriers to implementing physical rehabilitation at the personal, health professional, organisational and health system level.
- People living with younger onset dementia may be excluded from groups that are designed for older people. They may have limited time to participate because they are parents or working *(1104)*.

Guideline Development Group judgement and discussion

The Guideline Development Group judged that physical rehabilitation was probably feasible to implement.

It was noted that physical rehabilitation was currently feasible to implement, although access to such programs may be poor outside major cities. Implementation may be feasible in both community-based and residential aged care settings.

Rationale

The Guideline Development Group judged that:

- Physical rehabilitation resulted in small desirable effects and trivial undesirable effects, with very low certainty evidence.
- There was possibly important variability in how much people living with dementia valued the desirable and undesirable effects of using physical rehabilitation, and the balance effects probably favoured use of physical rehabilitation
- Physical rehabilitation is associated with moderate costs, but probably increases equity.
- Physical rehabilitation is probably acceptable and probably feasible.

The Group agreed that the Evidence to Decision framework factors all favoured physical rehabilitation, except for costs. Given the variability in values of people living with dementia, and the very low certainty of the evidence for physical rehabilitation, the Group agreed to make a conditional recommendation for physical rehabilitation.

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Clinical question/ PICO

Population: people living with dementia
Intervention: physical rehabilitation
Comparator: inactive control

Outcome Timeframe	**Study results and measurements**	**Comparator** inactive control	**Intervention** physical rehabilitation	**Certainty of the evidence** (Quality of evidence)	**Summary**
Functional ability and participation - overall 9 Critical	Based on data from 3,204 participants in 35 studies. (Randomized controlled)	Difference:	**SMD 0.42 higher** (CI 95% 0.25 higher — 0.59 higher)	**Low** Due to serious risk of bias, Due to serious inconsistency [1]	Physical rehabilitation may improve overall functional ability and participation (Activities of Daily Living). (Threshold for an important effect: SMD 0.4)
Functional ability - physical - specific [2] 9 Critical	Based on data from 2,807 participants in 48 studies. (Randomized controlled)	Difference:	**SMD 0.52 higher** (CI 95% 0.31 higher — 0.75 higher)	**Low** Due to serious risk of bias, Due to serious inconsistency [3]	Physical rehabilitation may improve specific physical functional ability. While the majority of studies showed important improvements in specific physical functions, there was little to no effect in other studies. (Threshold for an important effect: SMD 0.4)

Outcome Timeframe	**Study results and measurements**	**Comparator** inactive control	**Intervention** physical rehabilitation	**Certainty of the evidence** (Quality of evidence)	**Summary**
HR-QoL of the person with dementia 9 Critical	Based on data from 1,444 participants in 17 studies. (Randomized controlled)	Difference:	**SMD 0.22 higher** (CI 95% 0.02 lower — 0.45 higher)	**Low** Due to serious risk of bias, Due to serious inconsistency [4]	Physical rehabilitation may make little or no difference to health-related quality of life of the person living with dementia (Threshold for an important effect: SMD 0.4)
HR-QoL of the carer [5] 9 Critical	Based on data from 479 participants in 7 studies. (Randomized controlled)	Difference:	**SMD 0.11 lower** (CI 95% 0.53 lower — 0.32 higher)	**Very low** Due to serious risk of bias [6]	The evidence about the effects of physical rehabilitation on quality of life of the carer is very uncertain and the results are too inconsistent to interpret the combined estimate of effect. While four studies found little to no effect of physical rehabilitation on the quality of life of the carer, two studies found quality of life improved (i.e. carer burden was reduced when the person living with dementia received physical rehabilitation) and one study found that quality of life was reduced. (Threshold for an important effect: SMD 0.4)
Cognitive function - global 6 Important	Based on data from 3,026 participants in 41 studies. (Randomized controlled)	Difference:	**SMD 0.51 higher** (CI 95% 0.22 higher — 0.8 higher)	**Low** Due to serious risk of bias, Due to serious inconsistency [7]	Global cognitive function may be better with physical rehabilitation than with no physical rehabilitation. While some studies found an important beneficial effect on cognitive function with physical rehabilitation compared to no physical rehabilitation, others found little to no effect. (Threshold for an important effect: SMD 0.4)
Cognitive function - specific [8] 6 Important	Based on data from 2,136 participants in 20 studies. (Randomized controlled)	Difference:	**SMD 0.05 higher** (CI 95% 0.04 lower — 0.14 higher)	**Moderate** Due to serious risk of bias [9]	Physical rehabilitation probably results in little or no difference on specific cognitive function (memory and executive function). We are uncertain about the effects on attention, language, processing speed or visuospatial

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Outcome Timeframe	**Study results and measurements**	**Comparator** inactive control	**Intervention** physical rehabilitation	**Certainty of the evidence** (Quality of evidence)	**Summary**
					functioning because results for these outcomes were not selected for analysis. (Threshold for an important effect: SMD 0.4)
Behavioural and psychological symptoms - overall 6 Important	Based on data from 1,544 participants in 14 studies. (Randomized controlled)	Difference:	**SMD 0.27 lower** (CI 95% 0.45 lower — 0.09 lower)	**Low** Due to serious risk of bias, Due to serious inconsistency [10]	Physical rehabilitation may result in little or no difference in overall behavioural and psychological symptoms. While the majority of studies showed little or no effect, some studies showed important improvements in overall behavioural and psychological symptoms. (Threshold for an important effect: SMD 0.4)
Behavioural and psychological symptoms - specific [11] 6 Important	Based on data from 1,576 participants in 23 studies. (Randomized controlled)	Difference:	**SMD 0.54 lower** (CI 95% 0.97 lower — 0.12 lower)	**Very low** Due to serious risk of bias, Due to serious inconsistency, Due to serious imprecision [12]	The evidence about the effects of physical rehabilitation on specific behavioural and psychological symptoms is of very low certainty and the overall results are too inconsistent to interpret the combined effect estimate. Eight studies found an important reduction in specific behavioural and psychological symptoms, whereas 15 studies found little to no effect on symptoms. (Threshold for an important effect: SMD 0.4)
Falls (mean no. of falls) 6 Important	Based on data from 168 participants in 3 studies. (Randomized controlled)	Difference:	**SMD 0.11 lower** (CI 95% 0.88 lower — 0.67 higher)	**Very low** Due to serious risk of bias [13]	The evidence about the effects of physical rehabilitation on falls is very uncertain and the results are too inconsistent to interpret the combined estimate of effect. One study found a reduction in falls with physical rehabilitation, and the other two found little to no effect. There were too few studies to explore potential explanations for this inconsistency. (Threshold

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Outcome Timeframe	**Study results and measurements**	**Comparator** inactive control	**Intervention** physical rehabilitation	**Certainty of the evidence** (Quality of evidence)	**Summary**
					for an important effect: SMD 0.4)
Goal of the person living with dementia (performance) 6 Important					No studies reported on the ability to engage in and carry out the activities that are meaningful and important to the person living with dementia.
Experience and satisfaction of the person living with dementia 6 Important					No studies provided a direct measure of experience and satisfaction. Seven studies reported on adherence. Results are included in the EtD framework under feasibility.

1. **Risk of Bias: serious.** serious risk of bias (-1): 71.1 % of the data in this analysis comes from studies with some concerns of risk of bias, while 28.9% comes from studies at high risk of bias. No study with low risk of bias.. **Inconsistency: serious.** serious inconsistency (-1) 56% weight (little to no difference), 43.1% weight (important effect-small to large) and 1.1% weight (important harm). I2 = 70%, P < 0.00001. **Indirectness: no serious. Imprecision: no serious.** No serious imprecision: The 95% CI interval crosses the threshold for an important effect (SMD=0.4) and appears compatible with important benefit (SMD=0.6) and a trivial effect (SMD=0.24), however the imprecision is likely due to inconsistent effects and so the evidence was not also rated down for imprecision. The confidence interval does not indicate harm, which was an additional reason for not rating down for imprecision. . **Publication bias: no serious.**
2. The specific physical functional abilities evaluated in the included studies were: balance, gait, endurance and mobility.
3. **Risk of Bias: serious.** serious risk of bias (-1) 54.9% of the data in this analysis comes from studies at high risk of bias, 45.1% some concerns. No study with low risk of bias.. **Inconsistency: serious.** serious inconsistency (-1): 43.3% weight (little to no difference), 51.6 weight (important effect-small to large) and 5.4% weight (important harm). I2 = 81%, P < 0.00001. **Indirectness: no serious. Imprecision: no serious.** no serious imprecision (0): SMD 0.52 (0.31, 0.75). The 95% CI crosses the threshold for important effect (SMD = 0.4) and appears compatible with important benefit (SMD = 0.75) and trivial effect (SMD = 0.31), however the imprecision is likely due to inconsistent effect and so the evidence was also not rated down for imprecision. The confidence interval does not indicate harm, which was an additional reason for not rating down for imprecision.. **Publication bias: no serious.**
4. **Risk of Bias: serious.** serious risk of bias (-1): 83.3% of the data in this analysis comes from studies with some concerns of risk of bias, 16.7% high risk of bias. No study with low risk of bias.. **Inconsistency: serious.** serious inconsistency (-1): 70.7% weight (little to no difference), 23% weight (important effect-small to large) and 6.6% weight (important harm). I2 = 69%, P = 0.0001. **Indirectness: no serious. Imprecision: no serious.** 0 - no imprecision SMD 0.22 (-0.02, 0.45). The 95% CI crosses the threshold for important effect (SMD = 0.4) and appears compatible with important benefit (SMD = 0.45) and trivial effect (SMD = -0.02), however the imprecision is likely due to inconsistent effect and so the evidence was also not rated down for imprecision. The confidence interval does not indicate harm, which was an additional reason for not rating down for imprecision. . **Publication bias: no serious.**
5. The included studies all evaluated carer burden.
6. **Risk of Bias: serious.** serious risk of bias (-1): 85.7% of the data in this analysis comes from studies with some concerns of risk of bias, 14.3% high risk of bias. No study with low risk of bias.. **Inconsistency: very serious.** very serious inconsistency (-2): 69.5% weight (little to no difference), 22.3% weight (important effect-small to medium) and 8.1% weight (important harm). I2 = 58%, P = 0.04. While four studies found little to no effect of physical rehabilitation on quality of life of the carer, two studies found quality of life improved and one study found the quality of life was reduced. There were too few studies to explore potential explanations for this inconsistency.. **Indirectness: no serious. Imprecision: no serious.** 0 - no imprecision SMD -0.11 (-0.53, 0.32) . The 95% CI crosses the threshold for important effect (SMD = -0.4) and appears compatible with important benefit (SMD = 0.32) and trivial effect (SMD = -0.02), however the imprecision is likely due to inconsistent effect and so the evidence was also not rated down for imprecision. The confidence interval does not indicate harm, which was an additional reason for not rating down for imprecision. . **Publication bias: no serious.**
7. **Risk of Bias: serious.** serious risk of bias (-1): 68.2% of the data in this analysis comes from studies with some concerns of risk of bias, while 31.8% comes from studies at high risk of bias. No study with low risk of bias.. **Inconsistency: serious.** serious inconsistency (-1): 49.2% weight (little to no difference), 45.6 weight (important effect-small to large) and 5.1% weight (important harm). I2 = 91%, P < 0.00001. **Indirectness: no serious. Imprecision: no serious.** no serious imprecision (0): SMD 0.51 (0.22, 0.80). The 95% CI crosses the threshold for important effect

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(SMD = 0.4) and appears compatible with important benefit (SMD = 0.80) and trivial effect (SMD = 0.22), however the imprecision is likely due to inconsistent effect and so the evidence was also not rated down for imprecision. The confidence interval does not indicate harm, which was an additional reason for not rating down for imprecision.. **Publication bias: no serious.**
8. The specific cognitive functions evaluated in the included studies were: executive function and memory.
9. **Risk of Bias: serious.** serious risk of bias (-1): 69.6% of the data in this analysis comes from studies at high risk of bias, 30.4% some concerns. No study with low risk of bias.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.**
10. **Risk of Bias: serious.** serious risk of bias (-1): 78.6% of the data in this analysis comes from studies with some concerns of risk of bias, 21.4% high risk of bias. No study with low risk of bias.. **Inconsistency: serious.** serious inconsistency (-1): 66.6% weight (little to no difference), 33.3% weight (important effect-small to medium). I2 = 53%, P = 0.006. **Indirectness: no serious. Imprecision: no serious.** 0 - no imprecision SMD -0.27 (-0.45, -0.09) . The 95% CI crosses the threshold for important effect (SMD = -0.4) and appears compatible with important benefit (SMD = -0.45) and trivial effect (SMD = -0.09), however the imprecision is likely due to inconsistent effect and so the evidence was also not rated down for imprecision. The confidence interval does not indicate harm, which was an additional reason for not rating down for imprecision. . **Publication bias: no serious.**
11. The specific behavioural and psychological symptoms evaluated in the included studies were: agitation, aggression, anxiety and depression.
12. **Risk of Bias: serious.** serious risk of bias (-1): 79.2% of the data in this analysis comes from studies with some concerns of risk of bias, 20.8% high risk of bias. No study with low risk of bias.. **Inconsistency: serious.** serious inconsistency (-1): 70.7% weight (little to no difference), 29% weight (important effect-small to large) . I2 = 92%, P < 0.00001. **Indirectness: no serious. Imprecision: serious.** serious imprecision (-1): SMD -0.54 (-0.97, -0.12). The 95% CI crosses the threshold for important effect (SMD = -0.4) and appears compatible with large important benefit (SMD = -0.97) and trivial effect (SMD = -0.12). . **Publication bias: no serious.**
13. **Risk of Bias: serious.** serious risk of bias (-1): 100% of the data in this analysis comes from studies with some concerns of risk of bias. No study with low risk of bias.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: very serious.** very serious imprecision (-2): SMD -0.11 (-0.88, 0.67). The 95% CI crosses the threshold both for important effect (SMD = -0.4) and important harm (SMD = 0.4). The result is compatible with both moderate benefit (0.88 SMD lower) and small important harm (0.67 SMD higher).. **Publication bias: no serious.**

Practice Statement

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Good practice statement 2
Before undertaking physical rehabilitation with people living with dementia, conduct a comprehensive assessment to identify and manage relevant and medically reversible conditions that may present barriers (e.g., untreated medical problems, adverse drug reactions, delirium, vision/hearing impairments).

Good practice statement 3
For people living with dementia, physical rehabilitation may be used in conjunction with other rehabilitation interventions such as cognitive rehabilitation or cognitive stimulation therapy, to achieve personal goals, based on individualised assessment and consideration of personal preferences.

Rationale

The good practice statements were developed to emphasise essential principles of physical rehabilitation for people living with dementia.

9.1.2 Cognitive rehabilitation

What is Cognitive Rehabilitation?

Cognitive rehabilitation refers to therapy designed to help people maintain and improve function and participation. It focuses on strengthening these skills through exercises, strategies, and techniques to make daily life more manageable. In people living with dementia, cognitive rehabilitation may be used in conjunction with other interventions such as physical rehabilitation and cognitive stimulation therapy to achieve personal goals, based on individualised assessment and consideration of personal preferences *(330)*.

Cognitive rehabilitation:

- aims to maintain and optimise functioning in everyday activities
- is personalised and indicated by:
  - goals chosen by the person living with dementia or carer (may be from a pre-defined list)
  - plans based on assessment of current functioning and capacity
  - strategies reflecting the person's ability and their objectives
- rehabilitation using at least one of the recognised cognitive rehabilitation techniques included in the table below *(330)(676)*.

Cognitive Rehabilitation Techniques	Definition	Example
Graded activity	Graded activity is a way to gradually increase the time or difficulty of a physical or mental activity. It is often used in recovery or therapy to help people rebuild their strength or abilities step by step. You start with easy tasks and slowly make them harder as you improve.	Laundry: Week 1: Sorting laundry by colour. Week 2: Folding laundry and putting it away. Week 3: Putting sorted and folded laundry away.
Modelling	Modelling therapy is when someone learns how to do something by watching another person demonstrate it first. It's like following an example.	A carer shows step-by-step how to do a task, like brushing teeth or setting the table, and then the person practices it themselves.
Action-based learning	Action-based learning is learning by doing. Instead of just listening or reading, people work on real tasks or activities to build their skills.	A carer might encourage assistance with gardening. Rather than showing or explaining everything upfront, they involve the person directly in tasks.
Expanding rehearsal (spaced retrieval)	A learning technique where people practice remembering information over gradually increasing periods of time.	When practising to remember a carer's name: 1. The carer might first ask, "What's my name?" and have them answer right away. 2. After a short break (e.g., 1 minute), they ask the same question again. 3. As the person remembers correctly, the carer gradually increases the time between asking, like 5 minutes, then 10 minutes, and so on.
Prompting and fading	A teaching method where cues or hints are provided to help someone complete a task, and then the cues or hints are gradually reduced until the tasks can be done on their own.	1. At first, step-by-step instructions are given: "Pick up the toothbrush. Put toothpaste on it. Now start brushing your teeth." 2. As the individual becomes more familiar with the routine, the prompts are reduced saying less or just pointing to the toothbrush. 3. Eventually, the prompts stop completely, and they're able to brush their teeth independently.
Altering features of the person's environment and	Therapy that involves altering features of a person's environment focuses on making changes to their surroundings to support their abilities, reduce	Clearly labelling drawers and cupboards with pictures or simple words to find items easily.

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Cognitive Rehabilitation Techniques	Definition	Example
surroundings	challenges, and improve their quality of life.	
Mnemonics, elaboration and vanishing cues for learning and relearning information	Mnemonics: memory aids that use patterns, such as rhymes, acronyms, or visual imagery, to help people remember information more easily. Elaboration: connect new information to something you already know by expanding on it or adding meaningful details. Vanishing Cues: hints or prompts are gradually reduced as a person learns or relearns information.	Mnemonics: To remember the colours of the rainbow, the acronym ROYGBIV (Red, Orange, Yellow, Green, Blue, Indigo, Violet) might be used. Elaboration: When learning the word apple, one might think about its colour or taste. Vanishing Cues: For someone relearning how to use a phone, they might initially get step-by-step instructions: "Press the green button to call." As they improve, the prompts become less specific, like pointing to the button instead, until guidance is no longer needed.
Introducing compensatory strategies such as memory aids	Providing tools or techniques to help someone compensate for memory difficulties.	Someone might use a calendar with reminders to help them remember appointments or daily routines.

Who delivers cognitive rehabilitation in Australia?

In Australia, cognitive rehabilitation for a person living with dementia is delivered by a range of health professionals. Clinicians usually involved include occupational therapists and clinical psychologists, but informal and formal carers can also be taught to deliver cognitive rehabilitation.

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Question 11

Should cognitive rehabilitation (versus inactive control) be used for people living with dementia?

Conditional recommendation for , Low certainty evidence

Recommendation 11

Consider offering cognitive rehabilitation to people living with mild to moderate dementia to optimise ability to engage in and carry out activities that are meaningful and important.

Remarks

People living with mild to moderate dementia may benefit from cognitive rehabilitation. It is unknown if cognitive rehabilitation is beneficial for people with severe dementia, but the Guideline Development Group noted anecdotally that some people may benefit.

Cognitive rehabilitation interventions considered in the evidence review included:

- *Devising personally relevant goals*
- *Problem solving strategies*
- *Environmental adaptations and prompts*
- *Compensatory memory aids, such as prompt cards, diaries and white boards, clock, post-it-notes, pen and notepad, calendar*
- *Procedural learning of relevant skills*
- *Errorless learning, and spaced retrieval*
- *Supported learning of important new information and restorative learning methods to reactivate prior knowledge*
- *Care partner training.*

Practical info

Use shared or supported decision making to carry out a holistic assessment and determine personalised goals in partnership with the person living with dementia, and their carers as appropriate.

Where appropriate, begin cognitive rehabilitation early after diagnosis of dementia to maximise function.

Discuss the limitations and potential benefits of cognitive rehabilitation with the person living with dementia, and when appropriate their carers, at the initiation and throughout treatment.

Reassess function and personal goals on a regular basis to meet the needs of the individual, using standardised and functional outcome measures (e.g., Goal Attainment Scale, Canadian Occupational Performance Measure, Bangor Goal-Setting Interview (BGSI) – attainment score)

Cognitive rehabilitation is usually offered as an individual intervention, rather than in group formats. Involve carers in the delivery where appropriate. For those without a carer, ensure other supports are in place (e.g. increase frequency, allied health assistant support, paid carer involvement).

If possible, deliver cognitive rehabilitation in the person's own environment to fit with their individual goal(s).

Cognitive rehabilitation is usually delivered by an occupational therapist or psychologist, in collaboration with other health professionals (e.g., nurses, speech pathologists, physicians), support workers, or carers can support as well as promote and maintain functional and social independence.

Ideally, staff delivering cognitive rehabilitation should be consistent over time.

Useful resources

Dementia Training Australia: Introduction to Dementia Rehabilitation

WHO Package of interventions for Rehabilitation Package of interventions for rehabilitation: module 3: neurological conditions

O'Connor CM, Poulos CJ, Gresham M, Poulos RG. Supporting independence and function in people living with dementia, A technical guide to the evidence supporting reablement interventions (2nd Edition). Sydney: Hammond Care, 2019

Alzheimer's Disease International World Alzheimer Report 2025

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STRATEGIES AND TECHNIQUES FOR COGNITIVE REHABILITATION The Alzheimer's Society of Ireland https://alzheimer.ie/wp-content/uploads/2019/07/2015-Cognitive-Rehabilitation.pdf

GREAT trial website: GREAT (Goal-oriented cognitive Rehabilitation in Early-stage Alzheimer's and related dementias: a multi-centre single-blind randomised controlled Trial) into Practice - PenARC

Evidence to decision

Benefits and harms

Substantial net benefits of the recommended alternative

Research evidence

Research evidence Desirable effects (benefits)

Cognitive rehabilitation compared to no cognitive rehabilitation resulted in:

- a large increase in the ability to engage in and carry out the activities that are meaningful and important to the person living with dementia (goals of the person living with dementia) [critical outcome]

Cognitive rehabilitation compared to no cognitive rehabilitation had little to no (trivial) effect on:

- health-related quality of life of the person living with dementia [critical outcome]
- health-related quality of life of the carer [critical outcome]
- functional ability and participation - overall [critical outcome]
- memory [important outcome]
- anxiety [important outcome]
- behavioural and psychological symptoms - overall [important outcome]

No studies reported on:

- functional ability - physical - specific [important outcome]
- experience and satisfaction of the person living with dementia [important outcome]
- cognitive function - global [important outcome]

Our interpretation was based on a threshold for a small but important effect of 0.4 SMD and a moderate effect of 0.7 SMD.

Undesirable effects (harms)

Cognitive rehabilitation compared to no cognitive rehabilitation resulted in no undesirable effects on prioritised outcomes for which data were available.

No studies reported on adverse effects [important outcome].

Summary

Balance of effects: Guideline Development Group judgement and discussion

To decide on the balance of effects, the Guideline Development Group initially considered and made separate judgements about:

- the size of desirable anticipated effects (benefit) – **moderate**
- the size of undesirable anticipated effects (harm) – **trivial**
- the overall certainty of the evidence for critical outcomes – **low**
- whether there is important variability (or uncertainty) in how much people value the main outcomes – **possibly important uncertainty or variability**.

The Group agreed the balance of effects probably favoured cognitive rehabilitation.

Although trivial effects were reported for most outcomes, there was a large improvement in functional abilities for targeted activities with no reported harms. Given that the focus of cognitive rehabilitation is on the specific goals of a person with dementia, this was a significant factor in the decision about balance of effects.

The Group noted that some of the outcome measures are not necessarily sensitive to change, e.g., health-related quality of life, and it was not surprising to see little or no difference in these outcomes.

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Desirable effects: Guideline Development Group judgement and discussion

The Guideline Development Group agreed that cognitive rehabilitation resulted in **moderate** desirable anticipated effects.

This judgement was based on the Group's understanding of the definition of cognitive rehabilitation, the evidence, and the results for critical outcomes. It was noted that cognitive rehabilitation is designed to meet the individual goals of the person.

The Group noted that although the evidence considered is for people living with mild to moderate dementia, there may be some people living with moderate to severe dementia who may still benefit from cognitive rehabilitation or rehabilitation measures.

Undesirable effects: Guideline Development Group judgement and discussion

The Guideline Development Group agreed that cognitive rehabilitation results in **trivial** undesirable anticipated effects.

It was noted that the assessment of harms in trials is far less common than desirable effects. The DESCANT trial *(333)* included Serious Adverse Events, but reported that no Serious Adverse Event was definitely, probably or possibly related to the intervention. When considering adverse events, the burden of participation is important to consider. It can be very difficult/stressful to attend cognitive rehabilitation appointments on time for people living with dementia and caregivers. It is important to recognise the cost of caring.

Certainty of the evidence

Low

Research evidence

The overall certainty of the body of evidence is determined by the lowest certainty rating of all the critical outcomes.

High certainty

- goals of the person living with dementia (functional ability in targeted activities)
- health-related quality of life of the person living with dementia

Moderate certainty

- functional ability and participation - overall

Low certainty

- health-related quality of life of the carer.

Summary
The overall certainty of the body of evidence for this question is therefore considered to be **low**.

Values and preferences

Substantial variability is expected or uncertain

Research evidence
General considerations

From three qualitative systematic reviews *(709)(1150)(1242)* of what matters most to people living with dementia, we found that people living with dementia:

- place high value on the quality of life of their care partner
- value the ability to function independently, not only for themselves but because they feel this facilitates a good relationship with their care partner
- place slightly less value on their own quality of life, self-efficacy, independence, and emotional well-being

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These reviews did not report participant characteristics of the included studies. The majority of studies were conducted in the US, Canada, Western Europe and Australia *(709)(1150)(1242)*. We know that enrolment of participants into clinical trials for dementia prevention and treatment does not reflect the population at large (e.g., in the US approximately 95% of subjects enrolled in clinical trials are White) *(875)*. There is no evidence to suggest that studies of patient preferences and values would be any different.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct evidence examining how Aboriginal and Torres Strait Islander peoples value outcomes in relation to cognitive rehabilitation.

Aboriginal and Torres Strait Islander peoples place high value on their quality of life through Family and Friends, Connection to Country, Community, Culture, Health, Respect, their role as an Elder, support services, safety and security, spirituality, future wishes, and basic needs being met *(985)*.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct evidence examining how people from culturally and linguistically diverse backgrounds value outcomes in relation to cognitive rehabilitation.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct evidence examining how LGBTQIA+ people value outcomes in relation to cognitive rehabilitation.

Considerations for people with younger onset dementia

We did not identify studies that provided direct evidence examining how people living with younger onset dementia value outcomes in relation to cognitive rehabilitation.

One study examining preferences of people living with younger onset dementia in general found that connectedness with others and dignity are recognised as being valued highly for this group *(777)*. A review of the literature in 2016 captures the various general issues in relation to outcomes for people living with younger onset dementia *(1016)*. These include loss or diminishment in roles such as provider, parent, and spouse; loss of income and financial problems; and loss of empowerment. There was a strong desire expressed by many to remain engaged and in control of their lives as best they could. Carer stress, burden and grief were considered important, as were psychosocial stress and anxiety for children of the affected person. All these factors combined to reflect the overall quality of life for the person and the family unit.

Considerations for people living with disability

We did not identify studies that provided direct evidence examining how people living with intellectual or physical disability value outcomes in relation to cognitive rehabilitation.

A systematic review of experiences of people living with intellectual disability (including Down's syndrome) and dementia (8 studies, 13 men and 18 women, 2 Australian studies) highlighted person-centred outcomes *(607)*. People experienced a narrowing of lives due to loss of abilities, stigma and marginalisation, loss of autonomy in decision-making for care. They valued relationships with others (including peers), and preferred to stay supported in their homes while avoiding frequent moves. For people living with Down's Syndrome and dementia, person-centred outcomes such as being able to live one's best life with dementia, a sense of place and community, and having autonomy were highlighted in the recent Post-Diagnostic dementia support guidelines for people with an intellectual disability *(783)*.

Considerations for people living outside major cities

We did not identify studies that provided direct evidence examining how people living in regional, rural and remote communities value outcomes in relation to cognitive rehabilitation.

A study performed in rural Victoria found that engagement in meaningful activities (including social) was important to people living with dementia *(495)*. Both people living with dementia and carers highly valued relationship-centred care support (e.g., a consistent care support person who treated them with respect).

Additional considerations

Input from the Living/Lived Experience Advisory Group

- There is variability in the value placed on the outcomes, because it depends on what the person needs and wants.
- While it is recognized that cognitive rehabilitation interventions (as defined by experts in cognitive rehabilitation) are designed to be individualized to people in order to achieve their overall goal(s), some Living/Lived Experience Advisory Group members favoured certain domains of outcomes such as quality of life and cognitive function as being relatively more important to them.

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Summary

Key points

We did not identify studies that provided direct evidence on the value placed on outcomes in relation to cognitive rehabilitation by people living with dementia in general, or in priority population groups living with dementia.

- Person-centred care, autonomy, control of their lives, lower carer stress and burden, and engagement in meaningful activities are important to people living with dementia.
- Three qualitative systematic reviews *(709)(1150)(1242)* found that people living with dementia in general:
  - place high value on the quality of life of their care partner
  - value the ability to function independently, not only for themselves but because they feel this facilitates a good relationship with their care partner
  - place slightly less value on their own quality of life, self-efficacy, independence, and emotional well-being.

Guideline Development Group judgement and discussion

The Guideline Development Group agreed there was possibly important uncertainty or variability in how people receiving cognitive rehabilitation value the different outcomes.

The Group agreed that variability in how people receiving cognitive rehabilitation value the different outcomes was inherent to the individualised nature of the intervention. Variability for this factor highlights the need for a shared decision-making approach.

Resources

Important negative issues

Research evidence

Resource requirements

A comprehensive assessment to identify and manage relevant and medically reversible conditions (e.g., untreated medical problems, adverse drug reactions, delirium, vision/hearing impairments) is required prior to the commencement of physical rehabilitation in peop with dementia *(1311)*.

Resource	Description
Staff	• the person delivering cognitive rehabilitation for one-to-one sessions at the home of the person living with dementia and telephone support for carer in between sessions • interpreter as required
Training	• training and support for the person delivering the cognitive rehabilitation
Supplies [medical supplies]	• N/A
Equipment and infrastructure	• memory and other aids required to facilitate personal rehabilitation goals
Time	• frequency and time as required to meet individual goals • the GREAT trial included 14 sessions over 9 months, with 10 weekly sessions in the first 3 months and 4 maintenance sessions during months 4 to 9 *(328)* • telephone support in between sessions • travel time
Supervision and monitoring	• [optional] telephone support for carer in between sessions

Financial Impact

The DESCANT randomised controlled trial (RCT) provided memory aids and training and support in their use by trained dementia supp practitioners (DSP) to people living with mild-to-moderate dementia across 10 NHS trusts in England and Wales *(333)*. The interventior was delivered over 4 weeks, with core face-to-face sessions at weeks 1 (assessment) and 4 (review) and optional intermediate telephon in-person support sessions during weeks 2 and 3.

A mixed-methods process evaluation of the DESCANT RCT found that delivering cognitive rehabilitation requires highly skilled and experienced dementia support practitioners (DSPS) *(308)*. Counselling and assessment skills were highlighted as critical, and occupatior therapist qualifications were seen as an advantage. DSPs were provided with a core package of memory aids (whiteboard, clock, pen ar notepad, calendar) for each participant, and had a budget of up to GBP 150.00 (≈AUD 266) per participant to purchase additional aids tailor the intervention. The mean number of DSP hours per participant was just over 3 hours. A Cochrane review of cognitive rehabilitat found most of the six included interventions involved 8 to 10 hours of practitioner contact *(676)*.

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Participants in the GREAT RCT, conducted in the UK, worked on up to 3 rehabilitation goals with their therapist, with support also offer to care partners *(328)*. The intervention was delivered in 14 sessions over 9 months, with 10 weekly sessions in the first 3 months and 4 maintenance sessions during months 4 to 9.

Direct costs of cognitive rehabilitation were calculated for direct contact time with participants, indirect contact time (planning, travel) a non-contact time (general training and individual training or supervision) *(328)*. Total costs per participant per session over the 9-mont intervention period were calculated as GBP 130 (≈AUD 239), in 2019. It was noted that the training and supervision costs included in th estimate were considered 'substantial' at GBP 33 (≈AUD 61) per session and "may not reflect the level of supervision and support that would be available in routine clinical practice" *(328)*.

Indirect evidence from a study by Pizzi et al., *(924)* in Connecticut, USA, demonstrated per-dyad mean cost savings at 12 months were $2354 (≈AUD 3163), in 2021 for those who received Care of Persons with Dementia in their Environments (COPE) which was incorporat into home and community-based services.

Indirect Australian evidence from Rahja et al., *(954)* on the implementation of evidence-based interventions that enhance function and capability in people living with dementia demonstrated almost A$6.2 million societal gain through a social cost–benefit analysis. In this study, people living with dementia and their carers were found to be the bearers of costs, while the health and social care system benefitted most. The results of this cost–benefit analysis suggest that there is a need to plan and provide subsidies or other financial incentives to assist people living with dementia and their caregivers to engage in reablement programs in Australia; thus the whole soc can be advantaged *(954)*.

Cognitive rehabilitation may be delivered as home-based therapy. Indirect Australian evidence from Lenzen et al., *(708)* demonstrated people living with dementia and their carers reported a high willingness to pay for a home-based program. Data showed preferences f in-person sessions over telehealth options.

Cost-effectiveness

Clarkson et al., (2021) evaluated the cost-effectiveness of memory aids and guidance in people living with mild to moderate dementia, the UK, compared to treatment as usual in the DESCANT RCT using a cost-utility analysis *(330)*. The resources used (e.g., staff time, training, materials) were added to the direct costs of other health and social care services used by participants to estimate the total cos

the intervention. The perspective was public and carer costs, and health benefits to people living with dementia and their carers with an evaluation period of 6 months. The cost-effectiveness analysis found that the intervention was unlikely to be cost-effective at a range o willingness-to-pay thresholds (e.g., the intervention had a 42-44% probability of being cost-effective at a willingness-to-pay threshold GBP 15,000 [≈AUD 27482, in 2021] across a range of measures used to generate quality-adjusted life year [QALY] preferences). The net incremental cost of the intervention (as compared to treatment as usual) was GBP 412 (≈AUD 755) (SE GBP 2745, 95% CI: GBP -496 to 5792 [≈AUD 5029, 95% CI: AUD -909 TO 10,612]).

Clare et al., (2019) evaluated the cost-utility and cost-effectiveness of a cognitive rehabilitation intervention in people living with mild t moderate dementia, in the UK, compared to treatment as usual in the GREAT RCT *(327)*. Two perspectives were considered: the health social care perspective, and the societal perspective with an evaluation period of 9 months. The analysis found that a 1.32-point SMD improvement in how participants rated their own goal progress (BANGOR Goal-Setting Interview score) cost GBP 1,296 (≈AUD 2380) fr the health and social care perspective, and it slightly saved money (GBP 9) from the wider societal perspective. A 1.53-point SMD improvement in people's general sense of self-efficacy (General Self-Efficacy Scale score) cost GBP 4,470 (≈AUD 8210) from the health social care perspective, but from the societal perspective it resulted in savings of GBP 2,961 (≈AUD 5439). The study found no evidence that the intervention improved quality-adjusted life years (QALYs) for people with dementia or for carers in a cost-effective way. Howev for participant-rated goal attainment, the intervention would be considered cost-effective if decision-makers were willing to pay at leas GBP 2,500 (≈AUD 4592) for a meaningful improvement.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect resource evidence in relation to cognitive rehabilitation for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect resource evidence in relation to cognitive rehabilitation for people from culturally and linguistically diverse backgrounds.

Considerations for people with younger onset dementia

We did not identify studies that provided direct or indirect resource evidence in relation to cognitive rehabilitation for people living wit younger onset dementia.

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Considerations for people with disability

We did not identify studies that provided direct or indirect resource evidence in relation to physical rehabilitation for people living with disability.

Considerations for people living outside major cities

We did not identify studies that provided direct or indirect resource evidence in relation to cognitive rehabilitation for people living outside major cities.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- Direct costs (therapy, travel) to both the person living with dementia and their carers are important factors to consider, and also depend on the intensity of the intervention.
- The ability to meet these costs is significantly impacted by government funding (NDIS, Home Support Package, Residential Aged Care funding, no funding) and the associated rules of fund use.
- The amount that someone impacted by dementia would be willing to pay for cognitive rehabilitation would depend on how effec it is.

Summary

Key points

We did not identify direct Australian evidence with respect to resources, costs or cost-effectiveness relevant to cognitive rehabilitation dementia either generally or for specific priority population groups. The certainty of the evidence about resource requirements was not assessed.

- From two trials in the UK, substantial costs may be required for delivering cognitive rehabilitation, with little evidence supporting cost-effectiveness *(308)(328)*.
- Out of pocket costs vary depending on circumstances i.e., public health system, private health (out of pocket likely), NDIS, Aged C package (out of pocket likely).
- For priority population groups such as Aboriginal and Torres Strait Islander peoples, people from culturally and linguistically diver backgrounds, LGBTQIA+ people, and people living with younger onset dementia, appropriate services and systems for providing cognitive rehabilitation are limited or non-existent.

Guideline Development Group judgement and discussion

The Guideline Development Group agreed that the resources required for cognitive rehabilitation results in **moderate cost**.

The Group noted that indirect health-related costs including social costs may be significant to facilitate cognitive rehabilitation as an intervention, such as carers' time and travel costs. The Group also discussed an Australian study of an interdisciplinary reablement prog (i-HARP) *(618)*, of which cognitive rehabilitation was one intervention component. A cost-utility analysis for this study has been publish as a pre-print *(653)*, however it is not possible to attribute specific costs or cost-utility to cognitive rehabilitation.

Equity No important issues with the recommended alternative

Research evidence

General considerations

For indirect evidence in relation to dementia care in general, see 'Overarching Equity considerations for priority populations'.

The characteristics of trial participants that relate to equity, diversity and inclusion were variably reported in the six included studies. In the two studies conducted in the United Kingdom that reported race or ethnicity data, most participants were White (52% of the total sample and 94% of the participants for whom data were reported) *(328)(331)*. Participants in three of the four studies that reported mean years of education had, on average, 1 to 2 years less education than the national average *(329)(565)(1144)*.

As only two studies reported on two separate socioeconomic status factors (occupational status and housing status) *(328)(333)*, we do not report this data. Studies did not report the disability status or sexuality of participants, or whether participants lived in major cities.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect equity evidence in relation to cognitive rehabilitation for Aboriginal and Torres Strait Islander peoples.

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Considerations for people from culturally and linguistically diverse backgrounds

Language barriers, including language reversion, may make it difficult for people living with dementia from culturally and linguistically diverse backgrounds to communicate their personal goals and form a therapeutic relationship with the cognitive rehabilitation therapist. Previous negative experiences in accessing and using dementia services due to racial discrimination, and feeling misunderstood or neglected by healthcare providers, may also mean people living with dementia from culturally and linguistically diverse backgrounds and their carers are less likely to engage with cognitive rehabilitation *(303)(1280)*. Later diagnosis may mean that people from culturally and linguistically diverse backgrounds with greater cognitive and functional loss are not as able to engage with and benefit from cognitive rehabilitation. Feasibility of the intervention in culturally and linguistically diverse groups may also be affected by the availability of and resourcing for interpreters. However the individualised approach to cognitive rehabilitation does align with the expressed need of people living with dementia from culturally and linguistically diverse backgrounds for personalised services *(303)*, and could potentially support culturally appropriate tailoring.

Considerations for LGBTQIA+ people

Cognitive rehabilitation may be less effective for people living with dementia without a carer to facilitate between-session practice and support maintenance of the techniques post-intervention. The feasibility of cognitive rehabilitation for some LGBTQIA+ people may be improved by recognising and actively engaging carer support outside of the family of origin. Cognitive rehabilitation is delivered in the home, and relies on a close therapeutic relationship between both the person living with dementia and their carer. This may expose LGBTQIA+ people's sexual and/or gender identity in a way that is not of their choosing. Older LGBT+ people have higher rates of cognitive impairment compared to other people *(1090)*. Effective and accessible implementation of cognitive rehabilitation has the potential to have a greater impact on health outcomes for this priority population group and reduce health inequity for LBGTQIA+ people.

Considerations for people with disability

We did not identify studies that provided direct or indirect equity evidence in relation to cognitive rehabilitation for people with disability.

Considerations for people living with younger onset dementia

People who live in rural and remote areas with younger onset dementia are more likely to receive care from primary care physicians, suggesting that clinician training or consultative guidance to primary care clinicians may be needed to overcome neuroscience workforce deficiencies in rural areas *(1281)*.

Considerations for people living outside major cities

The cost to access services often includes travel costs, which makes the intervention prohibitively expensive for those living outside major cities.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- Inequity for cognitive rehabilitation is present in the ability to meet personal costs.
- Inequity exists in terms of access to clinicians trained in cognitive rehabilitation in both metropolitan and non-metropolitan areas, and amplified for the latter.
- Other access considerations include physical (e.g., transport to appointments) and technology access (e.g., internet and phone services), and literacy if required to engage in cognitive rehabilitation.
- LGBTQIA+ people may limit seeking of services due to fear of discrimination, and are at risk of unsafe services due to discrimination and refusal of rehabilitation for certain activities that are relevant to LGBTQIA+ people as the clinician may not agree with that goal.
- Aboriginal and Torres Strait Islander peoples living outside metropolitan areas, if required to move for treatment, may be disconnected from all support systems. Aboriginal and Torres Strait Islander peoples are also unlikely to see care in hospital settings and residential aged care as acceptable.

Summary

Key Points

We did not identify studies that provided direct evidence examining the impact of cognitive rehabilitation as an intervention on health equity for people living with dementia.

Trials have included predominantly white people from relatively high-income and non-Australian settings *(676)*.

There are several equity issues to consider for priority population groups (derived from indirect evidence in relation to dementia care in general):

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- cultural appropriateness and safety (for Aboriginal and Torres Strait Islander peoples, people from culturally and linguistically diverse backgrounds, and LGBTQIA+ people)
- access to appropriately supported mechanisms of delivery (e.g Indigenous Health workers, language translators).

Guideline Development Group discussion and judgement

The Guideline Development Group agreed that implementing cognitive rehabilitation would **probably increase** health equity.

There was variability in the Group members' judgements for this factor; however, the Group noted that including a recommendation for cognitive rehabilitation in a guideline may become a lever for policy to address potential inequities. For example, including cognitive rehabilitation as an intervention for NDIS recipients could improve health equity.

Acceptability

No important issues with the recommended alternative

Research evidence

Two trials of cognitive rehabilitation included in the systematic review by Kudlicka et al. *(676)* undertook post-trial interviews with participants; participation and engagement were found to be high in both trials. The key finding from one of the trials *(308)* was that the intervention was mostly well- received and participants gave little negative feedback.

People living with dementia and carers

People living with dementia and carers valued the person-centred, individualised and adaptive approach of cognitive rehabilitation *(1234)*. The home-based visits by the therapist were seen as an important opportunity to receive education about dementia, as well as information and resources to help with daily functioning. Perceptions

of the intervention's success were dependent on people's views of change in dementia symptoms, and the level of cognitive impact.

People living with dementia

People living with dementia also appreciated the gains in confidence, the ability to make more decisions for themselves, and an improved outlook beyond any functional gains *(1234)*.

People living with dementia tended to focus more on the relational and emotional impacts of cognitive rehabilitation, although this emphasis may have been due to difficulty with recalling specific therapy goals and associated functional gains. People living with dementia highly valued the social support aspect of the therapist visits, which helped reduce anxiety, social isolation and stigma.

Carers

Carers were more likely to see cognitive rehabilitation as limited by the progressive nature of dementia and were concerned that any gains due to cognitive rehabilitation would be 'undone' by future deterioration *(1234)*. Carers were also more likely to emphasise the helpful aspects of cognitive rehabilitation and how it had benefited their everyday lives.

The findings from the GREAT RCT and DESCANT RCT qualitative evaluations are supported by a discrete choice experiment undertaken with 44 people living with early-stage dementia and 103 carers *(331)*. Participants were asked to rate their preferences for different attributes of home support services for people living with dementia and their carers. The most preferred components for people living with dementia and their carers were support with personal feelings and concerns (by a trained counsellor at home), and information on coping with dementia by an experienced worker in the home. People living with dementia also ranked opportunities for social and recreational activities highly. Given the choice, both people living with dementia and carers preferred services to be provided at home as opposed to via clinics or online.

Cognitive rehabilitation therapists

The DESCANT RCT *(308)* focussed on providing memory aids, training and support. Chester and colleagues (DESCANT RCT) interviewed five dementia support practitioners (DSP) about their experiences (four of the five were occupational therapists). DSPs highlighted that acceptability of cognitive rehabilitation is a key feature, as it is individualised and led by the needs and preferences of the person living with dementia and their carer(s). They valued the ability to deliver the intervention in a flexible way that adapted to the participants' changing needs. DSPs confirmed that the acceptability of cognitive rehabilitation is supported by factors additional to the aim of the intervention itself - increased social interaction for the person living with dementia, and the opportunity to discuss dementia and its impact with carers.

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Considerations for Aboriginal and Torres Strait Islander peoples

Cultural safety and a trauma-informed approach is key in devising assessments and delivering acceptable (including cognitive rehabilitation) interventions *(735)*.

Considerations for people from culturally and linguistically diverse backgrounds

Language barriers, including language reversion, may make it difficult for people living with dementia from culturally and linguistically diverse backgrounds to communicate their personal goals and form a therapeutic relationship with the cognitive rehabilitation therapist *(144)(1149)*.

Older people living with dementia from culturally and linguistically diverse backgrounds and their carers also report a lack of culturally appropriate or ethno-specific dementia services. Previous negative experiences in accessing and using dementia services due to racial discrimination, and feeling misunderstood or neglected by healthcare providers, may also mean people living with dementia from culturally and linguistically diverse backgrounds and carers are less likely to engage with cognitive rehabilitation *(303)(1280)*.

However, the individualised approach to cognitive rehabilitation does align with the expressed need of people living with dementia from culturally and linguistically diverse backgrounds for personalised services *(303)*, and could potentially support culturally appropriate tailoring.

Considerations for LGBTQIA+ people

As LGBT+ people living with dementia experience increasing cognitive decline, they may fear being no longer able to recall who they can safely disclose their sexual and/or gender identity to. Bringing formal care into the home may also place LGBT+ people in a situation that exposes their sexual and/or gender identity and forces them to decide whether to come out or not, creating stress and anxiety, and feelings of isolation *(1090)*. Cognitive rehabilitation is delivered in the home, and relies on a close therapeutic relationship between both the person

living with dementia and their carer. This may expose LGBTQIA+ people's sexual and/or gender identity in a way that is not of their choosing.

Considerations for people with disability

We did not identify studies that provided direct or indirect acceptability evidence in relation to cognitive rehabilitation for people with disability.

Considerations for people with younger onset dementia

We did not identify studies that provided direct evidence regarding the acceptability of cognitive rehabilitation for people living with younger onset dementia.

Considerations for people living outside major cities

We did not identify studies that provided direct evidence regarding the acceptability of physical rehabilitation for people living with dementia living outside major cities.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- Person-centred care, and choice and control are important and cognitive rehabilitation will not suit everyone or be acceptable to all.
- The overall benefits of cognitive rehabilitation were felt to be greater than the harms. However, the acceptability of cognitive rehabilitation needs to be considered in relation to the stage of dementia, priorities, and the preferences and needs of the person.
- Members did raise a question as to whether people delivering cognitive rehabilitation are regulated and/or trained in dementia to improve acceptability. It was noted there is no accreditation system for this training, and a register of trained personnel and referral pathways is not available.
- People living with dementia who do not have a carer or care partner see cognitive rehabilitation as important to them to maintain independence.

Summary

Key points

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- People living with dementia, their carers and those delivering the intervention generally found cognitive rehabilitation to be acceptable *(1234)*.
- UK studies suggest people living with dementia generally found cognitive rehabilitation to be acceptable. The most preferred components for people living with dementia and their carers were:
  - support with personal feelings and concerns (by a trained counsellor at home)
  - information on coping with dementia by an experienced worker in the home *(331)*
- Generally, therapy provided at home was more acceptable compared with other clinical settings *(331)*.
- In general, culturally appropriate, safe and individually tailored interventions are likely to be acceptable in priority population groups including Aboriginal and Torres Strait Islander peoples, culturally and linguistically diverse communities and others *(303)(735)*.
- Language is an important factor to consider in the delivery of interventions in non-English speaking communities for them to be considered acceptable *(144)(1149)*.

Guideline Development Group judgement and discussion

The Guideline Development Group agreed that cognitive rehabilitation was **probably acceptable** to key interest holders.

The Group noted that the views captured under Research Evidence are from those who have elected to undertake cognitive rehabilitation or be in a trial, rather than the views of the broader community. It is also possible to deliver cognitive rehabilitation without it being described as such, and the research community may have a different understanding to what is happening in the field.

Feasibility

No important issues with the recommended alternative

Research evidence

The quality of the relationships between the cognitive rehabilitation therapist, the person living with dementia and their carer/family are key to effective implementation. In particular, the engagement of the carer in the process, and

their ability to support the person living with dementia to practise strategies between cognitive rehabilitation sessions was seen as an important factor *(308)(328)*. Three of the six included studies had an identified [family] caregiver as an inclusion criterion.

The Interdisciplinary Home-based Reablement Program (I-HARP) *(618)* addresses a gap that exists in ways of providing care for people at early to moderate stages of dementia with multi-morbidities where interdisciplinary team efforts would likely have higher impacts. This program is multicomponent and involves more interventions than cognitive rehabilitation alone.

Impact on health workforce and human resources

Chester and colleagues *(308)* undertook a mixed methods review of the DESCANT RCT to assess implementation. The high level of cognitive rehabilitation therapist skills was seen as a key enabler of the intervention. Beyond specific skills in cognitive rehabilitation, knowledge and understanding of dementia (including assessment pathways, support and services), good personal and social skills and counselling skills were seen as important. Utilising occupational therapists in the cognitive rehabilitation therapist role could mean that other aspects impacting a person's function can be considered in developing personal goals and strategies.

Support requests arising from unmet needs (e.g., physical health needs requiring referral and/or case management) that were beyond the scope of the cognitive rehabilitation therapist role also placed demands on their time and ability to deliver the intervention *(308)*.

Clare et al., *(328)* also undertook an evaluation of the implementation of the GREAT RCT. Cognitive rehabilitation therapists reported that the following factors were key enablers: level of participant functioning, more recent diagnosis (participants more motivated to engage), high level of carer engagement and the quality of the therapeutic relationship with participants and carers.

A feasibility pilot was undertaken of the cognitive rehabilitation approach conducted in the GREAT RCT, in 2 NHS services in England and Wales to test translation of the trial to a real-world setting *(328)*. An initial 1 to 1.5 days of cognitive rehabilitation training was given to various social and healthcare professionals. A small number of people living with dementia and their carers participated at 2 of the 3 sites, with sessions ranging from 6 to 8 weekly sessions, and additional follow-up calls at one site. Specialist supervision and support was provided by the GREAT RCT cognitive rehabilitation therapist.

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Lessons for future implementation were to conduct shorter training sessions spread over several days, with follow-up refresher training once the cognitive rehabilitation therapists were delivering the intervention *(328)*. Staff supervision was particularly important in the earlier stages. Six to eight sessions were found to be feasible, particularly if extended from weekly to fortnightly and flexible use of telephone support. Cognitive rehabilitation therapists reported it was important to identify people living with dementia who were likely to benefit and could engage with the approach, people who had the least cognitive decline and loss of function. Time constraints, heavy workloads and staff shortages all presented challenges to implementation, and support from all management levels was required for effective and sustainable implementation.

Impact on infrastructure

The authors of a mixed methods review of the DESCANT RCT *(308)* noted that barriers to implementation were the availability of and budget for memory aids, particularly aids that needed to be individualised to the participant.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect feasibility evidence in relation to cognitive rehabilitation for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

Language barriers, including language reversion, may make it difficult for people living with dementia from culturally and linguistically diverse backgrounds to communicate their personal goals and form a therapeutic relationship with the cognitive rehabilitation therapist. Feasibility of cognitive rehabilitation for people from culturally and linguistically diverse backgrounds may be affected by the availability of and resources for interpreters.

Considerations for LGBTQIA+ people

Due to rejection and loss of family of origin relationships, some LGBT people may have less access to support and care from family of origin. A strength of the LGBT community is developing support networks and communities outside of their families of origin *(480)*. The feasibility of cognitive rehabilitation for some LGBTQIA+ people may be improved by actively engaging carer support outside of the family network.

Considerations for people living with younger onset dementia

People with younger onset dementia contend with delays in diagnosis and difficulty navigating the complex health, aged and disability care systems, while often also caring for or supporting children or young people. Improved access to appropriate post-diagnosis care can have important benefits for improving function and quality of life *(740)*.

For people living with younger onset dementia, cognitive rehabilitation can become more important, particularly the social and peer support that it can involve. People living with younger onset dementia often cannot participate in groups that are designed for older people. People living with younger onset dementia are excluded due to age, and may have limited time to participate because of parenting responsibilities.

People living with younger onset dementia often are carers themselves, and need to navigate how to remain in employment, and how to access NDIS services *(637)*.

Diagnostic and therapeutic management services are not set up for people living with younger onset dementia. Multiple specialists are often required, and these services may not be age appropriate or connected. There are few settings that are set up to assess and manage people living with younger onset dementia. Residential aged care is complicated for people living with younger onset dementia *(739)*.

People diagnosed with younger onset dementia often have loss of earnings before diagnosis. Early diagnosis and robust social support systems are vital to alleviate the financial and professional challenges faced by individuals with dementia under age 65 *(285)*.

Considerations for people living with disability

Utilising occupational therapists in the cognitive rehabilitation therapist role could mean that other aspects impacting on a person's function can be effectively considered in developing personal goals and strategies. This may have implications for the feasibility of cognitive rehabilitation for people living with disability.

Considerations for people living outside major cities

People living outside major cities may not have access to a service or support, and there are significant workforce shortages in regional areas.

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Additional considerations

Input from the External Interest Holder Organisation (EIHO) Feasibility Survey

- Interdisciplinary care is an important enabler
- Important barriers include skilled workforce shortage (particularly in rural and remote areas), costs, lack of knowledge about dementia for the rehabilitation workforce and related stigma for people living with dementia
- Sustainability of services would need to be considered by developing implementation frameworks, creating funding mechanisms, targeting of services and efficient referral pathways, technology supported delivery

External Interest Holder Organisation highlighted the need to increase the knowledge base of cognitive rehabilitation within healthcare teams through education and training and suggested:

- Introducing cognitive rehabilitation as part of lifestyle and or allied health roles could enhance meaningful engagement and have an impact on older persons' wellbeing potentially reducing changed behaviours, depression.

Summary

Key Points

- Some UK-based studies provide evidence on factors that improve feasibility, including the:
  - quality of the relationships between therapist, person living with dementia and their carer *(308)(328)*
  - engagement of the carer in the process and their ability to support the person living with dementia *(328)*
  - high level of therapist skill, and their knowledge in dementia *(308)*
  - appropriate selection of people with lower severity of dementia *(328)*
  - adequacy of time and supporting resources such as therapy aids *(328)*.
- People living with younger onset dementia may have unique challenges - contending with delays in diagnosis and difficulty navigating the complex health, aged and disability care systems, while often also caring for or supporting children or young people *(740)*.
- People from culturally and linguistically diverse backgrounds may require additional resources such as interpreter services, culturally appropriate delivery.
- Aboriginal and Torres Strait Islander peoples may require culturally safe and appropriate delivery by preferably Indigenous Health Workers.

- Health care workers may require training to deliver safe and appropriate care for LGBTQIA+ people, which is often in the home.
- Feasibility may be limited for people living outside major cities.

Guideline Development Group judgement and discussion

The Guideline Development Group agreed that cognitive rehabilitation was **probably feasible** to implement.

Rationale

The Guideline Development Group judged that:

- cognitive rehabilitation resulted in moderate desirable effects and trivial undesirable effects, with low certainty evidence.
- There was possibly important variability in how much people living with dementia valued the desirable and undesirable effects, and the balance effects probably favoured use of cognitive rehabilitation
- Cognitive rehabilitation is associated with moderate costs, but probably increases equity.
- Cognitive rehabilitation is probably acceptable and probably feasible.

The Group agreed that the Evidence to Decision framework factors all favoured cognitive rehabilitation, except for costs. Given the variability of values of people living with dementia, and the low certainty of the evidence for cognitive rehabilitation, the Group agreed to make a conditional recommendation for cognitive rehabilitation.

Clinical question/ PICO

Population: people with mild to moderate dementia
Intervention: Cognitive rehabilitation
Comparator: Inactive control (end of treatment)

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Outcome Timeframe	**Study results and measurements**	**Comparator** Inactive control (end of treatment)	**Intervention** Cognitive rehabilitation	**Certainty of the evidence** (Quality of evidence)	**Summary**
Goal of the person living with dementia (performance) 9 Critical	Measured by: Bangor Goal-Setting Interview (BGSI); Canadian Occupational Performance Measure (COPM); Direct Measure of Training (DMT) Based on data from 518 participants in 4 studies. (Randomized controlled)	Difference:	**SMD 1.48 higher** (CI 95% 1.28 higher — 1.67 higher)	**High** [1]	Cognitive rehabilitation results in a large increase in the ability to engage in and carry out the activities that are meaningful and important to the person living with dementia. (Threshold for an important effect: SMD 0.4)
Functional ability & participation - overall 9 Critical	Measured by: Bayer Activities of Daily Living Scale (BADLS); Disability Assessment for Dementia (DAD) Based on data from 673 participants in 3 studies. (Randomized controlled)	Difference:	**SMD 0.05 higher** (CI 95% 0.1 lower — 0.2 higher)	**Moderate** Due to serious risk of bias [2]	Cognitive rehabilitation probably results in little to no difference in functional ability and participation of the person living with dementia. (Threshold for an important effect: SMD 0.4)
Health-related quality of life of the person with	Measured by: Dementia Quality of Life (DQoL), Quality of Life in	Difference:	**SMD 0.06 lower** (CI 95% 0.23 lower — 0.12 higher)	**High** [3]	Cognitive rehabilitation results in little to no difference in the health-

Outcome Timeframe	**Study results and measurements**	**Comparator** Inactive control (end of treatment)	**Intervention** Cognitive rehabilitation	**Certainty of the evidence** (Quality of evidence)	**Summary**
dementia 9 Critical	Alzheimer's Disease (QoL-AD), Dementia-Related Quality of Life (DEMQOL), World Health Organization Quality of Life (WHOQoL) Based on data from 853 participants in 5 studies. (Randomized controlled)				related quality of life of the person with dementia. (Threshold for an important effect: SMD 0.4)
Health-related quality of life of the carer 9 Critical	Measured by: Assessed with: World Health Organization Quality of Life (WHOQOL-BREF) Scale: 0 — 100 Based on data from 464 participants in 3 studies. (Randomized controlled)	Difference:	**SMD 0.18 higher** (CI 95% 0 higher — 0.36 higher)	**Low** 4	Cognitive rehabilitation may result in little to no difference in the health-related quality of life of the carer. (Threshold for an important effect: SMD 0.4)
Cognitive function - global 6 Important					No studies reported results suitable for meta-analysis for global cognitive function of the person living with dementia. (Threshold for an important effect: SMD 0.4)
Cognitive function - specific 6 Important	Measured by: Memory was selected as the best available measure from the included studies. Assessed with: Rivermead Behavioral Memory Test - Second Edition (RMBT-II) - overall score, delayed recall score Based on data from 517 participants in 4 studies. (Randomized controlled)	Difference:	**SMD 0.04 higher** (CI 95% 0.26 lower — 0.34 higher)	**High** 5	Cognitive rehabilitation results in little to no difference in memory, however we are uncertain about the effect on other cognitive function domains. (Threshold for an important effect: SMD 0.4)
Functional ability - physical - specific 6 Important					No studies reported on physical function of the person living with dementia.
Behavioural and psychological symptoms - overall	Measured by: Neuropsychiatric Inventory (NPI) - overall score Scale: 0 — 144	Difference:	**SMD 0.16 lower** (CI 95% 0.39 lower — 0.06 higher)	**Low** Due to very serious risk of bias [6]	Cognitive rehabilitation may have little to no effect on overall behavioural and psychological symptoms.

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Outcome Timeframe	**Study results and measurements**	**Comparator** Inactive control (end of treatment)	**Intervention** Cognitive rehabilitation	**Certainty of the evidence** (Quality of evidence)	**Summary**
6 Important	Based on data from 302 participants in 2 studies. (Randomized controlled)	Difference:	**SMD 0.11 lower** (CI 95% 0.28 lower — 0.07 higher)		(Threshold for an important effect: SMD 0.4)
Behavioural and psychological symptoms - specific 6 Important	Measured by: Anxiety was selected as the best available measure from the included studies. Assessed with: Hospital Anxiety and Depression Scale (HADS) - anxiety subscale Scale: 0 — 21 Based on data from 500 participants in 3 studies. (Randomized controlled)			**High** 7	Cognitive rehabilitation results in little to no difference in anxiety, however we are uncertain about the effect on other behavioural and psychological symptoms of dementia. (Threshold for an important effect: SMD 0.4)
Experience and satisfaction of the person living with dementia 6 Important					No studies reported on the experience and satisfaction of the person living with dementia. (Threshold for an important effect: SMD 0.4)
Adverse events 6 Important					No studies reported on adverse events.

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1, 3, 5, 7. **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.** No eligible ongoing or unpublished studies (based on register search Oct 2022 and follow-up of unpublished studies in Mar 2025); unable to formally assess risk given small number of included studies; extent of concerns re publication bias may be underestimated.
2. **Risk of Bias: serious.** Serious risk of bias (-1). 55.1% of the data in this analysis comes from a study at high risk of bias (unblinded carers completed the assessments). **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.** No eligible ongoing or unpublished studies (based on register search Oct 2022 and follow-up of unpublished studies in Mar 2025); unable to formally assess risk given small number of included studies; extent of concerns re publication bias may be underestimated.
4. **Risk of Bias: very serious.** 100% of the data in this analysis comes from studies at high risk of bias. Unblinded carers completed the self-reports.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.** No eligible ongoing or unpublished studies (based on register search Oct 2022 and follow-up of unpublished studies in Mar 2025); unable to formally assess risk given small number of included studies; extent of concerns re publication bias may be underestimated.
6. **Risk of Bias: very serious.** Very serious RoB (-2). 100% of the data in this analysis comes from two studies at high risk of bias. Unblinded carers responded.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.** No eligible ongoing or unpublished studies (based on register search Oct 2022 and follow-up of unpublished studies in Mar 2025); unable to formally assess risk given small number of included studies; extent of concerns re publication bias may be underestimated.

Practice Statement

Good practice statement 4
Before undertaking cognitive rehabilitation with people living with mild to moderate dementia, conduct a comprehensive assessment to identify and manage relevant and medically reversible conditions that may present barriers (e.g. untreated medical problems, adverse drug reactions, delirium, vision/hearing impairments).

Good practice statement 5
For people living with mild to moderate dementia, cognitive rehabilitation may be used in conjunction with other rehabilitation interventions such as cognitive stimulation and physical rehabilitation to achieve personal goals, based on individualised assessment and consideration of personal preferences.

Rationale

The good practice statements were developed to emphasise essential principles of cognitive rehabilitation for people living with dementi

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9.2 Interventions supporting interpersonal communication about end of life care

What is palliative care

Palliative care is person and family-centred care provided for a person with an active, progressive, advanced disease, who has little or no prospect of cure and who is expected to die, and for whom the primary goal is to optimise the quality of life. End of life is the period of time in which a person is living with a palliative condition, and this period can be uncertain ranging from hours/days in acute conditions to years in more chronic conditions *(132)*. In Australian health policy, the definition often used for the period when a person is approaching end of life is when they are expected to die in the next 12 months.

Palliative care helps people live their life as fully and as comfortably as possible when living with a life-limiting or terminal illness.

Palliative care identifies and treats symptoms which may be physical, emotional, spiritual or social. Because palliative care is based on individual needs, the services offered will differ but may include:

- Relief of pain and other symptoms
- Support for emotional, social and spiritual concerns
- Assistance for families to come together to talk about sensitive issues
- Planning for future medical treatment decisions and goals of care
- Links to other services such as home help, respite, equipment and financial support
- Support for people to meet cultural obligations
- Counselling and grief support

End of Life Care and communication

Communication is an essential pillar to high quality care at the end of life as it supports understanding a person's preferences and values, goals of care, to support shared decision-making. Communication about end of life (EoL) ideally occurs at many points during a person's illness, and may involve family, loved ones and multidisciplinary professionals and care staff depending on a person's preference and needs. It plays a role in supporting understanding of what is happening and what may happen in the future, what their options are, to ask questions and receive support and to be involved in shared decision-making about care and planning for the future as much as they wish to be *(1004)*.

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Providing high-quality care for people living with dementia has its unique challenges. In contrast to cancer, where the prognosis can be generally estimated based on disease stage and response to therapy, the course of dementia is far more variable and the EoL phase may be difficult to identify *(473)(959)*. People living with dementia do not always get appropriate access to EoL and palliative care and are often unable to verbally express their preferences for care as their illness progresses *(473)*.

Australian data highlight this gap: the Australian National Report on Patient Outcomes in Palliative Care (2023) *(663)*, reported that only 5% of people referred to a specialist palliative care service from July to December 2022 had a dementia diagnosis, despite dementia being the leading cause of death in Australia (AIHW 2024 figures). Although there are examples of effective palliative care services for people living with dementia internationally, most people living with dementia still die without receiving palliative support, whether they are in residential aged care facilities, hospital, or at home *(1219)*.

EoL decision-making is complex, multifaceted and highly personal, shaped by individual, family, and setting-specific factors *(1269)*. Studies exploring carers' experiences of dementia care highlight the need for:

- good communication between families and care providers
- better coordination of care across settings
- improved recognition of when a person living with dementia is nearing the end of life *(1155)*.

In an Australian mixed-methods study *(1166)*, the authors identified several priorities for improving end-of-life dementia care. Across surveys, interviews, and workshops, participants emphasised:

- the need for timely recognition of end of life
- earlier and clearer conversations about the progressive and terminal nature of dementia; and
- better information and support for people living with dementia and their carers.

A person- and carer-centred approach, supported by effective communication, shared decision-making, and multidisciplinary involvement, was viewed as essential *(1166)*. This work reinforces that how EoL information is communicated and when these conversations occur, are central elements of quality care.

As palliative care aims to support quality of life aligned with patient preferences, it is important that EoL care conversations are initiated early in the course of dementia, when a person can still participate in discussions about their values and preferences *(1166)(1268)*. However, the amount and type of information needed by patients varies. Some people living with dementia and their family members are reluctant to talk about end of life, while others actively seek detailed information and opportunities to plan.

Emotional and psychological factors also influence communication. Anxiety, denial and fear of losing hope are common barriers to discussing the aims of care in the setting of serious illness *(221)*. Clinicians therefore need to assess a person's readiness, respond to emotional cues and tailor the timing and depth of these conversations. High-quality EoL communication requires not only accurate information, but also sensitive interpersonal skills, an understanding of the person's values and context, and an approach that supports shared decision-making over time.

These challenges provide the context for considering whether interpersonal communication interventions can improve EoL conversations between health practitioners and people living with dementia.

What are End of Life communication interventions?

For the purposes of this document, EoL interpersonal communication interventions are defined as "planned interaction provided by health practitioners to communicate with people about EoL and provision of EoL care" *(1004)*. These interventions are specifically designed to improve EoL verbal communication and provide more effective general communication between practitioners and the people directly affected by EoL and EoL care.

Interventions to improve communication may be most effective if they target both doctors and persons living with a life-limiting illness *(1211)*. There is growing evidence for patient-targeted communication interventions, such as question prompt lists, to enhance patient communication in the palliative care setting *(333)(1211)*. Family conference interventions may increase the length and depth of end-of-life conversations in some situations, and a structured serious illness conversation guide might lead to earlier discussions between patients, family carers and health professionals *(1004)*.

Advanced Care Planning (ACP) is an ongoing communication process involving patients, families and their healthcare providers, and has evolved from focusing mainly on documenting end-of-life treatment instructions to supporting patients and families in preparing for future care that aligns with their preferences, values and needs *(668)(1117)(1268)*. ACP is widely accepted as a key component of palliative care, with a key component of interpersonal communication *(380)*. It is important to recognise that communication at the end of life is a continuum with ideally earlier conversation focussed on understanding values and preferences, and wishes for future care, which is revisited at critical points; which then continues to conversations and clinical care planning as care needs increase and clinical issues arise where decisions need to be made.

There is lower uptake of ACP in older people living with dementia and they are at an increased risk of receiving potentially burdensome care at the end of life *(682)(1269)*. There are unique barriers in initiating ACP conversations with people living with dementia, which include failure in acknowledging dementia as a life-limiting illness; the potential for loss of decision-making capacity early on in the illness trajectory; a lack of knowledge of the course of dementia (prognostication); lack of confidence in care professionals in starting discussions with people diagnosed with dementia and finally the failure to facilitate ongoing iterative discussion *(546)*. ACP programs that include interpersonal communication components have the potential to improve communication between patients and healthcare professionals, and increase the quality of life and well-being of patients and their relatives *(668)*. These communication-based elements of ACP are therefore directly relevant to the current question on the use of interpersonal communication interventions to improve EoL care conversations for people living with dementia.

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It is important to note that much of the available literature on EoL communication is embedded within ACP or structured decision-making interventions. As highlighted by Ryan et al. *(1004)*, the broader body of research on communication skills training, decision aids and ACP is very substantial, and disentangling the specific effects of interpersonal communication alone is methodologically challenging. For this reason, while ACP studies are drawn upon where they include explicit interpersonal communication components, the focus of this evidence review is on interventions that directly target communication processes, rather than on ACP as a stand-alone policy or documentation framework.

Question 12

Should interventions for interpersonal communication about end-of-life care between health professionals and people living with dementia and/or their carers (versus usual care) be used for people living with dementia?

Conditional recommendation for , Very low certainty evidence

Recommendation 12
Consider using interventions to support interpersonal end of life care communication for a person living with dementia, based on the value placed on planning for end-of-life care.

Remarks

Structured interventions for end of life care are ideally considered early during the course of dementia, and revisited often as the person's needs and preferences change.

End of life care communication interventions considered in the evidence review included:

- *facilitated case conferencing*
- *question prompt lists*
- *tailored communication guides*
- *general communication guides*
- *structured advance care planning.*

Clinical expertise is required to inform the decision of whether the use of end of life care communication is appropriate for a person living with dementia.

Be aware that people may have different understanding, priorities and expectations of end of life care.

Simple tools (e.g., question prompt lists) may be less resource intensive to apply in practice and may be more easily adapted to different contexts (e.g., translated into different languages to support communication with people from culturally and linguistically diverse backgrounds).

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Practical info

Ensure the person living with dementia, and where appropriate their carer, is ready, willing and supported to engage in end of life care discussions tailored to their understanding, expectations and priorities.

Encourage the person living with dementia to be involved in shared decision-making as much as they wish to be, and depending on a person's preference and needs, involve carers and other healthcare providers.

Useful resources

Advance Care Planning Australia

Care search

Dementia Australia: Planning ahead

Evidence to decision

Benefits and harms

Small net benefit, or little difference between alternatives

Research evidence
Desirable effects (benefits)

Interpersonal communication interventions compared to no interpersonal communication interventions resulted in an increase in the occurrence of EoL care discussions [important].

Interventions for this outcome were tailored or general communication guides delivered before or during consultations (5 studies) or structured advance care planning (2 studies one-off sessions and 1 study a 5-visit program).

Interpersonal communication interventions compared to no interpersonal communication interventions had **little to no (trivial) effect** on:

- knowledge and understanding (information needs, information preferences, shared understanding) [critical]
- evaluation of communication (quality of communication, patient-centred communication, preferences for involvement, satisfaction with consultation, doctor-patient relationship) [critical]
- quality of EoL care and concordance with patient preferences [critical]
- patient quality of life [critical]
- carer quality of life [important]
- health practitioner outcomes (evaluation of communication) [important].

Interpretation of results:

Our interpretation for continuous outcomes is based on a threshold for:

- a small but important effect of 0.4 Standardised Mean Difference (SMD)
- a moderate effect of 0.7 SMD.

For dichotomous outcomes, results are reported as an Absolute Risk Difference (ARD), and the thresholds used to determine a minimum important difference are:

- Knowledge & understanding - 5 per 100 (5% ARD)
- End-of-life care discussions (occurrence) - 10 per 100 (10% ARD).

Undesirable effects (harms)

Interpersonal communication interventions compared to no interpersonal communication interventions had **little to no (trivial) effect** on adverse outcomes (anxiety within 4 weeks of consultation) [critical].

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There were **no undesirable effects** of interpersonal communication interventions on any of the other prioritised outcomes for which data were available.

Summary

Balance of effects: Guideline Development Group judgement and discussion

To decide on the balance of effects, the Guideline Development Group initially considered and made separate judgements about:

- the size of desirable anticipated effects (benefit) – **small**
- the size of undesirable anticipated effects (harm) – **trivial**
- the overall certainty of the evidence for critical outcomes – **very low**
- whether there is important variability (or uncertainty) in how much people value the main outcomes – **possibility important uncertainty or variability**.

The Group decided that the balance of effects probably favoured the intervention for interpersonal communication about EoL care.

The Group agreed that conversations about EoL care were important and valued by people living with dementia, that EoL care conversations are more likely to occur with these interventions, and there were no important harms as a result of these interventions. The decision about recommending for or against interventions to support this communication might depend on the type of intervention (e.g., simple or complex; low- or high-resource) and considerations about recommending low-value care in the context of scarce healthcare resources. It was also noted that there is considerable uncertainty about how these interventions could be adapted for use with people with cognitive impairment or dementia.

Group members noted the need for future research in this area, given the lack of evidence of effectiveness in general, and the lack of evidence from people living with dementia. It was also agreed that further research was required about the characteristics of EoL communication and tools or strategies that may lead to an improvement in the communication about EoL care, as well as the importance of different outcomes to people living with dementia at different timepoints at end-of-life.

Desirable effects (benefits): Guideline Development Group judgement and discussion

The Guideline Development Group judged the desirable anticipated effects to be **small**.

Some members noted that the large increase in the occurrence of EoL discussions (moderate certainty evidence), although an important, and not critical outcome, factored into their consideration that the overall desirable effects were not trivial. It was noted that neither of the two studies in people living with dementia were included in the analysis for this outcome, however one of the eight studies was in people with cognitive impairment, of which ~50% had a dementia diagnosis. It was seen as important to have EoL care discussions, with qualitative interviews suggesting that people living with dementia are often not offered these conversations. This statement was supported by a Living/Lived Experience Advisory Group member. Other members said that the evidence showing little to no difference in the effectiveness of the interventions on the majority of the outcomes weighted their decision towards overall judging the desirable anticipated effects to be trivial.

Undesirable effects (harms): Guideline Development Group judgement and discussion

The Guideline Development Group considered the undesirable anticipated effects to be **trivial** based on the evidence that the interventions did not worsen anxiety within 4 weeks of consultation, and there were no undesirable effects on any of the other prioritised outcomes.

Certainty of the evidence

Very low

Research evidence

The overall certainty of the evidence of effects was judged to be very low, based on the lowest level of certainty of the critical outcomes below.

Low certainty:

- adverse outcomes (anxiety within 4 weeks of consultation)
- patient quality of life .

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Very low certainty:

- knowledge & understanding
- evaluation of communication
- quality of EoL care & concordance with patient preferences.

Summary

The overall certainty of the body of evidence for this question was considered to be very low.

Values and preferences

Substantial variability is expected or uncertain

Research evidence

General considerations

We did not identify direct evidence on how people living with dementia, and their families, value the outcomes of interpersonal EoL communication interventions.

Indirect evidence suggests that preferences for participating in EoL communication discussions, as well as the type and amount of information discussed, may change over time as dementia progresses. The value placed on outcomes of interpersonal communication interventions may therefore differ depending on disease stage and context, reinforcing the importance of flexibility in how EoL communication discussions are offered. Individual, cultural and societal beliefs can shape how a person communicates, shares information and makes decisions. Different values may be placed on individual choice versus collective decision-making, and the preferences and views about the amount and nature of information about the persons' illnesses that should be shared with them *(512)*.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct evidence about how Aboriginal and Torres Strait Islander peoples value the main outcomes of interpersonal communication interventions for EoL care. There are some learnings from Indigenous-led and co-designed advance care planning models where values considered focussed on importance of kinship, country, passing on culture to future generations and keeping families strong *(47)*.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct evidence about how people from culturally and linguistically diverse backgrounds value the main outcomes of interpersonal communication interventions for EoL care.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct evidence about how LGBTQIA+ people value the main outcomes of interpersonal communication interventions for EoL care.

Considerations for people living with Younger Onset Dementia

We did not identify studies that provided direct evidence about how people living with younger onset dementia value the main outcomes of interpersonal communication interventions for EoL care.

Considerations for people living with disability

We did not identify studies that provided direct evidence about how people living with disability value the main outcomes of interpersonal communication interventions for EoL care.

Considerations for people living outside major cities

We did not identify studies that provided direct evidence about how people living outside major cities value the main outcomes of interpersonal communication interventions for EoL care.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- The Living/Lived Experience Advisory Group emphasised the importance of patient preferences "It should not be what we [family] want, it should be more about what the person living with dementia wants." Structured conversations are important but it is about who gets to make the decisions. This point was followed closely by the importance of carer decisions as they will often advocate for the person living with dementia "the person living with dementia and their carers' decisions should be the most important one." It was expressed by one Living/Lived Experience Advisory Group member that they felt carers have been forgotten in end-of-life communications. [Quality of EoL care and concordance with patient preferences]
- End-of-life care discussions should occur early, be ongoing, both formal and informal, and change according to where the person living with dementia and carers/family is at. It was also noted that these conversations should be encouraged early in life prior to receiving a diagnosis even if preferences may change. [Occurrence of EoL care discussions]
- Important to support carer QoL where possible, e.g., through additional support and advocacy
- Shared knowledge and understanding is valued, and can mitigate negative impacts on levels of distress, QoL and quality of communication

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Summary

Key points

- We did not identify direct evidence on how people living with dementia, and their families, value the outcomes of interpersonal EoL communication interventions either generally or for specific priority population groups.
- There is likely important variability in how the outcomes of interpersonal communication interventions about EoL care are valued.
- This variability is particularly relevant in dementia due to differences in disease stage, decision-making capacity, emotional readiness, and personal, cultural, and social context.

Guideline Development Group judgement and discussion

The majority of the Guideline Development Group judged there to be possibly important variability or uncertainty in how much people receiving the interventions valued the main outcomes.

Resources

Important issues, or potential issues not investigated

Research evidence

General considerations

Evidence on resource requirements associated with interpersonal communication interventions for EoL care discussions is limited. The Cochrane review by Ryan et al. *(1004)* reports that some interpersonal communication interventions may slightly increase consultation length, indicating a potential increase in clinician time required. However, evidence on other resource implications, including impacts on

hospital admissions, service use, or costs, is unclear or insufficient. The review did not include formal economic evaluations, and most trials were not designed to assess resource use or cost-effectiveness.

Our update of this review resulted in similar findings, however, it is reasonable to assume that interventions such as a single-page Question Prompt list would be less resource intensive than multi-component communication interventions that encompass system-level changes. Most of the included interventions had a limited time period, and for any one individual there may be multiple interventions and conversations serving different purposes and needs at various points in the illness trajectory. This implies the resource need is cumulative, including the resources needed for coordination and cross-communication over time of the outcomes of these conversations and between settings and health professionals.

Supporting evidence from the included trials:

- In an Australian study evaluating facilitated case conferencing in participants with advanced dementia, administrative resources were required to coordinate all parties attending the case conference (general practitioner, interdisciplinary clinician, person living with dementia and/or family/substitute decision-maker), as well as the healthcare professionals required to undertake a participant review prior to the case conference. The key elements of the intervention required a registered nurse to facilitate them, including managing the pre-defined clinical triggers for a case conference and the shared agenda-setting model, and preparing a communication strategy summarising actions and plans arising from the case conference *(83)*
- In one US study among people with advanced cancer, delivery of the nurse-led communication support program required existing nursing staff to complete approximately 40 hours of structured training to deliver the intervention, including a face-to-face session and a follow-up telephone booster. The manualised nature of the intervention and use of existing clinical staff were identified as factors that may support implementation in clinical practice, although resource requirements for training and delivery remain considerations (*(1211)*
- In a US study evaluating a system-level communication intervention, higher-quality and more frequent serious illness conversations were documented earlier in the intervention group. These findings were considered transferable to other clinical contexts treating patients with advanced cancer, while recognising that the intervention components may require substantial organisational resources *(200)*. This likely reflects the system-level nature of the intervention, which involved clinician tools, training with follow-up coaching, and embedded system changes, in contrast to simpler communication interventions such as Question Prompt Lists.

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Resource requirements

Resource	Description
Staff	• Health professionals with knowledge in working with people living with dementia, palliative and EoL care
Training	• Training will be dependent on the type of intervention (single v multi component). For example, the use of a Question Prompt List would require less training than an intervention such as a Facilitated Case Conference or Structured Advanced Care Planning that involves multiple components. • The longest reported training for clinicians was 40 hours for a multi-component intervention. • Some single component interventions did not require clinicians to receive formal training. Alternatively, clinicians received prompts and email alerts as reminders to use a communication intervention such as a Question Prompt List.
Supplies [medical supplies]	• Not required
Equipment and infrastructure	• Some interventions that include the use of Electronic Health Records or patient questionnaires to generate Tailored Communication Interventions may require infrastructure changes. • Some multi-component interventions that involve system or organisational changes may require changes to information technology infrastructure.
Time	• Most interventions were designed to be provided as a once-off intervention (e.g., delivered during or immediately before single consultations that ranged from approximately 30 to 90 mins). • Some interventions involved multiple sessions, with the longest reported time period of 5 sessions over 20 weeks.
Supervision and monitoring	• Multi-component interventions, or those that are conducted over multiple sessions may require more supervision and monitoring than single component or those provided as once-off interventions.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct evidence about the resources required for interpersonal communication interventions for EoL care for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse (CALD) backgrounds

We did not identify studies that provided direct evidence about the resources required for interpersonal communication interventions for EoL care for people from CALD backgrounds.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct evidence about the resources required for interpersonal communication interventions for EoL care for LGBTQIA+ people.

Considerations for people living with Younger Onset Dementia

We did not identify studies that provided direct evidence about the resources required for interpersonal communication interventions for EoL care for people living with younger onset dementia.

Considerations for people living with disability

We did not identify studies that provided direct evidence about the resources required for interpersonal communication interventions for EoL care for people living with disability.

Considerations for people living outside major cities

We did not identify studies that provided direct evidence about the resources required for interpersonal communication interventions for EoL care for people living outside major cities.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- The Living/Lived Experience Advisory Group emphasised the personal cost of time, energy, and emotional labour required to engage in these discussions, and the frustration when they do not result in dignified end-of-life care.
- There was strong agreement that meaningful training is needed for all health and aged-care staff, not just those already interested in palliative care, and that training must be practical, multimodal, and grounded in real stories.
- Many reflected on the deep bonds between residents and staff in residential aged care, noting that grief among paid carers is often overlooked and should be acknowledged and supported.
- Examples of respectful practices, such as processions or rituals after a resident dies, were seen as positive cultural shifts.

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Summary

Key points

- We did not identify studies that directly measured resource requirements.
- Evidence on the resource requirements of interpersonal communication interventions for end-of-life care is limited. We did not identify studies that directly measured resource requirements.
- Available indirect evidence suggests that simpler interventions that are not tailored to individual values and preferences (e.g., Question Prompt Lists) are likely to be less resource intensive than multi-component or system-level communication interventions that require clinician training, follow-up support, and organisational or system changes.

Guideline Development Group judgement and discussion

The Guideline Development Group judged that the resource requirements for interventions for interpersonal communication about EoL care varied.

Group members noted that while there is important variability in cost, meaningful systemic implementation would come at a cost, including training time, even if the tool was simple. The Group felt that an intervention that was less resource intense may be suitable, but interventions that were more resource intense may be harder to justify. It was also noted that the opportunity cost of implementing these interventions in low-resource environments may decrease health equity if resources were directed away from higher-value care.

Equity

Important issues, or potential issues not investigated

Research evidence

General considerations

Across the included studies, explicit consideration of equity was limited, with few trials reporting how communication interventions may differentially affect populations based on language, health literacy, education, geography, or access

to technology. Equity-related issues were more often discussed indirectly or in narrative terms rather than being systematically assessed as part of study outcomes. As a result, conclusions regarding equity rely on a small number of studies that provide contextual or illustrative insights rather than comprehensive evidence across settings.

Indirect evidence from the included trials:

- In a trial evaluating a communication technology-based intervention in people with cognitive impairment, the authors emphasised that their findings contribute to a broader body of work highlighting the importance of equity considerations such as flexibility and tailoring in the deployment of communication technologies. These considerations were described as important for addressing barriers related to language, geography, literacy, and access to technology, particularly for older adults and people living with cognitive impairment *(1269)*.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct evidence about the impact of interpersonal communication interventions for EoL care on health equity for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse (CALD) backgrounds

We did not identify studies that provided direct evidence about the impact of interpersonal communication interventions for EoL care on health equity for people with CALD backgrounds.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct evidence about the impact of interpersonal communication interventions for EoL care on health equity for LGBTQIA+ people.

Considerations for people living with Younger Onset Dementia

We did not identify studies that provided direct evidence about the impact of interpersonal communication interventions for EoL care on health equity for people living with younger onset dementia.

Considerations for people living with disability

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We did not identify studies that provided direct evidence about the impact of interpersonal communication interventions for EoL care on health equity for people living with disability.

Considerations for people living outside major cities

We did not identify studies that provided direct evidence about the impact of interpersonal communication interventions for EoL care on health equity for people living outside major cities.

However, in a United States trial evaluating a communication technology-based intervention in people with cognitive impairment, the authors emphasised that their findings contribute to a broader body of work highlighting the importance of equity considerations such as flexibility and tailoring in the deployment of communication technologies. These considerations were described as important for addressing barriers including geography, particularly for older adults and people living with cognitive impairment *(1269)*.

Additional considerations

Input from the Living/Lived Experience Advisory Group

Interpersonal communication interventions must be person-centred, accessible, and culturally appropriate but there may be challenges in terms having appropriately skilled people to deliver the interventions.

Summary

Key points

- There are no data directly examining the impact of interpersonal communication interventions for EoL care discussions on health equity for people living with dementia.
- The impact of interpersonal communication interventions on health equity is uncertain, as no studies directly assessed differential effects across population groups or structural barriers such as language, health literacy, culture, geography, disability, or access to technology.
- Indirect evidence indicates that equity impacts may depend on intervention design, particularly whether communication approaches are tailored to language, health literacy, and access needs; interventions that are not adapted may risk exacerbating inequities, while flexible, context-sensitive approaches may help mitigate them *(1269)*.

Guideline Development Group judgement and discussion

The Guideline Development Group judged that the impact of interventions for interpersonal communication about EoL care on health equity would vary.

Some Group members judged that health equity would probably be increased, while others judged that there would be no impact on health equity, or that health equity would probably be reduced.

Group members considered that people with lower levels of health literacy might particularly benefit from specific interventions (e.g., question prompt list).

Acceptability

No important issues with the recommended alternative

Research evidence

General considerations

Acceptability of EoL care communication interventions was most commonly assessed using participant-reported satisfaction, perceived usefulness, or willingness to recommend, with evidence about acceptability of these interventions reported more frequently for Question Prompt List based interventions than for other interpersonal communication types.

Supporting evidence from the included trials:

- In an Australian trial evaluating use of a Question Prompt List among people with advanced cancer, patients reported very positive views of the QPL, and most had re-read it by the 3-week follow-up. Physicians reported that the QPL did not interfere with the flow of consultations in 95% (87/92) of consultations, and in 46% (42/92) of consultations believed that the QPL made it easier for the patient or physician to raise certain issues. In post-intervention questionnaires, 12 of 13 physicians indicated that the QPL was a useful tool and would use it with future patients, although five physicians reported reservations, including concerns that some patients may not be ready to discuss end-of-life issues and that the QPL might place responsibility on patients to initiate questions *(333)*.
- In a US study among people with advanced cancer evaluating a Question Prompt List, acceptability was assessed following a single recorded follow-up consultation. Drawing on prior qualitative findings, the authors noted that patients may delay raising QPL related issues until later in the illness trajectory, suggesting that short-term assessment may underestimate the acceptability of the intervention over time *(1211)(1212)*.
- In this same study, acceptability was assessed from the patient perspective, with patients (and participating caregivers) reporting high satisfaction with the nurse-led communication support program (combining communication support with a QPL), with mean satisfaction scores ranging from 3.9 to 4.2 out of 5 across intervention components *(1211)*.
- In a US randomised clinical trial among patients with advanced cancer comparing a question prompt sheet with a general information sheet, patients reported both materials as helpful for communicating with their physician, with no significant difference in perceived helpfulness; however, patients reported a more positive global evaluation of and preference for the question prompt sheet *(111)*.
- In a US study among people with advanced cancer evaluating a system-level serious illness communication guide, clinicians readily adopted the program, attended the training sessions, and rated the training as effective. The intervention was described as having high acceptance among clinicians *(200)*.
- In a French outpatient palliative care setting for people with advanced cancer, patient satisfaction was higher when a Question Prompt List (QPL) was provided prior to the consultation, and questions related to palliative care and end-of-life issues were more frequent. Most participants who used the QPL reported that it was relevant and helpful for communicating with their doctor (80%) *(221)*.
- Of patients with a life-limiting illness, or their surrogates (legal substitute decision-maker) if the person lacked capacity, who responded to follow-up questionnaires (n=68 patients), 40% recalled using a communication intervention called the Jumpstart Guide in goals-of-care discussions. Of these patients, 96% reported they would probably or definitely recommend its use to other patients. Among clinicians who responded to follow-up questionnaires (n=72), 85% recalled receiving the Jumpstart Guide, of those clinicians, 61% said they used the intervention to facilitate the goals of care discussion for the patient, and 89% indicated that they would probably or definitely recommend the intervention to other clinicians *(704)*.
- In a study evaluating a communication intervention combined with advance care planning among people with advanced cancer, patients and their caregivers reported high satisfaction with the intervention *(1052)*.

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Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct evidence about the acceptability of interpersonal communication interventions for EoL care for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse (CALD) backgrounds

We did not identify studies that provided direct evidence about the acceptability of interpersonal communication interventions for EoL care for people with CALD backgrounds.

However, indirect evidence from a study among people with life-limiting illness conducted in Kenya suggested that acceptability may be influenced by challenges in conveying medical information in accessible language. In this study, dissatisfaction with information provision was reported following a structured advanced care planning intervention, with the authors attributing this in part to limited health literacy and difficulties communicating complex medical information in ways that were understandable to participants *(1081)*. These findings indicate that how information is conveyed may affect how interventions are experienced and perceived, particularly in contexts where language and literacy barriers are present.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct evidence about the acceptability of interpersonal communication interventions for EoL care for LGBTQIA+ people.

Considerations for people living with Younger Onset Dementia

We did not identify studies that provided direct evidence about the acceptability of interpersonal communication interventions for EoL care for people living with younger onset dementia.

Considerations for people living with disability

We did not identify studies that provided direct evidence about the acceptability of interpersonal communication interventions for EoL care for people living with disability.

Considerations for people living outside major cities

We did not identify studies that provided direct evidence about the acceptability of interpersonal communication interventions for EoL care for people living outside major cities.

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Additional considerations

Input from the Living/Lived Experience Advisory Group

- Communication that strengthens understanding between people living with dementia, their families, caregivers, and clinicians is viewed as not only acceptable but valuable, with Living/Lived Experience Advisory Group members noting that most people would welcome these kinds of conversations and interventions.
- Living/Lived Experience Advisory Group members emphasised that open dialogue can deepen trust and support stronger professional relationships, and in many cases is considered essential rather than optional.
- However, at the same time, there is recognition of a significant challenge that by the time some people living with dementia are medically stable enough to engage in these discussions, they may no longer have the cognitive capacity to provide informed consent, underscoring the importance of early, proactive communication.

Summary

Key points

- Interpersonal communication interventions for end-of-life care appear generally acceptable to patients, caregivers, and clinicians.
- Acceptability most commonly demonstrated through high satisfaction, perceived usefulness, and willingness to recommend, particularly for single-component interventions such as Question Prompt List interventions *(111)(200)(221)(333)(704)(1052)(1211)*.

Guideline Development Group judgement and discussion

The Guideline Development Group judged that interventions for interpersonal communication about EoL care were **probably acceptable**.

Feasibility No important issues with the recommended alternative

Research evidence

General considerations

Supporting evidence from the included trials:

- One US study among people with advanced cancer evaluating a Question Prompt List found that the intervention could feasibly be delivered by existing nursing staff *(1211)*.
- In a study evaluating a system-level serious illness communication intervention among people with advanced cancer, clinicians conducted conversations within a timeframe that was feasible for a typical oncology practice, and the authors concluded that the intervention could be implemented within routine clinical workflows. The authors documented that in a separate article, they reported more frequent conversations documented earlier in the intervention group and noted that these findings may be transferable to other clinical contexts treating patients with advanced cancer, while recognising that the intervention components may require substantial organisational resources *(200)*.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct evidence about the feasibility of interpersonal communication interventions for EoL care for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse (CALD) backgrounds

We did not identify studies that provided direct evidence about the feasibility of interpersonal communication interventions for EoL care for people with CALD backgrounds.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct evidence about the feasibility of interpersonal communication interventions for EoL care for LGBTQIA+ people.

Considerations for people living with Younger Onset Dementia

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We did not identify studies that provided direct evidence about the feasibility of interpersonal communication interventions for EoL care for people living with younger onset dementia.

Considerations for people living with disability

We did not identify studies that provided direct evidence about the feasibility of interpersonal communication interventions for EoL care for people living with disability.

Considerations for people living outside major cities

We did not identify studies that provided direct evidence about the feasibility of interpersonal communication interventions for EoL care for people living outside major cities.

Additional considerations

Input from the External Interest Holder Organisations

Workforce pressures were indicated as a barrier, including limited time, gaps in skills, poor registered nurse-to-resident ratios in aged care, and a reliance on assistants or personal care workers who may not have training in interpersonal communication interventions. It was emphasised that without adequate staffing and workforce capacity, meaningful communication is difficult to achieve, as overworked and under-resourced staff simply cannot sustain the level of engagement required.

Participants described a health system that is slow to adapt, shaped by fragmented legal and healthcare structures, with one participant highlighting the differing federal and state frameworks around advance care planning.

Participants emphasised the need for practical, accessible education, such as online microlearning modules, webinars, and clear website or factsheet resources with minimal use of acronyms. Strong role modelling and organisational values that are genuinely demonstrated was recommended, with leaders demonstrating respectful communication with staff and residents.

Sustainability requires sufficient and flexible funding, clear strategic priorities and frameworks, and stronger oversight, particularly as many state health departments do not routinely collate or plan around existing initiatives. Participants also pointed to the value of telehealth, pastoral care support, specialist nurses, and approaches that prioritise knowing the person. They stressed the need for diverse data collection models, effective feedback loops, and strong knowledge-translation processes that recognise communication as context-specific and requiring tailoring, co-design,

and organisational readiness. Additional considerations included privacy, debriefing and support for staff after a resident's death, and strategies to care for the carer.

Specialist registered nurses in hospitals should be leading and supporting the team in providing palliative/end-of-life care. IT expertise in the team can help to achieve seamless communications via devices for the team, the patient and family. It could be helpful to have counsellors available to help support staff, patients or residents, and family at short notice in difficult situations.

Participants noted that interpersonal communication interventions about end-of-life care must ensure open disclosure while ensuring privacy restrictions are maintained. Patient autonomy must be respected as interventions must not go against their beliefs or values.

Summary

Key points

- There was no direct or indirect evidence of feasibility from trials among people living with dementia or cognitive impairment
- In other populations with life-limiting illnesses, interpersonal communication interventions for end-of-life care can be delivered within routine clinical practice, with some evidence indicating they do not necessarily increase consultation time when integrated into existing workflows *(200)*.
- Feasibility varies by intervention complexity, with simpler interventions more readily implemented using existing staff, while multi-component or system-level approaches require additional training, coordination, or organisational support.

Guideline Development Group judgement and discussion

The Guideline Development Group judged that interventions for interpersonal communication about EoL care were **probably feasible**.

The Group noted that interventions that can be easily integrated into existing workflows and systems would be more feasible.

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Rationale

The Guideline Development Group judged that:

- Interpersonal communication interventions resulted in small desirable effects and trivial undesirable effects, with very low certainty evidence.
- There was possibly important variability in how much people living with dementia valued the desirable and undesirable effects of interpersonal communication interventions for end of life care discussions, and the balance of effects probably favoured use of the interventions.
- End of life care communication interventions require a variable range of resources, and there is variable impact on health equity.
- Interpersonal communication interventions for end of life care discussions are probably acceptable to people living with dementia.

Considering all judgements together, the Group agreed on a conditional recommendation for interpersonal end of life care communication interventions. The Group noted that the majority of evidence available is for people with life-limiting conditions other than dementia, and there is a need for further research about which specific interventions to use in people living with dementia and integrate into routine care.

Clinical question/ PICO

Population: people living with dementia, in community, primary care, secondary care, tertiary care, or residential aged care

Intervention: interventions for interpersonal communication about EoL care between health professionals and people living with dementia and/or their carers

Comparator: usual care

Outcome Timeframe	**Study results and measurements**	**Comparator** usual care	**Intervention** interventions for interpersonal communication about EoL care be	**Certainty of the evidence** (Quality of evidence)	**Summary**
Knowledge & understanding [C] [1] 9 Critical	Relative risk 1 (CI 95% 0.81 — 1.25) Based on data from 450 participants in 3 studies. (Randomized controlled)	**57** per 100 Difference:	**57** per 100 **0 fewer per 100** (CI 95% 11 fewer — 14 more)	**Very low** Due to serious inconsistency, Due to serious indirectness, Due to serious imprecision [2]	Interpersonal communication interventions may have little to no effect on overall knowledge & understanding but the evidence is very uncertain, in part due to inconsistent effects. While one study measuring information preferences found a small but important beneficial effect, two other studies measuring information needs and shared understanding respectively found little or no difference. All studies were in people with advanced cancer or a life-limiting illness. (Threshold for an important effect: 5 per 100 (5% ARD))
End-of-life care discussions (occurrence) [I] [3] 6 Important	Relative risk 1.86 (CI 95% 1.41 — 2.45) Based on data from 4,148 participants in 8 studies. (Randomized controlled)	**28** per 100 Difference:	**52** per 100 **24 more per 100** (CI 95% 11 more — 41 more)	**Moderate** Due to serious indirectness [4]	Interpersonal communication interventions probably increase the occurrence of end-of-life care discussions. 7/8 studies were in people with a cancer diagnosis or a life-limiting illness, and 1/8 of the studies was in people screening positive for cognitive impairment. (Threshold for an important effect: 10 per 100 (10% ARD))
Evaluation of communication [C] [5] 9 Critical	Measured by: quality of communication; patient-centred communication; preferences for involvement Based on data from 3,336 participants in 12 studies. (Randomized controlled)	Difference:	**SMD 0.1 higher** (CI 95% 0.09 lower — 0.28 higher)	**Very low** Due to serious indirectness [6]	Interpersonal communication interventions may have little to no effect on evaluation of the communication, but the evidence is very uncertain. The majority of studies (11/12) were in people with advanced cancer or another life-limiting illness. 1/12 studies was in people who screened positive for cognitive impairment. (Threshold for an important effect: SMD 0.4)

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Outcome Timeframe	**Study results and measurements**	**Comparator** usual care	**Intervention** interventions for interpersonal communication about EoL care be	**Certainty of the evidence** (Quality of evidence)	**Summary**
Quality of EoL care & concordance with patient preferences [C] [7] 9 Critical	Measured by: concordance with patient preferences; patient-rated quality of EoL care; carer-rated quality of EoL care Based on data from 1,404 participants in 6 studies. (Randomized controlled)	Difference:	**SMD 0.1 higher** (CI 95% 0.02 lower — 0.21 higher)	**Very low** Due to serious indirectness [8]	Interpersonal communication interventions may have little to no effect on the quality of end-of-life care and concordance with patient preferences, but the evidence is very uncertain. 4/6 studies were in people with advanced cancer. 2/6 studies were in people living with dementia. (Threshold for an important effect: SMD 0.4)
Adverse outcomes [C] [9] 9 Critical	Measured by: Anxiety within 4 weeks of consultation Based on data from 318 participants in 3 studies. (Randomized controlled)	Difference:	**SMD 0.07 higher** (CI 95% 0.15 lower — 0.29 higher)	**Low** Due to serious risk of bias, Due to serious indirectness [10]	Interpersonal communication interventions may have little to no effect on anxiety measured within 4 weeks of consultation. All studies were in people with a cancer diagnosis or a life-limiting illness. (Threshold for an important effect: SMD 0.4)
Patient quality of life [C] [11] 9 Critical	Measured by: patient-rated quality of life, including quality of end-of-life; carer-rated quality of death and dying Based on data from 1,715 participants in 8 studies. (Randomized controlled)	Difference:	**SMD 0.03 lower** (CI 95% 0.12 lower — 0.07 higher)	**Low** Due to serious risk of bias, Due to serious indirectness [12]	Interpersonal communication interventions may have little to no effect on patient quality of life. All studies were in people with a cancer diagnosis or a life-limiting illness, with 2/8 studies explicitly excluding patients with cognitive impairment. (Threshold for an important effect: SMD 0.4)
Carer quality of life [I] [13] 6 Important	Based on data from 62 participants in 1 studies. (Randomized controlled)	Difference:	**SMD 0.34 higher** (CI 95% 0.17 lower — 0.84 higher)	**Very low** Due to serious risk of bias, Due to serious indirectness [14]	Interpersonal communication interventions may have little to no effect on carer quality of life, but the evidence is very uncertain. Single study in people with advanced cancer. (Threshold for an important effect: SMD 0.4)
Health practitioner	Measured by: evaluation of	Difference:	**SMD 0.19 higher**	**Low**	Interpersonal

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Outcome Timeframe	**Study results and measurements**	**Comparator** usual care	**Intervention** interventions for interpersonal communication about EoL care be	**Certainty of the evidence** (Quality of evidence)	**Summary**
outcomes [I] [15] 6 Important	communication Based on data from 229 participants in 2 studies. (Randomized controlled)		(CI 95% 0.07 lower — 0.45 higher)	Due to serious indirectness, Due to serious imprecision [16]	communication interventions may have little to no effect on health practitioner outcomes (evaluation of communication). 2 studies in people with advanced cancer and COPD respectively. (Threshold for an important effect: SMD 0.4)

1. Studies contributed results for: information needs met or exceeded; information preferences met or exceeded; shared understanding. Outcomes were assessed within 4 weeks of the consultation.
2. **Risk of Bias: very serious.** Very serious risk of bias (-2). 74% of the data in this analysis comes from studies at high risk of bias (unblinded outcome assessment).. **Inconsistency: serious.** Serious inconsistency (-1). Absolute effects: 2 studies showed little to no difference; 1 study showed a small but important benefit favouring interpersonal communication interventions. I2 = 67%, P = 0.04.. **Indirectness: serious.** Serious indirectness (-1). All studies in people with a cancer diagnosis or a life-limiting illness (cognitive impairment or dementia status NR).. **Imprecision: serious.** Serious imprecision (-1). The 95% confidence interval crosses two thresholds for a small but important effect (5 per 100), so the result is compatible with both important harm (11 fewer per 100) and important benefit (14 more per 100). However the imprecision is likely partially due to inconsistent effects, and so the evidence was only rated down once for imprecision.. **Publication bias: no serious.**
3. Occurrence of end-of-life discussions was extracted from EHR in 4/8 studies, and reported by patients or carers in 4/8 studies.
4. **Risk of Bias: no serious.** No serious risk of bias. All respondent-reported studies (n=4) at high risk of bias due to unblinded outcome assessment. All EHR-extracted studies (n=4) at low risk of bias. However effect estimates of similar magnitude favouring communication interventions across both outcome assessment types, so have not rated down for risk of bias.. **Inconsistency: no serious. Indirectness: serious.** Serious indirectness (-1). 7/8 studies in people with a cancer diagnosis or a life-limiting illness. 1/8 studies in people screening positive for cognitive impairment.. **Imprecision: no serious. Publication bias: no serious.**
5. Studies contributed results for: quality of communication; patient-centred communication; preferences for involvement; satisfaction with consultation. Outcomes were assessed from immediately post-consultation, up to 6 months after the consultation.
6. **Risk of Bias: very serious.** Very serious risk of bias (-2). 74% of the data in this analysis comes from studies at high risk of bias (unblinded outcome assessment).. **Inconsistency: no serious. Indirectness: serious.** Serious indirectness (-1). 11/12 studies in people with a cancer diagnosis or other life-limiting illness; 1/12 studies in people living with dementia.. **Imprecision: no serious. Publication bias: no serious.**
7. Studies contributed results for: concordance with patient preferences; patient-rated quality of EoL care; carer-rated quality of EoL care. Outcomes were assessed 1 to 5 months after the intervention for patient-rated quality of EoL care, and 1 to 6 months after death for carer-rated quality of EoL care.
8. **Risk of Bias: very serious.** Very serious risk of bias (-2). 95% of data in this analysis comes from studies at high risk of bias (unblinded outcome assessment).. **Inconsistency: no serious. Indirectness: serious.** Serious indirectness (-1). 4/6 studies in people with a cancer diagnosis; 2/6 studies in people living with dementia.. **Imprecision: no serious. Publication bias: no serious.**
9. Studies contributed results for: anxiety. Outcome was assessed within 4 weeks of the consultation.
10. **Risk of Bias: serious.** Serious risk of bias (-1). 59% of the data in this analysis comes from studies with some concerns (bias due to missing data and in selection of result). . **Inconsistency: no serious. Indirectness: serious.** Serious indirectness (-1). All studies in people with a cancer diagnosis or a life-limiting illness (cognitive impairment or dementia status NR).. **Imprecision: no serious. Publication bias: no serious.**
11. Studies contributed results for: patient-rated quality of life, including quality of end-of-life; carer-rated quality of death and dying. Patient-rated outcomes were assessed at first timepoint following end of intervention; carer-rated outcomes were assessed over the whole end-of-life period.
12. **Risk of Bias: serious.** Serious risk of bias (-1). 91.8% of data in this analysis from studies with some concerns, including a large cluster trial, 9.2% from small studies at high risk of bias. . **Inconsistency: no serious. Indirectness: serious.** Serious indirectness (-1). All studies in people with a cancer diagnosis or a life-limiting illness (cognitive impairment or dementia status NR), with 2/8 studies explicitly excluding patients with cognitive impairment.. **Imprecision: no serious. Publication bias: no serious.**
13. Carer QoL was assessed 5 months after the end of the 3-month intervention.
14. **Risk of Bias: serious.** Serious risk of bias (-1). 100% of the data in this analysis comes a small study with some concerns of risk of bias in 4/5 domains.. **Inconsistency: no serious. Indirectness: serious.** Serious indirectness (-1). Single study in people with advanced cancer.. **Imprecision: very serious.** Very serious imprecision (-2). The confidence interval is compatible with both little or no difference (SMD -0.17) and a large beneficial effect favouring the interpersonal communication interventions (SMD 0.84).. **Publication bias: no serious.**
15. Studies contributed results for: evaluation of communication. Outcomes were assessed following the consultation.
16. **Inconsistency: no serious. Indirectness: serious.** Serious indirectness (-1). Two studies in in people with advanced cancer and COPD respectively.. **Imprecision: serious.** Serious imprecision (-1). The 95% confidence interval is compatible with both little or no difference (SMD -0.07)

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and a small but important beneficial effect favouring the interpersonal communication interventions (SMD 0.45).. **Publication bias: no serious.**

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9.3 Non-pharmacological therapies for distress, changed behaviours and behavioural symptoms in people living with dementia

What are Behavioural and Psychological Symptoms of Dementia?

Behavioural and Psychological Symptoms of Dementia (BPSD) is a collective term for the non-cognitive symptoms that frequently occur in people living with dementia *(253)*. These include behavioural disturbances such as agitation, aggression, disinhibition, wandering, and sleep problems, as well as psychological symptoms such as depression, anxiety, apathy, euphoria, hallucinations, and delusions. Other terms such as changed behaviours, behaviours of concern, or neuropsychiatric symptoms (NPS) may also be used to describe BPSD. BPSD are extremely common, with up to 90% of people living with dementia experiencing at least one symptom during the course of their experience of living with dementia *(290)*. These symptoms are common in both community and residential care dwelling people living with dementia, with higher rates occurring in residential settings *(290)*. Symptoms can vary depending on dementia severity, with the most common BPSD - apathy, agitation, and anxiety - often increasing in severity as dementia progresses *(290)(237)*. The course of symptoms also varies depending on both the type of BPSD and individual characteristics, such as sex and dementia type. For example, Alzheimer's disease (AD) dementia is linked to higher incidence of anxiety, frontotemporal dementia is associated with a higher incidence of activity disturbance, and Dementia with Lewy bodies is more often characterised by hallucinations *(315)*. Greater symptom severity is also linked to advancing dementia and male sex *(237)(745)*. It is also important to note that symptoms can fluctuate over time and may be influenced by changes in environment, routine, or health status.

BPSD can be divided into two categories with different therapeutic approaches *(473)*. Stressor-associated BPSD result from psychological reactions to cognitive decline, medical conditions, or environmental factors, and are typically mild to moderate in severity. Treatment focuses on identifying and addressing the underlying stressors (e.g., treating pain, modifying caregiver behaviours, reducing problematic medications, minimizing environmental stimuli), with psychotropic drugs considered only when non-pharmacological strategies fail. In contrast, BPSD without clear environmental triggers are more likely attributable to neurodegenerative changes affecting specific neural networks and neurotransmitter pathways, though the exact pathophysiology remains largely unknown. These are generally more severe, occur more frequently in advanced stages of dementia (manifesting as insomnia, motor restlessness, wandering, and vocalizations), and often require psychotropic medication alongside environmental modification.

BPSD can have significant impact and consequences. For people living with dementia, BPSD are associated with emotional distress, reduced quality of life, greater functional impairment, more rapid cognitive decline, earlier institutionalisation, and higher mortality *(274)(633)*. For caregivers, BPSD contribute to stress, depression, financial strain, and poorer quality of life *(416)*. At a system level, BPSD are a leading cause of hospitalisation and increased healthcare costs *(167)(204)(290)*.

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Management of Behavioural and Psychological Symptoms of Dementia

As BPSD can arise from multiple interacting causes, management requires a holistic and person-centred approach *(253)*. In practice, this begins with a structured assessment to understand why the symptom is occurring, commonly using Antecedent-Behaviour-Consequence (ABC) analysis. Where appropriate, Functional Analysis extends the ABC approach by examining the broader function or unmet need underlying the symptom *(347)*. These approaches help clinicians and carers systematically identify contributing factors such as pain, depression, sensory impairment, interpersonal stressors, or environmental triggers. Restrictive practices may occasionally be necessary to maintain safety but should always remain a last resort and are strictly regulated in aged care. Non-pharmacological interventions, tailored to the individual's needs and environment, are often considered initially for managing BPSD.

Non-pharmacological interventions

A wide variety of approaches have been studied, including:

- Exercise-based interventions
- Psychotherapy
- Sensory-based therapies (e.g., aromatherapy, massage therapy)
- Music-based therapies
- Environmental modifications
- Cognitive stimulation therapy
- Reminiscence therapy
- Animal-assisted therapies
- Therapeutic recreation
- Multi-component interventions that combine several strategies

Because BPSD are heterogeneous, these interventions are not selected in isolation but are used after a structured assessment (such as ABC analysis or Functional Analysis) has clarified the underlying contributors and the function of the behaviour *(416)*. Once the assessment identifies the meaning or drivers of the behaviour, clinicians can consider which types of interventions are most likely to address those factors.

Symptom-based guidance from clinical practice guidelines can help clinicians choose appropriate non-pharmacological strategies. For example, the Canadian Clinical Practice Guidelines for Assessing and Managing BPSD provide strong recommendations for music-based interventions for agitation, cognitive stimulation therapy, physical exercise, and massage therapy for depression, and music therapy for anxiety *(287)*. Similarly, the Centre for Healthy Brain Ageing's Clinician's BPSD guide provides management guidance in the form of individual modules for specific BPSD

symptoms such as aggression, agitation, or anxiety *(253)*. These resources do not replace individualised formulation, but can support intervention planning once the function of the behaviour has been identified.

Another way to consider non-pharmacological strategies is through the efficacy of their shared characteristics *(283)*(Caspar et al., 2018). Approaches that are structured, targeted, and personalised are typically planned with a clear purpose, delivered in a consistent way, and incorporated into daily care. Importantly, they are adapted to the individual's preferences, interests, cognitive abilities, and stage of dementia. Interventions that do not consider individual capabilities or preferences may be less effective and less valued by both people living with dementia and carers. For example, exercise programs may be more beneficial when they are routine-based and enjoyable, music therapy may work best when it uses familiar songs, and reminiscence therapy may be more meaningful when it draws on the person's own life story *(1303)(1304)(1302)*. Because benefits may arise as much from these common elements as from the intervention type itself, it may be helpful to consider the efficacy of 'structured and targeted interventions' as an overall approach for BPSD rather than specific non-pharmacological interventions. This framing suggests that the effectiveness of care often depends less on the specific therapy chosen and more on how well it is designed and tailored to the individual's needs, symptoms, and social context.

Ultimately, the success of non-pharmacological interventions lies not just in the type of therapy chosen but in how well it is aligned with the person's needs, symptoms, and social context. This highlights the importance of flexibility and individualisation in BPSD care.

Communication

Effective and respectful communication is key when assessing a person living with dementia and developing behaviour support plans for BPSD. For Aboriginal and Torres Strait Islander peoples or people from culturally and linguistically diverse (CALD) backgrounds, language, literacy, and differing interpretations of non-verbal cues may create barriers *(247)*. Culturally competent communication, such as using the person's preferred form of address, adapting interaction style to cultural norms, and providing information in accessible formats, supports accurate assessment of contributing factors and more effective management of BPSD *(1305)*.

Pharmacological interventions

Pharmacological treatments may be considered for severe or persistent symptoms but should be used cautiously given the potential for adverse effects *(1077)*. Pharmacological treatments will not be covered within the scope of this clinical question and are covered in the recently developed Australian Guidelines for the appropriate use of psychotropic medications in people living with dementia.

Question 13

Which non-pharmacological interventions are effective in reducing distress, unmet needs, and behavioural symptoms in people with dementia?

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Conditional recommendation for , Low certainty evidence

Recommendation 13

Consider offering structured and targeted interventions with a focus on activity, participation, and interpersonal relationship-building for people living with dementia to alleviate behavioural and psychological symptoms of dementia (BPSD) that cause distress to the person or carers.

Remarks

The term "behavioural and psychological symptoms of dementia" (BPSD) is used in this recommendation to remain consistent with existing clinical and research literature within the evidence review. People living with dementia and their carers may prefer alternative terms such as responsive behaviours, unmet needs, or changed behaviours. Clinicians are encouraged to use language that is respectful and acceptable to the individual and carers.

Structured and targeted interventions with a focus on activity, participation, and interpersonal relationship-building may be beneficial for people living with all types and severity of dementia, in both people living in the community and in residential aged care settings.

Structured and targeted interventions should be contextualised to the individual person and care setting. Examples of interventions may include:

- *multi-component exercise programs*
- *personalised activity programs*
- *occupational therapy*
- *reminiscence therapy*
- *music therapy*
- *dance therapy*
- *psychosocial programs.*

Practical info

Consider developing a Behaviour Support Plan (BSP) for the person living with dementia including information about preferences and abilities, ways to manage things that may cause distress (e.g., physical and/or social environmental modifications), ways to meet needs, and ways to support the person if behaviours occur, including steps to take if the situation becomes unsafe.

Useful resources

For carers and people living with dementia

- Dementia Support Australia: Carer Handbook for Understanding Changed Behaviours
- Dementia Support Australia: Behaviour Support Plan guidance
- National Dementia Helpline (Dementia Australia): 1800 100 500

For clinicians

- Dementia Australia Clinical Tools and Resources
- Behaviour Support Plans | Dementia Support Australia
- Dementia Training Australia Changed Behaviour courses
- Guidance on BPSD assessment and management across all care settings is available in the Clinician's BPSD Guide 2023
- Clinical Practice Guidelines for the Appropriate Use of Psychotropic Medications in People Living with Dementia and in Residential Aged Care
- Australian Commission on Safety and Quality in Health Care. Psychotropic Medicines in Cognitive Disability or Impairment Clinical Care Standard.

Evidence to decision

Benefits and harms

Small net benefit, or little difference between alternatives

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Research evidence

Desirable effects (benefits)

As compared to usual care, structured and targeted interventions focusing on activity, participation and interpersonal relationship building:

- May result in a slight reduction in agitation [critical outcome]
- May result in little to no difference in overall carer burden, but likely results in a reduction in employee burden within residential aged care settings [critical outcome]
- May result in little to no difference in:
  - Overall BPSD [critical outcome]
  - Quality of life (for the person with dementia) [critical outcome]
  - Cognition [important outcome]
  - Depressive symptoms [important outcome]
  - Functional level [important outcome]

Undesirable effects (harms)

Structured and targeted interventions focusing on activity, participation, and interpersonal relationship building result in little to no difference in adverse events. [critical outcome]

All reported adverse events related to distress for the person with dementia from the intervention, either due to having to be separated from their caregiver whilst giving feedback, or due to increased awareness of difficulties in performing certain activities.

Summary

Balance of effects: Guideline Development Group judgement and discussion

The Group agreed that the balance of effects probably favours structured and targeted non-pharmacological interventions for BPSD, on the basis that small desirable effects outweigh trivial undesirable effects. Some difficulty was noted with this judgment given the wide range of intervention options and the variability in who may accept or decline an intervention.

Desirable effects (benefits): Guideline Development Group judgement and discussion

The Group agreed that structured and targeted non-pharmacological interventions for BPSD results in **small desirable anticipated effects**. While the Group acknowledged that most effect sizes for critical outcomes lay within the trivial to small range, they emphasized the need for nuanced interpretation rather than rigid application of arbitrary effect size cut-offs, especially given the inconsistency and uncertainty within the evidence base. They also noted that effects may be larger when interventions are appropriately matched to individual needs or according to setting. The Group discussed the important gap between stringently controlled trials and real-world clinical practice, and such interventions must be informed by individual histories and contexts. The final judgment of 'small' desirable effects reflects the current evidence base, while acknowledging the variability that may exist across settings, individuals, and implementation approaches.

Undesirable effects (harms): Guideline Development Group judgement and discussion

The Group agreed that structured and targeted non-pharmacological interventions for BPSD results in **trivial undesirable effects**. This judgement reflects the low frequency of reported undesirable effects in the evidence base, with distress to the person with dementia being the primary concern identified. However, the Group emphasised an important distinction between population-level and individual-level perspectives. While undesirable effects appear trivial at the population level based on the small number of adverse events reported, any distress experienced by a person with dementia is not trivial from their individual perspective. The Group noted that such distress may also affect families and caregivers, with multiple levels of impact that extend beyond the individual.

Certainty of the evidence

Low

Research evidence

The overall certainty of the body of evidence is determined by the lowest certainty rating of all the critical outcomes.

Low certainty

- Agitation
- BPSD overall
- Quality of life

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Moderate certainty

- Residential aged carer burden

High certainty

- Adverse events

Summary

The overall certainty of the body of evidence for this question is considered to be **low**.

Values and preferences

Substantial variability is expected or uncertain

Research evidence

International context

Significant outcome heterogeneity in existing literature

Several umbrella reviews or overviews of systematic reviews on BPSD demonstrate wide variation in the reported outcomes and measures (e.g., CMAI for agitation, NPI for global BPSD, Cornell for depression) used to assess the efficacy of non-pharmacological interventions for BPSD *(77)(316)(416)*. One systematic review explicitly noted that over 60 different validated scales and physiological parameters have been used to measure outcomes for BPSD, leading to profound data inhomogeneity that prevents meta-analysis *(1224)*. This makes it difficult to compare across studies or to determine which outcomes matter most to people living with dementia.

Frequent use of caregiver proxies and limited person-reported outcomes

Few studies have systematically collected data on person-reported outcome measures or explicitly assessed the value that people with BPSD place on different health outcomes. Instead, research often relies on caregiver or staff proxies,

which may not always accurately reflect the values or preferences of people living with dementia themselves *(1307)(1306)*.

Variability in stakeholder values

People living with dementia consistently emphasize the importance of dignity, respect, quality of life, independence, and social connection *(413)(1054)*. Caregivers share many of these values but may also have additional priorities such as minimising carer burden, maintaining safety for the person living with dementia, and maintaining a positive relationship with the person living with dementia *(413)(876)*. Although these values relate broadly to living with dementia rather than BPSD specifically, they underpin how people living with dementia and caregivers may experience and interpret BPSD.

A mixed-methods study based in the Netherlands *(416)* revealed that professional caregivers and existing Quality of Life (QoL) models often overlook domains that are highly valued by people living with dementia, such as the sense of aesthetics in the living environment, financial situation, and being useful/giving meaning to life.

A quantitative study from the United States *(814)*, using secondary analysis of cross-sectional baseline data from 228 community-dwelling family care dyads, applied multilevel modelling and latent class analysis to identify distinct patterns of agreement and disagreement in how caregivers and people living with dementia perceived the latter's everyday care values. In a quarter of care pairs (25%), caregivers consistently undervalued how important the four core care values were to the person living with dementia, especially autonomy and social relationships. This mismatch was largest for the value 'not wanting to be a burden.' The findings emphasize that relying solely upon a family proxy for dementia care planning in such high-risk dyads could yield care decisions and, by extension, health outcomes for non-pharmacological interventions, that fall short of representing the person living with dementia's actual values and preferences.

It is important to note that the values held by people living with dementia and caregivers may diverge when it comes to autonomy and the extent of family involvement in decisions, which may have implications when it comes to BPSD management and the prioritisation of outcomes relating to pharmacological versus non-pharmacological interventions *(814)*.

Australian context

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A 2021 Australian qualitative study *(250)* found that decisions about managing BPSD were mostly shaped by professional viewpoints, which left important gaps in understanding how people living with dementia themselves experience and interpret these behaviours. Interviews with people living with dementia and their care partners showed that symptoms were usually described as overlapping feelings (such as anxiety, worry, and fear expressed as agitation), rather than as single, isolated problems. People living with dementia were more likely to interpret their BPSD as reactive responses to changing situations (e.g., feeling unsupported, losing independence, or responding to others' discriminatory behaviour), while families often attributed behaviours to a decline in cognitive skills. This difference in interpretation highlights that reducing visible symptoms (e.g., agitation) may not fully address what matters most to people living with dementia, who may place greater value on the concepts of support, independence, and dignity.

Another Australian qualitative study *(251)*found that rather than symptom reduction alone, people living with dementia highly valued responses that focused on understanding the underlying reasons for their behavioural changes, such as unmet needs, pain, or discomfort, and strongly preferred nonpharmacological alternatives over psychotropics. Although the authors found that engaging in activities (physical, social, cognitive, and spiritual) was overall helpful, they also described activities could be unhelpful due to added stress and anxiety. These findings confirm that the most valued outcomes for people living with dementia are often linked to factors like feeling accepted by society, maintaining independence, and securing supportive environments and adequate quality of support, rather than simple cessation of behaviours.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct evidence examining how Aboriginal and Torres Strait Islander peoples value outcomes in relation to non-pharmacological interventions for BPSD.

Considerations for people from culturally and linguistically diverse backgrounds

As non-pharmacological interventions are often designed and evaluated in majority/English-speaking populations, they may inadequately address culturally specific preferences (e.g., cultural meaning of certain activities, relevance of music, diet, rituals, family roles). Non-adapted materials and/or lack of interpreters may affect the delivery of certain non-pharmacological interventions to people from culturally and linguistically diverse backgrounds *(1305)*. In these communities within Australia, the roles and expectations of family members in dementia care can differ, as can the importance placed on caring for older relatives. Care is often shared, with several family members involved *(1280)*. These family dynamics can influence what outcomes are most valued, and particular importance may be placed on communication in the person's preferred language, cultural safety, active family involvement, dignity, and interventions that support caregiving in the home. Such factors can shape how BPSD symptoms are expressed, interpreted, and

managed by those outside of the community. For example, the use of therapeutic lying (behaviours such as manipulation of the environment, small falsifications of facts, and the omission of truth with the objective of pursuing the best interests of the person living with dementia) in caring for people with BPSD has different ethical implications and acceptability depending on the culture of the individual *(276)*. There is likely variability between communities, and direct evidence on values in this context remains limited. Additionally, it is important to recognise that cultural diversity exists within English-speaking populations as well. People from similar cultural and/or religious backgrounds should also not be regarded as a homogenous group.

Considerations for LGBTQIA+ people

There is currently limited research regarding not just the values around non-pharmacological interventions for BPSD, but also the specific care needs of lesbian, gay, bisexual or transgender individuals living with or caring for someone with dementia. Several reviews highlight that dementia symptoms in LGBT+ people, such as memory loss may result in immense stress due to increasing loss of control over whether and how individuals disclose their sexuality/gender identity *(312)(1090)*. Being in care and having their bodies witnessed by strangers could affect their ability to control which parts of their identity are shared, and a reduced ability to make their own decisions could mean that biological family members with potentially heteronormative or cisgenderist views could re-enter their lives and gain decision-making power, as reported in research conducted with LGBT people *(185)*. Although these identity-related stressors have not been studied specifically with regard to BPSD, they may act as triggers for BPSD in LGBTQIA+ individuals. As such, values relating to health outcomes are likely to differ from those of other populations.

Considerations for people living with younger onset dementia

We did not identify studies that provided direct evidence examining how people living with younger onset dementia value outcomes in relation to non-pharmacological interventions for BPSD.

Considerations for people living with disability

We did not identify studies that provided direct evidence examining how people living with intellectual or physical disability value outcomes in relation to non-pharmacological interventions for BPSD.

Considerations for people living outside major cities

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We did not identify studies that provided direct evidence examining how people living in regional, rural and remote communities value outcomes in relation to non-pharmacological interventions for BPSD.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- Consensus that quality of life of the person living with dementia is the most important outcome with one Living/ Lived Experience Group member noting that aggression seems to be the main focus of clinicians.
- It was noted that the quality of life of the person living with dementia and caregiver burden go hand in hand. Quality of life for people living with dementia must remain the central priority, with carer wellbeing - whether paid or unpaid - closely linked to sustaining that quality of life, as burnout undermines their ability to provide support.
- A concern was raised that aggression is not an explicitly-listed outcome, and that was one of the most distressing symptoms for both the person living with dementia and the carer and one of the hardest to manage. One member stated the interventions need to target the person's specific symptoms. They would rank agitation and aggression as quite high as they were the most distressing for their family member living with dementia and for themself, and hardest to manage. Another member stated '*We don't have behaviours, we have unmet needs. It's really important to understand why people are experiencing emotional distress, fatigue and agitation.*'

Summary

Key points

- Direct evidence on how people living with dementia value outcomes of non-pharmacological interventions for BPSD is limited as most studies rely on caregiver or staff proxies
- Reported outcomes and definitions vary widely, making comparisons and interpretation difficult *(1224)*
- Qualitative studies suggest that people living with dementia often value outcomes beyond simple symptom reduction *(250)(251)*. People living with dementia may value understanding and addressing the underlying causes of behavioural changes (e.g., unmet needs, pain, fear) and place high importance on factors such as maintaining independence and social acceptance.
- Professionals and caregivers often emphasise safety and burden reduction, which may differ from what people living with dementia prioritise *(413)(876)*
- Most systematic reviews and meta-analyses focus on older adults living with dementia in general, without stratifying results or tailoring interventions for specific subgroups such as Aboriginal and Torres Strait Islander peoples, people from culturally and linguistically diverse backgrounds, LGBTQIA+, people living with younger onset dementia, or people living with disability. There is little evidence on the cultural adaptation of interventions

or their acceptability.

Guideline Development Group judgement and discussion

The Group agreed there is possibly important variability in how individuals and groups would value the benefits and harms of these interventions when presented with the available evidence. This reflects differing perspectives across people living with dementia, carers, clinicians, and other stakeholders, as well as variation in how the importance of these interventions is perceived across different groups and contexts. With this judgment, the Group emphasised the importance of a shared decision-making approach, ensuring that any intervention decisions are made according to individual values and preferences.

Resources

Important issues, or potential issues not investigated

Research evidence

General considerations

Most reviews and studies were conducted in the US or European countries (UK, Finland, Denmark). It is important to note that cost-effectiveness in dementia care depends heavily on whether analyses take a healthcare or broader societal perspective, particularly whether informal caregiver time is counted. There is very limited direct evidence of Australian cost analysis studies that specifically evaluate non-pharmacological interventions for BPSD.

International context

A 2023 systematic review by Guzzon et al *(531)* (conducted by researchers based in Italy) looked at the cost-effectiveness and cost-utility of supportive care interventions for people living with dementia, grouped into 5 categories: 1) cognitive therapies; 2) physical activity interventions; 3) indirect strategies; 4) interventions primarily targeted towards caregivers; and 5) multicomponent interventions. The study authors classified interventions into three levels of cost-effectiveness:

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- High cost-effectiveness when the intervention was dominant or the incremental cost per quality-adjusted life year (QALY) gained was below the study's target threshold
- Moderate cost-effectiveness when the incremental cost per QALY was above but reasonably close to the threshold, the analysis produced mixed results (e.g., statistical uncertainty in the incremental cost-effectiveness ratio [ICER] or no established willingness-to-pay thresholds), or evidence was partial (e.g., no proof of cost-effectiveness in relevant outcomes).
- Low or absent cost-effectiveness when the ICER was well above the threshold or the intervention was dominated by the comparator.

The review *(531)* included 39 studies that analysed 35 interventions: nine cognitive stimulation and occupational programmes primarily targeting people living with dementia; three physical activity interventions; ten indirect interventions (organisational and environmental changes); seven interventions primarily targeted towards family carers; and six structured multicomponent interventions.

- Occupational therapy was the most cost-effective cognitive intervention, showing both cost savings and improvements in outcomes for people living with dementia and their caregivers. This is supported by the findings of older systematic reviews *(331)(860)*. In a community-based study conducted in the Netherlands, the occupational therapy program led to savings of about €1,748 (≈AUD 3022) in 2008, per family while achieving meaningful improvements in function and wellbeing *(519)*. Similarly, a US-based trial showed that the Tailored Activity Program (TAP) had moderate cost-effectiveness, mainly through reducing caregiver time and effort *(508)*. It cost around €2.37 (≈AUD 3.42) in 2010, per day to save an hour of hands-on care or €1.10 (≈AUD 1.59) per day to save an hour of supervision time, and was cost-effective in about 79% of cases.
- Structured multicomponent interventions for individuals living with mild to moderate dementia in nursing homes or day care centres were also highly cost-effective.
- They were unable to find clear evidence of high value for money for exercise programmes.

Overall, trial-based economic evaluations suggest OT-led, tailored activity programs can be cost-effective or cost-neutral, largely by improving function/behaviour while reducing caregiver time. However, it is important to note that while the review *(531)* included BPSD as an outcome of interest, the economic analyses were driven by QALY gains or

functional improvements rather than direct measures of BPSD. Without clearer data on BPSD prevalence and change within these trials, the cost-effectiveness of these interventions for BPSD specifically should be interpreted cautiously.

Another 2023 review by Eaglestone et al., *(417)* (conducted by researchers based in the UK) looked at 37 economic evaluations and four reviews worldwide. The authors found that Maintenance Cognitive Stimulation Therapy (MCST) had the strongest evidence for cost-effectiveness, being both more effective and less costly in key subgroups (particularly for people living alone) with cost-effectiveness ratios well within accepted NICE (National Institute for Health and Care Excellence) thresholds (£6,841–£26,835 [≈AUD 12,896 – AUD 50,273, in 2023] per QALY). This was based on two evaluations of MCST, both of which reported results using Quality-Adjusted Life Years (QALYs) *(241)(366)*. Occupational therapy, case management, and dementia care management also showed consistent cost-effectiveness, with occupational therapy programs yielding substantial savings (up to €8,611 [≈AUD 14,035] per dyad, in 2023), *(923)(925)* and case management models demonstrating high probabilities of cost-effectiveness (up to 99% at €30,000/QALY [≈AUD 44,670, in 2016]) *(759)(836)*. Training interventions showed moderate evidence, while exercise and assistive technology were generally not cost-effective despite some functional benefits. Overall, the review highlighted that several non-pharmacological interventions - particularly cognitive and multicomponent models - can be cost-effective, but called for more robust, consistent economic evaluations to guide policy and implementation.

A 2014 systematic review by Livingston et al., *(734)* (conducted by researchers based in UK) examined the cost-effectiveness of non-pharmacological interventions specifically for managing agitation in the National Health Service (NHS) setting. Given the low quality and scarcity of existing data, the authors found only two formal economic studies, both of which were judged to be of low/medium quality. Crucially, they did not identify any studies that evaluated the impact of these interventions using the standard metric of Quality-Adjusted Life Years (QALYs). To address this gap, the review authors conducted an economic analysis focused on incremental cost per unit reduction in agitation symptoms (measured by the Cohen-Mansfield Agitation Inventory, or CMAI). Among the 11 interventions evaluated using this measure, the analysis revealed that:

- Music therapy was the most economical option, costing just £4 (≈AUD 7.31, in 2014) per CMAI point reduced
- Staff training (in person-centred care, communication skills, or Dementia Care Mapping with supervision) was also highly cost-effective, ranging from £6 to £62 (≈AUD 11 to ≈AUD 113, in 2014) per point reduced
- Sensory interventions cost between £24 and £143 (≈AUD 44 to ≈AUD 261, in 2014) per point reduced
- Activity programs were the most variable and potentially expensive, ranging from £162 to £3480 (≈AUD 296 to ≈AUD 6356, in 2014) per point reduced

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The authors state that it is impossible to determine definitively whether these CMAI cost figures represent good value for money to the NHS as cost-effectiveness thresholds for these outcomes do not exist. However, in terms of relative cost-effectiveness compared to other options within the analysis, music therapy and supervised staff training appeared to be the most cost-effective non-pharmacological options for reducing agitation in care home residents.

Australian context

An Australian study *(804)* examined a robotic plush toy intervention (PARO) for agitation in people living with dementia. This trial of 415 long-term care residents found that PARO and a normal plush toy cost an additional ~$50 and ~$37 per resident, respectively, compared with usual care, but showed no significant reduction in agitation. Incremental cost-effectiveness ratios were $13.01 (PARO) and $12.85 (plush toy) per point averted on the Cohen-Mansfield Agitation Inventory, with the plush toy being slightly more cost-effective; no comparisons with other interventions were made.

A 2025 Australian study *(491)* also conducted a cost-utility analysis of the Tailored Activity Program (delivered by OTs) using the ICER and QALY, finding that it is highly cost-effective when compared to usual home care. For women, the ICER was $8445 per QALY gained, for men it was $9371 per QALY. This was far below the commonly accepted willingness-to-pay threshold of AUD $50000 per QALY (commonly considered to be the approximate threshold beyond which new medical interventions are less likely to be supported by the Australian government) *(19)*.

Other resources

Due to the diverse nature of structured and targeted non-pharmacological interventions, there may be variable demands on a range of resources. These can include:

- Carer/staff time
- Environmental modifications or resources to provide interventions
- Equipment for interventions
- Access to carer/staff education and training (not just once-off, but ongoing) *(283)*
- Access to specialised staff (e.g., OTs, clinicians, Allied Health)

It is hard to quantify the exact resource requirements as existing studies on economic evaluations (highlighted above) tend to focus on specific interventions. Additionally, the investment required to implement non-pharmacological interventions will differ across care settings *(1026)*.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect resource evidence in relation to non-pharmacological interventions for BPSD for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect resource evidence in relation to non-pharmacological interventions for BPSD for people from culturally and linguistically diverse backgrounds.

Considerations for people living with younger onset dementia

We did not identify studies that provided direct or indirect resource evidence in relation to non-pharmacological interventions for BPSD for people living with younger onset dementia.

Considerations for people with disability

We did not identify studies that provided direct or indirect resource evidence in relation to non-pharmacological interventions for BPSD for people living with disability.

Considerations for people living outside major cities

A study *(437)*of 6 rural Australian aged care facilities found that while staff recognised underlying causes and non-pharmacological strategies for BPSD, time constraints were the main barrier preventing their use, resulting in continued reliance on antipsychotic medications despite known risks. A 2024 survey *(166)* of Australian residential aged care staff highlighted systemic resource deficits that may affect equitable delivery of non-pharmacological interventions, with only 21.7% of respondents believing the government provides sufficient funding to support non-pharmacological intervention implementation, and 6% feeling that staffing levels were adequate. These funding and staffing shortages act as major systemic barriers.

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Additional considerations

Input from the Living/Lived Experience Advisory Group

- The resourcing requirements differ depending on whether an appointment involves offsite travel, occurs at home or via an app, and whether it is delivered one-on-one or in a group setting. These needs are further influenced by the changes in a person's symptoms, both day-to-day and over time.
- The role of the carer is central in managing the behavioural and psychological symptoms of dementia. Interventions such as cognitive stimulation require a significant commitment—often involving multiple sessions each week and travel offsite. For carers, this level of involvement must be justified by clear evidence of benefit, given the considerable time, financial, and emotional investment required. These demands also carry social and emotional costs for the person living with dementia, their family, and loved ones.
- Aged care services are striving to be more person-centred and friendly, yet staffing shortages and lack of staff training make it difficult to deliver the level of care required. The personal cost to staff and informal carers is significant, and at a community level the pressure can lead to inappropriate reliance on medication rather than meaningful support. As a result, people who can manage without assistance are often left unattended—for example, not being helped out of bed when it requires a three-person assist—simply because they do not become agitated when their needs go unmet.
- Workforce challenges within residential aged care, where high turnover and dependence on temporary staff place heavy burdens on permanent employees. While permanent staff shoulder ongoing responsibilities and the emotional strain of continuity, temporary staff face less pressure, as they can choose when and how much they work. This imbalance further undermines the consistency and quality of care.
- These interventions could become very cost effective if done effectively, but we don't have the evidence. The key ingredients of relationship building and being engaged in activities are so important and we know they work.
- Lack of current funding particularly in RAC related to lifestyle activities and staff amounts is a barrier to implementing structured and targeted interventions. The classification of the interventions and source of the assessment (e.g., would it be a clinical need) would be key in determining whether government funding may be available.

Summary

Key points

- Implementation of non-pharmacological interventions can be resource-intensive, requiring adequate staff time, training, environmental adjustments, and specialist input.
- Ongoing barriers include insufficient funding, limited workforce capacity, and time constraints, which continue to

drive reliance on pharmacological approaches in practice.

Cost-effectiveness

- Most evidence on cost-effectiveness for non-pharmacological interventions in management of BPSD comes from Europe and the US, with very limited Australian data.
- Findings on cost-effectiveness depend strongly on whether analyses include the value of informal caregiver time and broader societal costs.
- Occupational therapy consistently appears to be one of the most cost-effective approaches, improving function and wellbeing for people living with dementia while reducing caregiver burden *(531)*.
- Structured multicomponent programs and cognitive interventions, such as maintenance cognitive stimulation therapy, also show good evidence of cost-effectiveness *(417)*.
- Case management and dementia care management programs are often found to provide good value for money, while training interventions show moderate evidence of benefit *(759)(836)*.
- Exercise and assistive technology interventions generally show limited cost-effectiveness, despite occasional improvements in physical or cognitive outcomes *(417)*.
- Low-cost approaches such as music therapy and staff training appear to offer good value for managing agitation in care settings *(734)*.
- In Australia, economic evidence remains scarce, though occupational therapy–based programs show promising results for cost-effectiveness compared with usual care *(491)*.

Guideline Development Group judgement and discussion

The Group agreed that structured and targeted non-pharmacological interventions for BPSD are associated with moderate resource requirements, reflecting the staffing, training, and ongoing implementation costs involved with many of the interventions. There was considerable variability in costs noted depending on the type of intervention and setting, with some interventions carrying larger resource burdens, especially in residential aged care. The Group noted that there is uncertainty in resource requirements in the absence of trial-based data, and emphasised that variability in resourcing across different settings should be considered in implementation.

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Equity

Important issues, or potential issues not investigated

Research evidence

General considerations

There is very limited direct evidence specifically addressing the impact of recommending non-pharmacological interventions for BPSD on health equity, both in Australia and internationally. It is reasonable to assume that the ability to implement non-pharmacological interventions may be impacted by workforce shortages, funding limitations, and lack of training, which may disproportionately affect rural, remote, and lower-resourced settings. Without targeted support, recommending non-pharmacological interventions without an adaptive and/or resourced approach may have the potential to inadvertently widen health inequities by making effective care less accessible to disadvantaged groups.

Disparities in research focus

Several reviews and studies have highlighted a lack of information regarding the appropriateness and adaptation of non-pharmacological interventions for diverse populations, indicating gaps in equitable research practice.

A systematic review *(257)* (conducted by USA authors) of the existing evidence for effective care interventions designed for people living with dementia and their caregivers noted that little information was found to determine whether interventions are equally appropriate for or have been successfully adapted to other race/ethnic cultures within the United States. The authors found that the majority of studies conducted in the US enrolled white urban or suburban dwelling caregivers, and only a few studies investigated Hispanic and African American caregivers. A single US-based study *(195)* on psychosocial interventions for caregivers reported variation in benefit across racial and ethnic groups: spouse caregivers in the intervention experienced significantly greater improvement in quality of life than controls for all included racial and ethnic groups (Hispanic or Latino, white, and black or African-American). Another US-based study *(752)* reported benefits for Hispanic caregivers. However, the review authors found that even studies that included diverse populations often did not have sufficient inclusion of African-American or Hispanic/Latino populations to draw robust conclusions.

The same review found that interventions for rural communities/communities with low resources were found to be even more rare in the literature *(257)*. Only a few studies of interventions specifically designed for low-resource

areas (including rural and/or tribal communities) advanced beyond pilot or small sample studies, meaning no certainty could be established for their findings in these contexts. From an international context, the studies evaluating care interventions were conducted almost exclusively in high-resource countries, with very few low-resource countries represented.

Additional international evidence from low-resource settings also underscores these equity gaps. A systematic review *(1116)* of psychosocial interventions for dementia in low and middle-income countries found only 11 interventions across six countries, with most studies being small, low-quality, and lacking culturally appropriate adaptation. The review highlighted that very few interventions had been evaluated for feasibility or implementation readiness, and that even effective therapies were rarely scaled due to resource constraints, workforce limitations, and lack of managerial or organisational support. These findings reinforce that most existing evidence is generated in high-resource settings, with minimal research addressing the realities of low-resource or culturally diverse environments.

Equitable application of interventions based on capabilities

Equitable application of non-pharmacological interventions depends on tailoring them to the individual's abilities, but many trials fail to do so. A systematic review *(1224)* (conducted by authors from UK and the Netherlands) found that out of the 64 clinical trials reviewed, the capabilities of people living with dementia were not considered in 28 trials. This omission was particularly prevalent regarding sensory capabilities. Because of these methodological gaps, the relationship between intervention effectiveness and individual capabilities remains unclear. This suggests that interventions lacking personal tailoring (a cornerstone of person-centred care) may not benefit individuals equitably, as they fail to match the intervention to the person's needs.

Access equity

The feasibility of implementing non-pharmacological interventions is a major barrier to equitable access, especially in settings with limited funding. Several studies have highlighted that non-pharmacological interventions are often not consistently used due to practical barriers, regardless of effectiveness *(166)(252)(316)*. These barriers include inadequate funding, limited human resources and low staff-to-resident ratios *(166)*. This suggests that the substantial benefits demonstrated by many non-pharmacological interventions are not equitably available to all individuals, particularly those in under-resourced residential aged care facilities that lack the necessary financial and human resources for consistent implementation.

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Considerations for Aboriginal and Torres Strait Islander peoples

Aboriginal and Torres Strait Islander peoples experience dementia at a rate three to five times higher than the general population *(1086)*. Although many live in urban areas, Aboriginal and Torres Strait Islander communities are more widely spread across Australia, with a higher proportion living in remote areas. As a result, access to timely and culturally appropriate services may be limited, which has been identified as one of the key barriers to effective dementia care. The Third Australian Atlas of Healthcare Variation shows that dispensing rates of antipsychotic medications to older people increases with socioeconomic disadvantage *(18)*.

Dementia may occur against a background of transgenerational trauma and multiple losses in Aboriginal and Torres Strait Islander peoples. When these losses are not acknowledged by mainstream services, disenfranchised grief can develop, increasing the risk of complex grief reactions that can shape the presentation of dementia and BPSD. Factors such as ancestry, connection to land, culture, identify, and family relationships can also impact the presentation of BPSD.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect equity evidence in relation to use of non-pharmacological interventions for people with BPSD from culturally and linguistically diverse backgrounds.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect equity evidence in relation to use of non-pharmacological interventions for LGBTQIA+ people with BPSD.

Considerations for people living with younger onset dementia

There are estimated to be around 29,200 people aged 30-64 living with younger onset dementia in Australia in 2024, accounting for 6.9% of all people with dementia. This number is expected to increase to 42,000 by 2065 *(70)*. Under the NDIS, people with YOD who experience BPSD must have a Behavioural Support Plan (BSP) in place *(1308)*.

People living with younger onset dementia often present with a different BPSD profile compared to those with late-onset dementia. Studies comparing early- and late-onset Alzheimer's disease have found that apathy, depression, anxiety, agitation, and disinhibition are significantly more common in early-onset cases *(92)*. Similarly, while apathy is the most frequent symptom in early-onset Alzheimer's disease, aggression and disinhibition are more often seen in frontotemporal dementia.

A recent Australian review *(1016)* highlighted additional challenges specific to those living with younger onset dementia. Timely diagnosis remains a major difficulty, and while some research has examined the cost-effectiveness of non-pharmacological interventions for BPSD, their applicability to younger populations is uncertain. Assistive technologies have been reported as helpful by some people living with younger onset dementia, but overall there is a clear need for services, interventions, and activities to be age-appropriate in order to feel relevant and meaningful.

A particularly important issue for people living with younger onset dementia is that pathways to seeking help for BPSD are more fragmented compared with older-onset dementia. Because younger onset dementia sits at the intersection of aged care, disability, and mental health systems, people often fall through service gaps. Australian research repeatedly shows that families, caregivers, and even support workers are frequently unsure who to contact when behavioural changes escalate, be that Dementia Australia, Dementia Support Australia (DSA), general practice, private practitioners, or adult vs old age mental health services. The "right" pathways also differ across regions. A 2023 Australian study *(263)* highlights that although most people living with younger onset dementia actively seek help for BPSD, the process is slow, confusing, and poorly coordinated, with long wait times and inconsistent advice. A recent 2025 Australian study *(740)* again showed persistent gaps and barriers, with people reporting uncertain referral routes, poor coordination between services, and difficulty accessing age-appropriate support after diagnosis.

A Victorian review *(741)* of mental health triage calls also showed that behaviour changes in younger onset dementia often end up being reported to emergency or crisis services, largely because families aren't sure where else to go. Support workers funded through the NDIS also face similar problems. Many struggle to get specialist advice, find it hard to put behaviour plans into practice, and report that the system doesn't always accommodate the progressive nature of younger onset dementia *(189)*. Altogether, the picture that emerges is of a system where behavioural symptoms are common but the pathways to appropriate help are patchy, confusing, and not well-designed for younger people living with dementia.

It is also important to consider the broader social context, as many people living with younger onset dementia are still working, raising children, or managing multiple family responsibilities. Carer burden can be especially severe compared to caregivers of people with late onset dementia, especially for spouses who may be supporting both young children and ageing parents *(718)*. The presence of BPSD can have a profound effect on children living in these households also *(740)(811)*.

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Considerations for people living with disability

People living with intellectual disability, including those with Down syndrome, face additional challenges when it comes to recognising and managing BPSD. Behavioural change can be particularly difficult to identify because many clinicians and support staff are not always aware of what constitutes a meaningful change from a person's baseline *(1309)*. This may be exacerbated by gaps in routine monitoring, limited access to non-pharmacological strategies, and a workforce not adequately trained to implement behavioural interventions. These issues are not unique to intellectual disability, but they tend to be more pronounced due to the complexity of overlapping cognitive, communication, and health needs. As a result, people living with intellectual disability are at higher risk of behaviours being missed, misattributed, or managed primarily with medication rather than structured behavioural support *(1310)*.

Considerations for people living outside major cities

Significant health inequities persist between rural and metropolitan communities that must be prioritised in endeavours to promote equitable dementia diagnosis, management, and care. A 2015 Australian study *(438)* examining geographic inequity and access barriers found that carers of people living with dementia in rural settings reported poor utilization of commonly available community and dementia-specific services, especially BPSD advice services such as the Aged Persons Mental Health Service (APMHS) or Dementia Behaviour Management Advisory Service (DBMAS). This indicates an inequitable barrier to accessing non-pharmacological interventions and supportive services (like those managing BPSD and carer stress) due to their location. This was attributed to weak referral pathways and limited linkage with General Practitioners, and was associated with high carer burden.

Another study of 6 rural Australian aged care facilities found that while staff recognised underlying causes and non-pharmacological strategies for BPSD, time constraints were the main barrier preventing their use, resulting in continued reliance on antipsychotic medications despite known risks *(437)*.

Additional considerations

Input from the Living/Lived Experience Advisory Group

- The Living/Lived Experience Advisory Group noted emotional costs that relate to equity specifying jealousy and equity about services received.
- There is this broader discussion about systemic inequity that cuts across all the topics.
- In the new Act, not all 'clinical' is included as 'clinical' and therefore 'free'. We need to consider what works for diverse groups and who decides what is clinical for certain diverse groups.
    - **Aboriginal and Torres Strait Islander peoples**
        - Risk of insensitive practices

- **People from culturally and linguistically diverse backgrounds**
  - Risk of insensitive practices
- **LGBTQIA+ people**
  - Risk of discrimination in the home
- **People living with younger onset dementia**
  - Lack of accessibility
- **People living with disability**
  - No input provided
- **People who live in regional, rural or remote regions**
  - There are no people to provide structured and targeted interventions

Summary

Key points

- Research on non-pharmacological interventions for BPSD mostly consists of studies from high-resource, Western settings, with minimal inclusion of minority, rural, or low-resource populations
- Most studies do not adapt interventions to cultural or contextual differences, which limits their equity and applicability to diverse groups
- Many trials fail to consider the individual capabilities of people living with dementia, including sensory or functional abilities, which limits the equitable application of interventions *(1224)*
- Implementation feasibility remains a key equity issue, as limited funding, staffing shortages, and workforce capacity restrict consistent access to effective non-pharmacological interventions *(166)*
- In Australia, resource and workforce deficits (especially in rural and under-resourced facilities) are key barriers to equitable delivery of person-centred interventions *(437)(438)*

Guideline Development Group judgement and discussion

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The Group found considerable uncertainty and variability in how structured and targeted non-pharmacological interventions for BPSD would affect health equity. Concerns were raised that resource disparities across population groups, geographic regions, and care settings may limit equitable access to these interventions, potentially widening existing inequities. At the same time, it was also noted that strong recommendations could serve as a driver for equity improvements.

Acceptability

No important issues with the recommended alternative

Research evidence

International context

There is universal consensus in the literature that non-pharmacological interventions should always be used as first-line treatment for BPSD *(204)(316)(340)(416)(1148)*. This preference is largely driven by the safety profile. Non-pharmacological interventions are highly acceptable to people living with dementia and their families because they possess few or no adverse effects compared to pharmacological treatments *(166)(340)*. Most interventions, including sensory practices (e.g., aromatherapy, massage) and psychosocial practices (e.g., validation therapy, structured care protocols), are reported to be well accepted by participants *(1026)*. Furthermore, acceptability is enhanced when interventions are tailored and modified to account for the person living with dementia's cognitive capacity and preferences *(339)*. Staff belief in the benefit and seeing the positive effects of non-pharmacological interventions (such as calming the resident or increasing enjoyment) enhances their implementation *(167)*.

Australian context

A 2024 survey *(166)* of Australian residential aged care staff showed that most respondents (66.3%) felt that non-pharmacological interventions are more useful than medications. The majority (80.8%) believed that non-pharmacological interventions should always be tried before medications, with most staff reporting that they felt competent (79.5%) and responsible (83.2%) for delivering the interventions. While overall attitudes were positive, however, 30.1% of staff believed that more than half of residents do not respond to non-pharmacological interventions. Only 45.8% reported that they always expect a good outcome, and that the feeling that "what works once doesn't work again" can be a hindrance.

A 2023 Australian qualitative study *(264)*, drawing on evidence from the Royal Commission into Aged Care Quality and Safety, found that families and friends considered the use of psychotropic medication or "chemical restraint" as a first-

line response to dementia-related behaviours unacceptable. They frequently challenged this practice and advocated for non-pharmacological strategies to preserve residents' quality of life and functioning, prioritising non-pharmacological because they have few or no adverse effects compared to pharmacological treatments.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect evidence regarding the acceptability of the use of non-pharmacological interventions for BPSD in Aboriginal and Torres Strait Islander peoples living with dementia.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect evidence regarding the acceptability of the use of non-pharmacological interventions for BPSD for people from culturally and linguistically diverse backgrounds living with dementia.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect evidence regarding the acceptability of the use of non-pharmacological interventions for BPSD for LGBTQIA+ people living with dementia.

Considerations for people with disability

We did not identify studies that provided direct or indirect evidence regarding the acceptability of the use of non-pharmacological interventions for BPSD for people living with disability.

Considerations for people living with younger onset dementia

We did not identify studies that provided direct or indirect evidence regarding the acceptability of the use of non-pharmacological interventions for BPSD for people living with younger onset dementia.

Considerations for people living outside major cities

We did not identify studies that provided direct or indirect evidence regarding the acceptability of the use of non-pharmacological interventions for BPSD for people living with dementia living outside major cities.

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Additional considerations

Input from the Living/Lived Experience Advisory Group

- These interventions are generally acceptable if they are chosen by the person living with dementia, are cost-effective, and are stopped if any adverse events occur etc.
- Concerns were raised about the quality of the current evidence, which it was agreed precluded any strong recommendation to be made.
- The Living/Lived Experience Advisory Group also raised the greater acceptability and need of informal 1-on-1 connection. 'It's all about meaningful connection. But given the lack of evidence, it's hard to advocate for them [structured and targeted interventions] if the alternative is just spending meaningful time with someone without the expense.'
- Some Living/Lived Experience Advisory Group members stated that from experience they do find occupational therapy (e.g., dancing, music therapy, group activity as a volunteer) does work.
- One Living/Lived Experience Advisory Group member believed that similar to programs delivered in disability, these interventions will have better outcomes if delivered in a structured way

Summary

Key points

- Non-pharmacological interventions are widely recognised as the first-line treatment for BPSD due to their safety and lack of adverse effects compared with pharmacological options *(204)(316)(340)(416)(1148)*
- Non-pharmacological interventions, including sensory and psychosocial approaches (e.g., aromatherapy, massage, validation therapy, structured care), are generally well-accepted by people living with dementia and their families *(1026)*
- Acceptability improves when interventions are tailored to the person's cognitive abilities, preferences, and sensory capacities *(339)*
- Staff belief in the benefits of non-pharmacological interventions and witnessing positive effects such as calming or enjoyment enhances implementation *(167)*
- Australian residential aged care staff report strong support for non-pharmacological interventions, viewing them as more useful than medications and within their professional responsibility to deliver *(166)*
- Despite positive attitudes, many staff note inconsistent resident responses and express uncertainty about sustained effectiveness ("what works once doesn't work again") *(166)*
- Australian stakeholders (people living with dementia and their families) strongly oppose the use of psychotropic medication as a first-line response and advocate for non-pharmacological interventions to preserve quality of life

and functioning *(264)*

Guideline Development Group judgement and discussion

The Group agreed that structured and targeted non-pharmacological interventions for BPSD are **probably acceptable** to key stakeholders.

Feasibility

Important issues, or potential issues not investigated

Research evidence

General considerations

Feasibility for the implementation of structured and targeted non-pharmacological interventions for BPSD is determined less by their proven clinical effectiveness and more by organizational capacity, staffing, and resources available within care systems globally. Feasibility will likely be highly variable depending on location and setting within Australia.

Key factors to consider in the implementation of structured and targeted non-pharmacological interventions in aged care settings include:

- Staffing capacity (level of skill, time availability)
- Adequate resourcing (especially funding) to support staffing, training, environmental adjustments, and ongoing program delivery
- Effective, ongoing training for staff and caregivers
- Environmental modifications
- Flexibility in daily routines
- Severity and complexity of the individual's BPSD and cognitive impairment
- Clear workflows and escalation pathways
- Organisational support

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In community or home settings, feasibility will additionally depend on the ability to provide carers with resources (both education and materials) and support services. This will involve a coordinated and structured delivery via government or dementia-support organisations (e.g., Dementia Australia).

International context

A 2025 systematic review *(167)* conducted by Australian authors showed that non-pharmacological interventions are acknowledged to be more challenging to implement than pharmacological treatments. The lack of sufficient funds for training, equipment, and resources impairs implementation. Furthermore, organizational resistance is often high from managers and care workers due to concerns about cost and staff time.

Feasibility also depends on successfully matching the intervention to the individual's needs, and the severity of the resident's physical and cognitive impairment may slow the use of non-pharmacological interventions *(167)(1224)*. While international studies, including those from Norway, Germany, and the Netherlands, have advanced research into individualized person-centred care models in nursing homes, these interventions are often categorized as resource-intensive *(257)*.

In the community or home setting, feasibility depends on providing resources and support to informal caregivers *(290)*. This often relies on a coordinated and structured delivery via government or dementia-support organizations. Occupational therapy services, for example, are offered by government agencies, non-profit organizations, and private companies in Australia, supporting tailored home care. Evidence suggests that home-based exercise programs can be administered without increasing the total health and social service costs, supporting their feasibility *(860)*.

Australian context

The previously mentioned 2024 survey *(166)* of Australian residential aged care staff shows that the most significant operational barrier is the lack of adequate staff time, which is tied directly to funding, with only 21.7% of Australian staff believing the government provides sufficient funding for non-pharmacological intervention implementation. Staff must often contend with work overload, which significantly hinders the ability to provide personalized care.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect feasibility evidence regarding the use of non-pharmacological interventions for BPSD in Aboriginal and Torres Strait Islander peoples living with dementia.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect feasibility evidence regarding the use of non-pharmacological interventions for BPSD for people from culturally and linguistically diverse backgrounds living with dementia.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect feasibility evidence regarding the use of non-pharmacological interventions for BPSD for LGBTQIA+ people living with dementia.

Considerations for people with disability

We did not identify studies that provided direct or indirect feasibility evidence regarding the use of non-pharmacological interventions for BPSD for people living with disability.

Considerations for people living with younger onset dementia

We did not identify studies that provided direct or indirect feasibility evidence regarding the use of non-pharmacological interventions for BPSD for people living with younger onset dementia.

Considerations for people living outside major cities

We did not identify studies that provided direct or indirect feasibility evidence regarding the use of non-pharmacological interventions for BPSD for people living with dementia living outside major cities.

Additional considerations

Input from External Interest Holder Organisations

Enablers and barriers

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Regulatory changes limiting restrictive practices have created opportunities to prioritise non-pharmacological dementia care. Success depends on strong enablers such as workforce education, organisational values that emphasise inclusion, dementia-friendly environments, and adequate funding and staffing.

Barriers identified include workforce challenges and limited funding and service providers to deliver structured and targeted interventions. Respondents felt that dementia is underrepresented in nursing curriculum, and acute medical care often overshadows psychosocial support, leaving gaps in holistic care delivery.

Allied health professionals are seen as playing a critical role in assessing functional capacity and providing recommendations for ongoing support needs, while 'support workers are engaged to provide individual support to implement programs and targeted interventions to reduce the risk of isolation and encourage participation and interpersonal relationship building.'

Sustainability and accessibility

Sustainability requires stable, skilled staff with protected time to deliver interventions, alongside service navigation support and long-term funding. Accessibility is shaped by individual factors such as cognition, mobility, interests, and informal supports, as well as practical considerations like transport, cost, and awareness. Activities must enhance wellbeing and social connection, with fair fee structures to avoid disadvantaging people living with dementia.

Impact on health workforce

With dementia diagnoses increasing, workforce resources are continually stretched in delivering individualised care. Effective, targeted interventions were seen to enhance wellbeing and reduce the need for additional support when a person is unsettled, but this requires protected time and dedicated staff. Workforce shortages were also highlighted with participants stating that it does not 'allow for interventions to be provided and effective' and result in a 'lack of consistent staff and stable leadership to lead dementia care.'

To achieve success, the workforce must be equipped with specialised skills, including a strong understanding of dementia, evidence-based practice, and the ability to monitor outcomes. Training should emphasise recognising subtle cues such as body language to identify early signs of agitation and implement timely de-escalation strategies. Qualifications and professional recognition must reflect these specialist competencies to ensure interventions are both valued and effective.

Summary

Key points

- Feasibility may depend more on organisational capacity, staffing, and resources than on proven effectiveness
- Implementation is limited by staff shortages, time pressures, and inadequate funding
- Training, environmental adjustments, and strong organisational support are needed for successful implementation
- Person-centred care models abroad are promising but resource-intensive *(257)*
- Community and home settings require coordinated delivery of resources, education, and carer support through government and dementia organisations *(290)*
- In Australia, aged care staff report insufficient government funding, and work overload continues to hinder personalised care *(166)*

Guideline Development Group judgement and discussion

The Group agreed that structured and targeted non-pharmacological interventions for BPSD are overall likely **feasible** to implement, although this varies considerably depending on the intervention type, care setting, and available resources. While some interventions carry low resource burdens, others require specialist input, dedicated staffing, or sustained implementation efforts that may not be available to all. However, it is important to note that not all interventions are resource-intensive to avoid this being considered a blanket barrier to implementation.

Rationale

The Guideline Development Group judged that:

- Structured and targeted interventions focussing on activity, participation, and interpersonal relationship-building resulted in small desirable effects and trivial undesirable effects, with low certainty evidence.
- There was possibly important variability in how much people living with dementia valued the desirable and undesirable effects, and the balance of effects probably favoured use of the interventions.
- Structured and targeted interventions were associated with moderate costs, but were probably cost-effective.
- The impact on equity varies, and the use of the interventions was acceptable and probably feasible.

Considering all judgements together, the Group agreed to make a conditional recommendation for structured and targeted non-pharmacological interventions.

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Clinical question/ PICO

Population: People with behavioural and psychological symptoms of dementia
Intervention: Structured and targeted interventions focusing on activity, participation and interpersonal relationship building
Comparator: usual care

Outcome Timeframe	**Study results and measurements**	**Comparator** usual care	**Intervention** Structured and targeted interventions focusing on activity, par	**Certainty of the evidence** (Quality of evidence)	**Summary**
Adverse events [1] 9 Critical	Relative risk 3.66 (CI 95% 0.42 — 32.06) Based on data from 648 participants in 11 studies. (Randomized controlled) Follow up: 4-12 weeks.	Difference:	3 per 1000 **3 more per 1000** (CI 95% 16 fewer — 22 more)	High	Structured and targeted interventions focusing on activity, participation, and interpersonal relationship-building result in little to no difference in adverse events. All reported adverse events related to distress for the person with dementia from the intervention, either due to having to be separated from their caregiver whilst giving feedback, or due to increased awareness of difficulties in performing

Outcome Timeframe	**Study results and measurements**	**Comparator** usual care	**Intervention** Structured and targeted interventions focusing on activity, par	**Certainty of the evidence** (Quality of evidence)	**Summary**
					certain activities. (Threshold for an important effect: 100 people experiencing an adverse event per 1000)
Agitation 9 Critical	Measured by: CMAI, NPI, ABMI, ABS, BARS Lower better Based on data from 519 participants in 11 studies. (Randomized controlled) Follow up: 4-12 weeks.	Difference:	**SMD 0.41 lower** (CI 95% 0.68 lower — 0.14 lower)	**Low** Due to serious risk of bias and serious inconsistency. [2]	Structured and targeted interventions focusing on activity, participation, and interpersonal relationship-building may result in a reduction in agitation. Results were inconsistent across the 11 studies, with 6 studies showing little or no effect, and 5 studies showing important reductions in agitation. No studies suggested harm. (Threshold for an important effect: SMD 0.4)
Behavioural and psychological symptoms - overall 9 Critical	Measured by: NPI, BEHAVE-AD, BRSD, CRBRS, RMBPS, CAPE, QCRP, MBS, MOSES Lower better Based on data from 2,177 participants in 23 studies. (Randomized controlled) Follow up: 4-12 weeks.	Difference:	**SMD 0.19 lower** (CI 95% 0.31 lower — 0.07 lower)	**Low** Due to serious risk of bias and serious inconsistency [3]	Structured and targeted interventions focusing on activity, participation, and interpersonal relationship-building may result in little to no difference in overall behavioural and psychological symptoms. Results were inconsistent across the 23 studies, with 15 studies showing little to no effect, 6 studies showing an important reduction in overall behavioural and psychological symptoms, and 1 study showing an important increase in overall behavioural and psychological symptoms. (Threshold for an important effect: SMD 0.4)
Overall carer burden 9 Critical	Measured by: NPI-Caregiver, ZBI, CBI, PSS, BIZA, GHQ Lower better Based on data from 2,189 participants in 24 studies. (Randomized controlled) Follow up: 4-12 weeks.	Difference:	**SMD 0.3 lower** (CI 95% 0.46 lower — 0.14 lower)	**Low** Due to serious risk of bias and serious inconsistency [4]	Structured and targeted interventions focusing on activity, participation, and interpersonal relationship-building may result in little to no difference in overall carer burden. Results were inconsistent across the 24 studies, with 15 studies showing little to no effect,

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Outcome Timeframe	**Study results and measurements**	**Comparator** usual care	**Intervention** Structured and targeted interventions focusing on activity, par	**Certainty of the evidence** (Quality of evidence)	**Summary**
					and 9 studies showing a reduction in overall carer burden. No studies showed an increase in carer burden. (Threshold for an important effect: SMD 0.4)
Residential aged care carer/ employee burden - subgroup analysis 9 Critical	Measured by: NPI-Caregiver, ZBI, CBI, PSS, BIZA, GHQ Lower better Based on data from 128 participants in 4 studies. (Randomized controlled) Follow up: 4-12 weeks.	Difference:	**SMD 0.95 lower** (CI 95% 1.4 lower — 0.5 lower)	**Low** Due to serious risk of bias and serious inconsistency [5]	Structured and targeted interventions focusing on activity, participation, and interpersonal relationship-building may result in a reduction in carer/ employee burden in residential aged care facilities. Results were inconsistent across the 4 studies, with 1 study showing little to no effect, and 3 studies showing a large reduction in carer burden. No studies showed an increase in carer/ employee burden in these settings. (Threshold for an important effect: SMD 0.4)
Quality of life 9 Critical	Measured by: DEMQOL, QoL-AD, EQ-5D, QUALID, ADRQL, QualiDem Lower better Based on data from 2,448 participants in 25 studies. (Randomized controlled) Follow up: 4-12 weeks.	Difference:	**SMD 0.3 lower** (CI 95% 0.46 lower — 0.13 lower)	**Low** Due to serious risk of bias and serious inconsistency [6]	Structured and targeted interventions focusing on activity, participation and interpersonal relationship building may result in little to no difference in quality of life of the person living with dementia. Results were inconsistent across the 25 studies, with 9 studies showing an improvement in quality of life, 15 studies showing little or no difference, and 1 study showing a worsening in quality of life. (Threshold for an important effect: SMD 0.4)
Cognition 6 Important	Measured by: MMSE, ADAS-Cog, ACE, ACE-III Lower better Based on data from 1,461 participants in 18 studies. (Randomized controlled) Follow up: 4-12 weeks.	Difference:	**SMD 0.34 lower** (CI 95% 0.56 lower — 0.11 lower)	**Low** Due to serious risk of bias and serious inconsistency [7]	Structured and targeted interventions focusing on activity, participation, and interpersonal relationship-building may result in little to no difference in cognition. Results were inconsistent across the 18 studies, with 8 studies

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Outcome Timeframe	**Study results and measurements**	**Comparator** usual care	**Intervention** Structured and targeted interventions focusing on activity, par	**Certainty of the evidence** (Quality of evidence)	**Summary**
					showing important benefit, 8 studies showing little or no difference, and 2 studies showing important harm. (Threshold for an important effect: SMD 0.4)
Depressive symptoms 6 Important	Measured by: CSDD, CES-D, DIY, AGECAT, MADRS, HDRS Lower better Based on data from 2,719 participants in 27 studies. (Randomized controlled) Follow up: 4-12 weeks.	Difference:	**SMD 0.25 lower** (CI 95% 0.38 lower — 0.12 lower)	**Low** Due to serious risk of bias and serious inconsistency [8]	Structured and targeted interventions focusing on activity, participation, and interpersonal relationship-building may result in little to no difference in depressive symptoms. Results were inconsistent across the 27 studies, with 9 studies showing a reduction in depressive symptoms, 17 studies showing little or no difference, and 1 study showing an increase in depressive symptoms. (Threshold for an important effect: SMD 0.4)
Functional level 6 Important	Measured by: DEED, Katz ADL, ADCS-ADL, FAST, IDDD, Barthel, ADL-Q, BADLS Lower better Based on data from 2,551 participants in 24 studies. (Randomized controlled) Follow up: 4-12 weeks.	Difference:	**SMD 0.25 lower** (CI 95% 0.42 lower — 0.08 lower)	**Low** Due to serious risk of bias and serious inconsistency [9]	Structured and targeted interventions focusing on activity, participation, and interpersonal relationship-building may result in little to no difference in functional level. Results were inconsistent across the 24 studies, with 9 studies showing an important improvement in function, 14 studies showing little or no difference, and 1 study showing a worsening in function. (Threshold for an important effect: SMD 0.4)

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1. all were intervention-related distress: eg, separation from caregiver, increased awareness of difficulties with activities
2. **Risk of Bias: serious.** Risk of bias concerns related to measurement of the outcome. Blinding of participants and staff was not possible given the nature of the intervention.. **Inconsistency: serious.** Serious inconsistency (-1): 6 studies showing little to no difference, 5 studies showing important benefit. I2 = 53%, P = 0.02. **Indirectness: no serious. Imprecision: no serious.** The 95% CI interval crosses the threshold for an important effect (SMD=0.4) and appears compatible with important benefit (SMD=0.68 lower) and little or no difference (SMD=0.14 lower), however the imprecision is likely due to inconsistent effects and so the evidence was not also rated down for imprecision.. **Publication bias: no serious.**
3. **Risk of Bias: serious.** Risk of bias concerns related to measurement of the outcome. Blinding of participants and staff was not possible given the nature of the intervention.. **Inconsistency: serious.** Serious inconsistency (-1): 15 studies showing little to no difference, 6 studies showing important benefit, 1 study showing important harm. I2 = 46%, P = 0.009. **Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.**
4. **Risk of Bias: serious.** Risk of bias concerns related to measurement of the outcome. Blinding of participants and staff was not possible given the

nature of the intervention.. **Inconsistency: serious.** Serious inconsistency (-1): 15 studies showing little to no difference, 9 studies showing important benefit. I2 = 66%, P <0.00001. **Indirectness: no serious. Imprecision: no serious.** The 95% CI interval crosses the threshold for an important effect (SMD=0.4) and appears compatible with important benefit (SMD=0.46 lower) and little or no difference (SMD=0.14 lower), however the imprecision is likely due to inconsistent effects and so the evidence was not also rated down for imprecision. . **Publication bias: no serious.**

5. **Risk of Bias: serious.** Risk of bias concerns related to measurement of the outcome. Blinding of participants and staff was not possible given the nature of the intervention.. **Inconsistency: serious.** 3 studies showing large important benefit, 1 study showing little or no difference. I2 = 31%, P <0.23. **Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.**

6. **Risk of Bias: serious.** Risk of bias concerns related to measurement of the outcome. Blinding of participants and staff was not possible given the nature of the intervention.. **Inconsistency: serious.** Serious inconsistency (-1): 9 studies showing important benefit, 15 studies showing little or no difference, 1 study showing important harm. I2 = 70%, P <0.00001. **Indirectness: no serious. Imprecision: no serious.** The 95% CI interval crosses the threshold for an important effect (SMD=0.4) and appears compatible with important benefit (SMD=0.46 lower) and little or no difference (SMD=0.13 lower), however the imprecision is likely due to inconsistent effects and so the evidence was not also rated down for imprecision.. **Publication bias: no serious.**

7. **Risk of Bias: serious.** Risk of bias concerns related to measurement of the outcome. Blinding of participants and staff was not possible given the nature of the intervention.. **Inconsistency: serious.** Serious inconsistency (-1): 8 studies showing important benefit, 8 studies showing little or no difference, 2 studies showing important harm. I2 = 73%, P <0.00001. **Indirectness: no serious. Imprecision: no serious.** The 95% CI interval crosses the threshold for an important effect (SMD=0.4) and appears compatible with important benefit (SMD=0.56 lower) and little or no difference (SMD=0.11 lower), however the imprecision is likely due to inconsistent effects and so the evidence was not also rated down for imprecision. . **Publication bias: no serious.**

8. **Risk of Bias: serious.** Risk of bias concerns related to measurement of the outcome. Blinding of participants and staff was not possible given the nature of the intervention.. **Inconsistency: serious.** Serious inconsistency (-1): 9 studies showing important benefit, 17 studies showing little or no difference, 1 study showing important harm. I2 = 60%, P <0.00001. **Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.**

9. **Risk of Bias: serious.** Risk of bias concerns related to measurement of the outcome. Blinding of participants and staff was not possible given the nature of the intervention.. **Inconsistency: serious.** Serious inconsistency (-1): 9 studies showing important benefit, 14 studies showing little or no difference, 1 study showing important harm. I2 = 74%, P <0.00001. **Indirectness: no serious. Imprecision: no serious.** The 95% CI interval crosses the threshold for an important effect (SMD=0.4) and appears compatible with important benefit (SMD=0.42 lower) and little or no difference (SMD=0.08 lower), however the imprecision is likely due to inconsistent effects and so the evidence was not also rated down for imprecision.. **Publication bias: no serious.**

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Practice Statement

Good practice statement 6

Offer a comprehensive assessment of the person living with dementia with symptoms as early as possible by a health professional skilled in BPSD assessment and management. If appropriate, involve the person's carer, with consideration of the person's consent and capacity.

- Analyse behavioural symptoms using the ABC (antecedent, behaviour, consequence) approach, including frequency, timing, and presentation, recognising that behaviour is often a form of communication and may reflect unmet needs.
- Review the underlying aetiology and stage of dementia, and use objective measurement tools with strong psychometric properties.

Good practice statement 7

Incorporate the information needs, values, goals of care, and advance wishes of the person living with dementia into the assessment, planning of interventions and management for BPSD. Consider the individuals' cultural background, spiritual beliefs, language, gender, sexual orientation, and trauma history.

Good practice statement 8

- Identify, monitor, and address factors that may contribute to or exacerbate BPSD, recognising these may change at any given time for different symptoms.
    - Physical health factors, e.g., pain, hunger, toileting needs, medication side effects, intercurrent illness
    - Psychosocial factors, e.g., lack of privacy, lack of meaningful activities, stress responses of people around
    - Environmental factors, e.g., loud or busy environments.

Good practice statement 9

Develop an individualised care plan for a person living with dementia experiencing BPSD, if appropriate in partnership with the person's carer and interdisciplinary team, tailored to the specific preferences, skills, abilities and needs of the person, including strategies for anticipating, managing and de-escalating behaviours such as agitation or aggression. Where relevant, involve and communicate the person's care plan to the carer and interdisciplinary team.

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Good practice statement 10

Regularly evaluate the care plan, adapting, changing, or discontinuing strategies as appropriate.

Good practice statement 11

Use non-pharmacological strategies first-line for BPSD. If psychotropic medications are considered, they should complement and not replace non-pharmacological approaches and be regularly reviewed.

Rationale

The good practice statements were developed to emphasise essential principles of care, based on practice points in the previous Australian Dementia Clinical Practice Guidelines (2016), and the Canadian Clinical Practice Guidelines for Assessing and Managing Behavioural and Psychological Symptoms of Dementia Guidelines 2024.

9.4 Deprescribing of cholinesterase inhibitors and memantine

Pharmacological therapies

There are currently two classes of medications subsidised on the Pharmaceutical Benefits Scheme (PBS) in Australia to treat the symptoms of Alzheimer's disease dementia: cholinesterase inhibitors (ChEIs: donepezil, rivastigmine and galantamine) and the N-methyl-D-aspartate (NMDA) receptor antagonist, memantine. These medications are not disease modifying, yet they can have important benefits to people living with Alzheimer's disease dementia and their carers (such as through improvement of cognitive function).

New drugs for the treatment of Alzheimer's Disease have been developed recently, specifically monoclonal antibodies targeting amyloid-beta protein (e.g., donamemab and lecanemab). This question does not consider deprescribing of these medications.

More than 60% of people living with dementia take five or more regular medications *(1294)*. In Australia, more than 70% of care facility residents living with dementia take five or more regular medications *(1025)*. Thus, the use of medications among people living with dementia needs to be considered in the context of the potential harms of polypharmacy with multimorbidity, particularly drug–drug and drug–disease interactions. People living with dementia may have alterations in pharmacokinetics (how the body absorbs and processes the drug) and pharmacodynamics (how the body responds to the drug) that increase susceptibility to medication-related harm *(762)*.

What is Deprescribing?

Deprescribing is the structured withdrawal of an **inappropriate medication** (any medication where the likely harms outweigh the likely risks, including unnecessary and high-risk medications), supervised by a healthcare professional. It may involve tapering and dose reduction.

All medications come with the potential for benefits as well as the risk of harm. The benefits and risks of medication use can change over time, as the person ages and their medical conditions and other medications change. Appropriate use of cholinesterase inhibitors and memantine therefore involves regular review of the appropriateness of the medication with deprescribing when the risks outweigh the benefits in the individual.

The aim of '**deprescribing**' is to reduce the risk of medication related harms and improve the overall risk–benefit profile of medication use. This is achieved through withdrawal of **inappropriate medications**, conducted in a safe and effective manner. Deprescribing can lead to benefits, including a reduction in adverse drug events, improved adherence, reduced financial costs and reduced hospitalisations and mortality. There are also potential harms of deprescribing such as adverse drug withdrawal reactions and return of medical condition, however, these can be minimised with appropriate planning, individualised care practices and close monitoring.

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Thus, the purpose of this question is to assist healthcare professionals (particularly prescribers), people living with dementia and their carers to determine when it might be suitable to trial deprescribing of these medications. These recommendations only apply to individuals already taking one of the medications (donepezil, rivastigmine, galantamine and/or memantine). The recommendations are not necessarily limited to people living with dementia as these medications are sometimes used 'off-label' for other conditions (e.g., mild cognitive impairment).

We are considering studies which compare discontinuation to continuation (or no use of these medications such as placebo discontinuation), however, **deprescribing in practice is a process.** It does not happen in a single interaction with a healthcare professional. Monitoring, support and follow-up with restarting of the medication if necessary are an essential part of deprescribing.

Why do we need recommendations about deprescribing cholinesterase inhibitors and memantine?

A lack of deprescribing recommendations in clinical practice guidelines has been cited as a barrier to deprescribing in practice. It is estimated that up to one-third of cholinesterase inhibitor and memantine use is potentially inappropriate. This includes use for an unsupported indication or failure to discontinue use where warranted (i.e., lack of deprescribing) *(976)*. For example, a study in the US found that over 50% of individuals continued cholinesterase inhibitors and memantine after entering hospice, a time when these medications are no longer indicated *(584)*. Drug-drug interactions with these medications are also common. Between 9 and 45% *(357)(492)(990)(1003)* of users are also prescribed a medication that can possibly reduce its efficacy or increase the risk of harms to the person.

In a recent nationwide priority setting exercise, consumers and clinicians selected the following as the #4 priority for research into quality use of medicines in people living with dementia:

- Which medicines are **potentially harmful or unnecessary** in people living with dementia and should be stopped? And how can **deprescribing** (cessation of harmful and/or unnecessary medicines) be achieved in people living with dementia?

This project involved feedback from >300 consumers and >150 clinicians across Australia to identify and prioritise unanswered questions. While this question is not specific to cholinesterase inhibitors and memantine, it highlights that consumers and clinicians place a high value on reducing medication related harm and burden *(974)*.

Question 14

Should discontinuation of cholinesterase inhibitors (ChEIs: donepezil, galantamine, rivastigmine) or memantine versus continuation of ChEIs or memantine be undertaken for people who are currently prescribed a ChEI and/or memantine?

Conditional recommendation for , Very low certainty evidence

Recommendation 14
Consider deprescribing (discontinuation) of cholinesterase inhibitors and memantine when the benefits no longer outweigh potential harms, or the benefits are uncertain.

Remarks

Situations in which to consider deprescribing (discontinuation) of cholinesterase inhibitors and memantine may include when:

- *Deprescribing is preferred by the person living with dementia, or when the substitute decision maker believes this would align with the individual's preferences.*
- *There is no demonstrated improvement, stabilisation, or decreased rate of decline of quality of life, cognition, function or behavioural symptoms after the initial six months of treatment.*
- *Quality of life, cognition, function or behavioural symptoms have worsened more than expected over the past six months.*
- *The medication is causing adverse events or the person is at high risk of an adverse event (e.g., falls), or clinically important drug-drug or drug-disease interactions.*
- *The individual's condition has progressed to advanced dementia, such as when the person has limited life expectancy, requires support in most activities of daily living, or is unable to respond to the environment.*
- *Goals of care have changed, such as when the individual has limited life expectancy due to a non-dementia terminal illness.*
- *Used for indications other than Alzheimer's disease dementia, dementia of Parkinson's disease or Lewy body dementia (licensed indications), e.g., mild cognitive impairment (unlicensed indication).*
- *There is non-adherence that cannot be resolved.*
- *The person cannot swallow (when prescribed an oral preparation).*

Regular review of ongoing treatment with cholinesterase inhibitors and memantine is important as goals of care, benefits, and harms may change over time.

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Practical info

Use shared or supported decision making to carry out a holistic assessment and determine personalised goals of care in partnership with the person living with dementia, and their carer if appropriate, considering information needs, values, preferences, and experiences with the medication. Written information and decision-support tools may assist shared decision-making.

Use empathetic and person-centred communication to:

- explain the rationale for deprescribing including the potential benefits and harms
- address common concerns, such as fear of deterioration, the perception that deprescribing may represent a withdrawal of care,
- discuss the uncertainty of an individual's response
- explain the plan for monitoring and that the medication can be restarted if appropriate.

Discussions about deprescribing cholinesterase inhibitors and memantine may be well placed within a broader review of the individual's medication regimen.

If deprescribing of cholinesterase inhibitors or memantine is considered appropriate, plan for the tapering and discontinuation process to occur when there is opportunity for monitoring and scheduled follow up (e.g., at each dose reduction and 4 weeks after discontinuation).

Provide the person living with dementia, and their carer if appropriate, with advice on symptoms to self-monitor for and what to do if they occur.

The presentation and timing of adverse events during or following deprescribing cholinesterase inhibitors or memantine indicate the likely cause and appropriate action:

- Physiological adverse drug withdrawal reactions (i.e., agitation, aggression, hallucinations, or reduced consciousness) within one week of discontinuation (very rare). Exclude other acute causes, treat symptoms and consider restarting medication at the previous minimum effective dose. Deprescribing may be considered again with a slower tapering rate.
- Re-emergence of symptoms of dementia (i.e., worsening of cognition, function or behavioural or psychological symptoms) 2-6 weeks after discontinuation. Consider restarting medication at the previous minimum effective dose.
- Progression of dementia (i.e., worsening of cognition, function or behavioural or psychological symptoms) more than 6 weeks after

discontinuation. Do not restart previous medication.

Useful resources

Patient decision aid and deprescribing plan template

PRIME tool - general information about medication review and deprescribing for people living with dementia carers, with questions to ask about medicines

Clinician algorithm from 2018 Evidence-Based Clinical Practice Guideline for Deprescribing Cholinesterase Inhibitors and Memantine

Evidence to decision

Benefits and harms

Small net benefit, or little difference between alternatives

Research evidence

Desirable effects

Discontinuation of ChEIs (donepezil, galantamine, rivastigmine) and/or memantine **compared to continuing** ChEI (donepezil, galantamine, rivastigmine) and/or memantine or no pharmacological treatment (e.g., placebo discontinuation):

Results in a small improvement in:

- Serious adverse events (SAEs) - Mortality [critical]
- Serious adverse events (SAEs) - Hospitalisation [critical]
- Serious adverse events (SAEs) - Admission to Residential Aged Care Facility (RACF) [critical] - according to randomised controlled trials

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Has little to no (trivial) effect on:

- Quality of life of person with dementia [critical]
- Cognitive function – Global [critical]
- Cognitive function – Specific [critical]
- Behavioural and psychological symptoms (BPSD) - Overall [critical]
- Behavioural and psychological symptoms (BPSD) - Specific [critical]
- Serious adverse events (SAEs) - Falls [critical]
- Serious adverse events (SAEs) - Admission to Residential Aged Care Facility (RACF) [critical] - according to NRSI studies
- Adverse events (AEs) [important]
- Clinical status - Dementia stage/severity [important]
- Quality of life of the carer and family [important]
- Functional ability and participation - Overall [important]

No studies reported on:

- Functional ability and independence - Goal of the person [important]
- Functional ability and participation - Physical - Specific [important]

Undesirable effects

There were no undesirable effects on any of the other prioritised outcomes for which data were available.

Our interpretation is based on a threshold for:

- a small but important effect of 0.4 SMD
- a moderate effect of 0.7 SMD.

Summary

Balance of effects: Guideline Development Group judgement and discussion

To decide on the balance of effects, the Guideline Development Group initially considered and made separate judgements about:

- the size of desirable anticipated effects (benefits) – **small**
- the size of undesirable anticipated effects (harms) – **trivial**
- the overall certainty of the evidence for critical outcomes – **very low**
- whether there is important variability (or uncertainty) in how much people value the main outcomes – **possibly important uncertainty or variability.**

The Group decided that the balance of effects **probably favours deprescribing**. While benefits were small and uncertain, the lack of meaningful harm further supported this judgement.

Desirable effects: Guideline Development Group judgement and discussion

- The Group judged that deprescribing may result in overall **small desirable effects**.
- Discussions highlighted the possible small benefits/improvements in clinical outcomes such as mortality, hospitalisation, and RACF admission. These effects were uncertain and based on low and very low certainty evidence.

Undesirable effects: Guideline Development Group judgment and discussion

- The Group judged that deprescribing is associated with **trivial undesirable effects**.
- No outcome demonstrated clinically important harm based on pre-specified thresholds.

Certainty of the evidence

Very low

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Research evidence

The overall certainty of the body of evidence is determined by the lowest certainty rating of all the critical outcomes.

The overall certainty of evidence was determined to be **very low**.

Values and preferences

Substantial variability is expected or uncertain

Research evidence

General Considerations

The quality of life of the person with dementia is regularly discussed as central to treatment decisions (starting, continuing and discontinuing) *(764)(1087)*. In studies with carers discussing possible discontinuation of ChEIs the main findings were *(476)(764)(1084)(723)*:

- Carers were ambivalent about the effectiveness of ChEIs, however, they also reported a resistance to stopping these medications and instead opting to continue these medications for as long as possible.
- Several carers reported an anticipated rapid decline, or even hastening of death brought on by discontinuation and fear of this impacted willingness to deprescribe. And this seemingly outweighed understanding of the risk of adverse drug reactions with long term use.

High expectations coupled with limited observed benefit may prompt some carers to consider stopping ChEIs/ memantine *(476)(764)(735)(1084)*. Factors influencing the decision to discontinue treatment include the progression of dementia, diminishing or absence of therapeutic benefit, treatment costs, rapid physical decline, adverse effects, and concerns that the medication may be worsening the condition *(589)(640)(710)(784)*. The majority of carers interviewed felt that a lack of effect was a valid reason to stop therapy *(583)*. Other studies found that carers would consider stopping therapy only when the person was totally dependent, while people with dementia were reluctant to think that there would come a time to stop this medication *(723)*.

The following research evidence generally comes from studies discussing outcomes that are important when considering starting ChEIs and memantine (not deprescribing). A systematic review found that outcomes considered

important (not specific to any medication) by individuals with mild cognitive impairment or Alzheimer's disease and their carers included symptom stability and overall symptom control, particularly the ability to manage symptoms at a level that maintains daily functioning. A meaningful delay in disease progression was defined in terms of both the duration of delay and the specific symptoms whose onset or worsening was postponed *(1150)*. This systematic review also identified minimising adverse drug reactions as an important outcome for individuals with mild cognitive impairment or Alzheimer's disease and their carers. However, the literature reveals limited insights into carers' views on adverse drug reactions. One study highlighted differences between carers' and researchers' views—for example, carers rated severe vomiting as 'major', while researchers considered it 'minor' *(880)*. In a follow-up survey, most carers (> 59%) were willing to continue therapy despite weight loss or diarrhoea, but were less willing to tolerate headache, dizziness, nausea, vomiting, blood pressure drops, insomnia, muscle cramps or stomach bleeding. These preferences likely reflect the individual's ability to manage adverse drug reactions and their impact on daily life. Carers typically expect medications to provide symptom relief and comfort, particularly at the end of life. Distressing adverse drug reactions, such as severe diarrhea, have sometimes led to requests for discontinuation, prioritising immediate comfort over long-term treatment *(784)*. Carers value the diverse benefits of therapy for the person, such as the ability to socially interact, recognise family and perform activities of daily living, and can place less emphasis on the improvement of objective measures of cognition *(589)(640)(641)*. In a study in Japan, 22% of individuals with dementia and 38% of their carers identified maintaining cognitive function as the highest priority when considering treatment, whereas 37% of individuals with dementia emphasised maintaining quality of life for themselves and their families *(764)*.

A discrete choice experiment study found that people living with dementia generally chose reduced pill burden and simpler dosing over other outcomes when considering deprescribing of antihypertensives *(953)*. However, this and other studies using this methodology found that the general population and carers generally preferred preserving cognitive function and would tolerate significant adverse effects to achieve this when considering medication choices in people living with dementia *(410)(550)(613)(623)(953)*.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect evidence on how Aboriginal and Torres Strait Islander peoples living with dementia value deprescribing outcomes.

Considerations for people from culturally and linguistically diverse (CALD) backgrounds

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We did not identify studies that provided direct or indirect evidence on how people from culturally and linguistically diverse (CALD) backgrounds living with dementia value deprescribing outcomes.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect evidence on how LGBTQIA+ people living with dementia value deprescribing outcomes.

Considerations for people with younger onset dementia

We did not identify studies that provided direct or indirect evidence on how people living with younger onset dementia value deprescribing outcomes.

Considerations for people living with disability

We did not identify studies that provided direct or indirect evidence on how people living with disability value deprescribing outcomes.

Considerations for people living outside major cities

We did not identify studies that provided direct or indirect evidence on how people living outside major cities value deprescribing outcomes.

Additional considerations

Input from Living/Lived Experience Advisory Group

- The Living/Lived Experience Advisory Group felt that the following outcomes are key outcomes that should drive any decision:
  - Quality of life of the person living with dementia
  - Behavioural and psychological symptoms of dementia
  - Cognitive abilities
- One Living/Lived Experience Advisory Group member added functional ability and independence, and quality of life for the carers of family members.
- Decisions about prescribing should be based on personal value, effectiveness, and medical need, not just routine.
- When certain medications are prescribed, people are not always told they are meant to be used for a limited time or reviewed regularly. These medications may help some individuals significantly, while for others the benefit

might be minimal.
- Minimising unnecessary medications was seen as better.
- Ideally, the medication should be reassessed after about two years, if it's helping, continue; if not, consider stopping.

Summary

Key points

- Previous studies have reported that quality of life of the person with dementia is central to treatment decisions (starting, continuing and discontinuing ChEIs and memantine) *(764)(1084)*.
- Several qualitative studies report that carers have fears that the condition of the person that they care for will worsen, however, specific outcomes were not reported.
- Other outcomes considered important by people living with dementia, and their carers when considering any treatment (i.e., not specific to deprescribing) include *(476)(589)(641)(723)(764)(1150)*:
  - symptom stability and overall symptom control
  - ability to manage symptoms at a level that maintains daily functioning
  - ability to socially interact and recognise family
  - cognitive or functional abilities
  - challenging behaviours
  - reduced pill burden and simpler dosing
  - minimising adverse drug reactions

- Carers may place less value on the improvement of objective measures of cognition than other factors like quality of life *(589)(641)(640)*.
- People living with dementia have reported that the following factors influence the decision to discontinue ChEI/ memantine treatment *(589)(640)(710)(784)*:
  - progression of dementia
  - lack of benefits
  - treatment costs
  - rapid physical decline in physical health
  - medication side effects

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Guideline Development Group judgement and discussion

- The Guideline Development Group judged that there is **possibly important variability** in how people value outcomes.
- Discussion included perception that there is **important** or **possibly important variability** and Group members emphasised:
  - Shared decision-making is essential.
  - People living with dementia and carers may prioritise quality of life and day-to-day functioning over small or uncertain cognitive benefits.

- Preferences may vary depending on disease stage, perceived benefit, and individual circumstances.

Resources

Important issues, or potential issues not investigated

Research evidence

General Considerations

No studies were identified that detailed the resources required for deprescribing of ChEIs and memantine. Resources may include the cost of clinician visit(s) to conduct shared decision making and determine appropriateness of deprescribing, and costs of monitoring (e.g., clinician visits).

Cost effectiveness

In Australia in financial year 2016-17, the cost of ChEIs and memantine was >AUD$20 million which includes government (80%) and patient (20%) contributions *(42)*. The out-of-pocket cost to Australians in 2026 for one month supply of these medications ranges from $7.70 (for those on a concession card) to $18.30-$25.00 (for those without a concession card). The dispensed price for maximum quantity (total cost of the medication) ranges from $43.99 to $83.29 for approximately 1 months' supply.

The cost-effectiveness of continuation versus discontinuation of the ChEI donepezil was reported in a single study conducted in the UK *(662)*. The DOMINO-AD study was a 52-week double-blind placebo-controlled trial that investigated the effect of continuing donepezil versus discontinuing donepezil, switching to memantine, and adding memantine to continued donepezil. The participants (n = 295) were community-dwelling people with moderate to severe AD who had been prescribed donepezil for longer than three months. Seventy-three and 62% of participants had complete data for health and social care and societal perspective analyses, respectively. Participants who continued taking donepezil had slightly lower health and social care and societal costs than those who discontinued; however, the difference was not statistically significant. QALY was calculated based on the results of the generic health-related quality of life tool (EQ-5D-3L) and societal weights. The QALY gain for continuation versus discontinuation of donepezil was 0.11 (95% CI = 0.02 to 0.20), and the cost-effectiveness analysis found continuation of donepezil to be dominant to discontinuation. There were several important limitations to this study that restricts its generalisability, including a small select participant group, difficulties calculating societal costs and benefits, and medication costs based on the generic price. Additionally, the generic quality of life score—the EQ-5D-3L (proxy rated by carers)—may not be appropriate to use for people with dementia because it has been reported to have problems with validity in this population, with a substantial ceiling effect, poor associations between individual and proxy ratings, and poor reliability of the visual analogue scale *(577)*. A dementia-specific quality of life tool (DEMQOL-Proxy) was also used in the study, yet was not used in the cost-effectiveness calculations (no difference between groups was found in DEMQOL-Proxy scores) *(578)*.

Cros, Richard, Geronimi and Strubel conducted a study of discontinuation of ChEIs and memantine among 24 people with advanced dementia living in a residential care facility in France. They estimated that the discontinuation resulted in a saving of €20,000 (27,424 AUD) over one year, based on the cost of the medications. This amount corresponds to the cost of a half-time care staff, thereby highlighting the potential to use the money spent on prescription medications for non-pharmacological care instead. However, this study had a very small sample size (n = 24) and did not conduct any formal cost-effectiveness analyses; therefore, no widespread conclusions can be reached from these results *(356)*.

A conference abstract published in 2024 reports that discontinuation of cholinesterase inhibitors is not cost-effective compared with continuation among participants in the USA, however, no further details are provided (full text is not available) *(89)*. In another study conducted in Portugal(pilot study, n=14: 4 in continuation and 10 in discontinuation) they conducted a cost-effectiveness analysis and concluded discontinuation was not cost effective - however, the cost was driven by a single participant in the discontinuation group who had a long inpatient stay due to pneumonia *(511)*.

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Resource requirements to conduct the deprescribing process must consider the process of identifying individuals appropriate for deprescribing, conducting shared decision making and providing monitoring and support throughout the process. However, cost savings may be gained through reductions in the direct costs of medications as well as indirect costs of treating adverse drug reactions (e.g., falls). A systematic review of the cost-effectiveness of deprescribing interventions in primary care (of any medications) identified 14 studies. Most interventions included a medication review and often included multidisciplinary care involving pharmacists and physicians. Economic evaluations considered a time period of 2 to 12 months, mostly based on the findings of a clinical trial. Outcomes considered were mostly quality adjusted life years, falls prevention and medication appropriateness. 85% of interventions identified were cost saving or cost effective *(997)*.

Resource requirements for monitoring after discontinuation may be different depending whether the person lives in the community with a carer, at home with professional care services, or in a residential care facility. In the community, unpaid carers may conduct the monitoring, although may require additional visits with a clinician. In the residential care setting, there may be increased use of paid healthcare professionals, but potentially no need to attend external appointments. Without further studies, it is not possible to know whether these different settings will amount to different resource requirements. Additionally, drug prices may differ by country/setting/over time.

Considerations for Aboriginal and Torres Strait Islander peoples

No studies were identified that directly examined the resource requirement in relation to deprescribing in Aboriginal and Torres Strait Islander peoples living with dementia.

Considerations for people from culturally and linguistically diverse backgrounds

No studies were identified that directly examined the resource requirement in relation to deprescribing in people from culturally and linguistically diverse backgrounds living with dementia.

Considerations for LGBTQIA+ people

No studies were identified that directly examined the resource requirement in relation to deprescribing in LGBTQIA+ people living with dementia.

Considerations for people with younger onset dementia

No studies were identified that directly examined the resource requirement in relation to deprescribing in people with younger onset dementia.

Considerations for people with disability

No studies were identified that directly examined the resource requirement in relation to deprescribing in people with disability living with dementia.

Considerations for people living outside major cities

No studies were identified that directly examined the resource requirement in relation to deprescribing in people with dementia living outside major cities.

Additional considerations

Input from Living/Lived Experience Advisory Group

- The Living/Lived Experience Advisory Group generally felt that deprescribing has a positive financial impact but a negative emotional impact.
- For most people, there's no out-of-pocket cost for these medications, as the government covers them. The main personal impact comes from potential side effects when stopping the medication.
- Some believe that if the drugs help manage dementia symptoms, stopping them could lead to higher care costs, like emergency services for falls or wandering. Others argue that these medications do not prevent those issues, so society bears the cost either way.
- Deprescribing may result in emotional effects, like feeling a decline in health, which could require support and counselling.

Summary

Key points

- No studies were identified that detailed the resources required for deprescribing of ChEIs and memantine. Resources may include the cost of clinician visit(s) to conduct shared decision making and determine appropriateness of deprescribing, and costs of monitoring (e.g., clinician visits).
- Cost-effectiveness analyses on the use of ChEIs are based on data from relatively short-term use among younger and healthier participants with a less severe stage of dementia than the real-world population of people with dementia. They also often presume that the medications are discontinued upon admission to a residential care facility. Depending on drug costs and other variables, use of these medications are not always considered cost-effective.
- There will be a reduction in medication cost associated with discontinuation; however, this will need to be balanced against possible increased clinician visits because of monitoring and possible reoccurrence of symptoms.
- Four published studies have explored the cost-effectiveness of discontinuation of ChEIs. Three studies reported that discontinuation was not cost-effective *(89)(511)(662)* while the fourth reported cost-savings due to lower medication costs *(356)*. However, there are significant limitations to all these studies that restrict generalisability.
- Most deprescribing interventions (of other medications) have been found to be cost-effective with the costs of delivering the deprescribing intervention outweighed by the reduction in direct medication costs and indirect costs of treating adverse drug reactions *(997)*. This likely relies on identification of medications that are suitable for deprescribing (i.e., deprescribing medications where the known harms are greater than the known benefits of continued use).

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Guideline Development Group judgement and discussion

Resources

The Guideline Development Group judged that resource implications **do not clearly favour either deprescribing or continuation**.

- Discussions noted:
  - Potential medication cost savings from deprescribing.
  - Potential additional time and resources required for clinical review, monitoring, and shared decision-making conversations.

Cost-effectiveness

The Group judged that cost-effectiveness **does not favour either deprescribing or no deprescribing**.

Evidence was limited and inconsistent, with some studies suggesting no clear cost-effectiveness advantage.

Equity No important issues with the recommended alternative

Research evidence

General Considerations

There are no studies specifically examining the impact of deprescribing ChEIs/memantine on equity. All evidence below is indirect.

Use of potentially inappropriate medications may be particularly harmful in populations experiencing other health care disparities. Communities experiencing other consequences of health care inequity, including limited access to physicians or pharmacies, greater financial stress, and a higher comorbidity burden, may experience disproportionate effects from the adverse consequences of medication use. An editorial discussed that based on this, deprescribing may have the potential to reduce inequity *(648)*. Another article noted (regarding consideration of equity in deprescribing guidelines), "Following equity principles, specific populations are disproportionally impacted by medication related harms and, therefore, may be expected to derive the greatest benefit from deprescribing" *(692)*.

Considerations for Aboriginal and Torres Strait Islander peoples

Polypharmacy and use of inappropriate medications may be more common in Aboriginal and Torres Strait Islander Australians than the general population. In a study that included Aboriginal and Torres Strait Islander people aged ≥50 years attending Aboriginal Community Controlled Health Services in urban, rural and remote areas in Victoria and Western Australia, 43% of First Nations Australians were exposed to polypharmacy (≥ 5 prescribed medications) compared to 36% of older people aged ≥70 years in the general Australian population in 2017 *(568)*.

An Australian cross-sectional analysis of GP Registrar encounters identified that people identifying as Aboriginal or Torres Strait Islander had a greater rate of deprescribing than those that didn't *(760)*. However, the proportion of consultations involving Aboriginal and Torres Strait Islander peoples was very low (0.6%) and the overall rate of deprescribing was low (2.6% of consultations).

There are significant barriers to the delivery of pharmacy services (which can support deprescribing) to rural Aboriginal Australian populations, and greater coordination across care services is required *(887)(1084)*.

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Input from the Living/Lived Experience Advisory Group

There is health inequity for people living in remote communities.

Considerations for people from culturally and linguistically diverse (CALD) backgrounds

- People from CALD backgrounds are less likely to be prescribed dementia medications *(347)*.
- People of CALD backgrounds were under-represented in the pivotal drug trials for ChEIs and memantine, and have a longer average duration of symptoms before seeing a healthcare provider *(347)*.
- People living with dementia from CALD backgrounds have also been found to be undertreated with ChEIs (versus a non-CALD population), and the characteristics of being non-Caucasian, can negatively affect adherence and persistence to ChEIs and memantine *(780)(802)*.
- An Australian cross-sectional analysis of GP Registrar encounters found that the rate of deprescribing in people who speak a language other than English wasn't significantly different in individuals from a non-English speaking background *(760)*.

Input from the Living/Lived Experience Advisory Group

Translation into language is important. Information (via doctor / pharmacist) about the target duration for use and monitoring time frames needs to be provided in language.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect equity evidence in relation to deprescribing for LGBTQIA+ people.

Input from the Living/Lived Experience Advisory Group

- Need access to a GP they feel safe with - otherwise may not even consider going on the medications in the first place.
- Needs to have guidelines on how it may interact with hormones that people who are transgender may be on.

Considerations for people living with younger onset dementia

We did not identify any studies that provided direct or indirect equity evidence in relation to deprescribing for people with younger onset dementia.

Input from the Living/Lived Experience Advisory Group

Difference in treatment, with neurologists often keen to get people with younger onset dementia on medication and maintain it for a long period of time without review.

Considerations for people with disability

We did not identify any studies that provided direct or indirect equity evidence in relation deprescribing for people with disability.

Input from the Living/Lived Experience Advisory Group

People living with an intellectual disability may be at disadvantage. People living with disabilities were perceived to have to rely more on other's advice and just accept that advice.

Considerations for people living outside major cities

The cost to access services often includes travel costs, which makes the intervention prohibitively expensive for those living outside major cities.

Prescribing rates of cholinesterase inhibitors in Australia (2003-201) were lower in the most socially disadvantaged groups and in remote areas and higher in metropolitan areas, with index prescription rates 1.4 to 1.7 times greater compared with remote areas *(1299)*.

An Australian cross-sectional analysis of GP Registrar encounters found that the rate of deprescribing wasn't significantly different in individuals living in outer regional, remote or very remote compared to a major city *(1299)*.

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Input from the Living/Lived Experience Advisory Group

If people live in remote or rural areas, there is an access issue as they often see different doctors each time due to telehealth.

Additional considerations

Input from Living/Lived Experience Advisory Group

- Equity is a concern, especially for those early in their diagnostic journey or living in rural areas. Clear guidance on deprescribing could help improve access and empower both patients and doctors to have informed conversations.
- One Living/Lived Experience Advisory Group member shared that their partner, who had vascular dementia, was never offered medication, raising questions about how dementia type affects access to treatment.
- The Living/Lived Experience Advisory Group discussed that to deprescribe a medication it first needs to be prescribed, highlighting broader issues with access to General Practitioners and the importance of a trusting relationship with healthcare providers.
- Many people don't know their dementia subtype, and treatments are often based on symptoms rather than diagnosis.
- Deprescribing may improve health inequity for people living in rural and remote areas but would be an additional burden of time and added expense to be monitored during the process of deprescribing.
- Decisions about stopping medication are complex, training for healthcare providers are needed to support these decisions, especially in rural areas where access to care is uneven.

Summary

Key points

- There are no studies specifically examining the impact of deprescribing ChEIs/memantine on equity.
- Use of potentially inappropriate medications (ones where the harms outweigh the benefits) in general (not specific to ChEIs/memantine) is more common in many vulnerable and minority populations including Aboriginal and Torres Strait Islander peoples, people from culturally and linguistically diverse backgrounds and people living in rural areas *(568)(648)*.
    - These populations may also be at increased risk of medication related harms (in general, not specific to ChEIs/memantine) and so could have the most to benefit from deprescribing

    - Therefore, deprescribing (in general) could help reduce inequity in these populations

- People in the identified priority groups often have a harder time getting healthcare. So, it's likely that these populations may not get the right support to safely stop medications. If there is no shared decision making or insufficient monitoring, it could make health gaps even worse *(648)*.
- Studies show that people from culturally and linguistically diverse backgrounds and people who live in rural and remote areas have lower rates of prescribing cholinesterase inhibitors and memantine *(347)(780)(802)*.

Guideline Development Group judgement and discussion

The Guideline Development Group judged that deprescribing is likely to have no impact or may slightly increase equity. The following discussions were considered:

- Potential benefits for some priority populations
- Possible access barriers related to follow-up and specialist review in rural or underserved settings.

Acceptability No important issues with the recommended alternative

Research evidence

General Considerations

The following research relates to medications in general, not ChEIs/memantine specifically. In general, most older adults (>80%) express a preference for taking fewer medications and are open to deprescribing if recommended by their healthcare provider *(316)(467)(1245)*. Two studies using the revised Patients' Attitudes Towards Deprescribing questionnaire for people with cognitive impairment (rPATDCog) found that approximately 80% of participants were willing to stop one or more medications if advised by their doctor. One of these studies was conducted in Australia (n=32) and the other in the US (n=553) in populations with mild cognitive impairment and mild to moderate dementia and their carers. Willingness was lower among those who felt stressed by medication changes or had previous negative experiences with stopping medications *(970)(971)*.

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Carer perspectives on discontinuing ChEIs/memantine varies, often influenced by uncertainty due to the difficulty in assessing treatment effects and ongoing benefits *(590)(784)*. While some carers were reluctant to stop medications because of concerns about potential deterioration, others believed the medications were contributing to decline and expressed relief when they were discontinued *(784)*.

There have been fears reported by carers that stopping ChEIs/memantine may cause deterioration in cognitive or functional abilities and the emergence of challenging behaviours *(476)(723)(784)(1084)*. Additionally, carers worry that stopping ChEIs and/or memantine signifies 'giving up', and may experience guilt over making such decisions *(583)(640)*. Studies have emphasised the importance of counselling the carers to alleviate feelings of hopelessness in these situations *(1085)*.

Thus, importantly, any deprescribing discussion must consider the viewpoints of the person with dementia and their carers, and include education about the potential benefits versus harms of both continuing and discontinuing the medications. It is important to acknowledge that initiating medication in the hope of a positive response is reasonable; however, when benefit is unclear after a suitable trial period, it is also reasonable to consider stopping therapy. This is consistent with what many carers expect in terms of eventual decision making for medication use *(773)*.

The burden of medication management can have a large impact on carers *(90)(477)(504)(926)*. In addition to stress, worry and the restriction of carer activities associated with the administrative tasks of medication management and managing negative adverse drug reactions, carers also face an emotional burden in making medication-related decisions *(90)(590)(926)(1256)*. Medication administration for people with dementia can be burdensome to carers and nurses/care staff, and may be distressing for people with dementia, especially those with swallowing difficulties *(972)*. In such cases, when swallowing became problematic, some carers expected a medication review aimed at reducing the number of medications where possible and ensuring that all prescriptions had a clear and current clinical rationale *(784)*. Carers can also experience guilt and self-remonstration when they believe their decisions have contributed to ill health for the person with dementia *(926)*. These challenges highlight the importance of providing carers with access to expert knowledge and information about medication benefits and side effects to support informed decision-making *(931)*.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct evidence regarding the acceptability of deprescribing for Aboriginal and Torres Strait Islander people living with dementia.

Considerations for people from culturally and linguistically diverse (CALD) backgrounds

We did not identify studies that provided direct evidence regarding the acceptability of deprescribing for people living with dementia from culturally and linguistically diverse backgrounds.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct evidence regarding the acceptability of deprescribing for LGBTQIA+ people with dementia.

Considerations for people with younger onset dementia

We did not identify studies that provided direct evidence regarding the acceptability of deprescribing for people living with younger onset dementia.

Considerations for people living with disability

We did not identify studies that provided direct evidence regarding the acceptability of deprescribing for people living with dementia living with disability

Considerations for people living outside major cities

We did not identify studies that provided direct evidence regarding the acceptability of deprescribing for people living with dementia living outside major cities.

Additional considerations

Input from Living/Lived Experience Advisory Group

- Deprescribing of cholinesterase inhibitors and memantine was generally acceptable to people living with dementia and their carers.
- Clear guidelines need to be established around deprescribing. Experience of Living/Lived Experience Advisory Group members these medications were never reviewed, and they were unaware they could or if they should be deprescribed.
- There is growing awareness that these medications do not cure dementia but aim to manage symptoms, and their effectiveness may decline over time.
- It is important that healthcare professionals communicate openly and sensitively about what these drugs can and cannot do, and that decisions are based on individual needs, not just routine.
- The Living/Lived Experience Advisory Group raised concerns about who determines when a medication is no longer beneficial. If the person living with dementia is unable to communicate this themselves, assumptions may be made. However, they might also be unable to express that discontinuing the medication could make them feel worse. We need a better way to assess the outcomes.
- Monitoring and involving families in discussions can help ensure the best outcomes, but ultimately, the focus should be on the person's quality of life and making informed, compassionate choices.

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Summary

Key points

- In Australia and US studies, around 80% of participants with mild cognitive impairment and mild to moderate dementia were willing to stop medications (hypothetical, not ChEI/memantine specific) if advised by their doctor *(970)(973)*. Stress about medication changes and negative past experiences reduce willingness to stop medications.
- Some carers fear withdrawal will cause deterioration, while others feel relief when medications are discontinued *(590)*. Many experience guilt, worry, and a sense of 'giving up' when considering deprescribing *(784)*.
- Discussions about deprescribing should include both the person with dementia and their carers, with education on the risks and benefits of continuing or stopping treatment *(583)(640)(1084)*.
- Managing medications can cause stress and emotional strain for carers, highlighting the importance of expert support and regular medication review *(931)*.

Guideline Development Group judgement and discussion

The Guideline Development Group judged that deprescribing is **probably acceptable**. It was discussed that acceptability is likely to be higher when:

- Decisions are individualised.
- Clear communication is provided, such as clear explanations of benefits/harms.

- Monitoring and follow-up are in place.

Feasibility No important issues with the recommended alternative

Research evidence

General considerations

- An overview of systematic reviews concluded that deprescribing is feasible in practice. The included reviews include studies with deprescribing of any medications in any population *(322)*.
- A systematic review of deprescribing in people living with dementia found that the interventions were successful in reducing the number of medications and appropriateness of medications *(102)*.
- There are a number of barriers to deprescribing in people living with dementia including lack of time, incentives, guidelines and resources, and fear of the condition worsening *(972)*.

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect feasibility evidence in relation to deprescribing for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse (CALD) backgrounds

We did not identify studies that provided direct or indirect feasibility evidence in relation to deprescribing for people from culturally and linguistically diverse background.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect feasibility evidence in relation to deprescribing for LGBTQIA+ people.

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Considerations for people living with younger onset dementia

We did not identify studies that provided direct or indirect feasibility evidence in relation to deprescribing for people with younger onset dementia.

Considerations for people living with disability

We did not identify studies that provided direct or indirect feasibility evidence in relation to deprescribing for people with disability.

Considerations for people living outside major cities

We did not identify studies that provided direct or indirect feasibility evidence in relation to deprescribing for people living outside major cities.

Additional considerations

Input from the External Interest Holder Organisation Feasibility Survey

- Deprescribing requires General Practitioners to support the process and the proactive support of aged care facilities and family members.
- To ensure sustainability there must be good communication between all parties. Family, staff, doctors, the client and facilities. “All parties need to understand why and the end result of the deprescribing.” The medical staff conducting the deprescribing need to understand the medications being deprescribed.
- It is important that people living with dementia and their carers have information about the medication and are informed about the side effects and the reasons not to take the medication.

Summary

Key points

- There are a number of barriers to deprescribing in people living with dementia including lack of time, incentives, guidelines and resources, and fear of the condition worsening (qualitative studies) *(972)*.
- Systematic reviews of deprescribing interventions in people living with dementia have concluded that deprescribing is feasible in practice *(322)*. However, these studies weren’t specific to deprescribing of ChEIs/memantine.

- A systematic review of deprescribing (any medications) in people living with dementia found that the interventions were successful in reducing the number of medications and appropriateness of medications *(102)*.

Guideline Development Group judgement and discussion

The Guideline Development Group judged that deprescribing is **feasible**, with appropriate support and systems.

Barriers identified included:

- Time constraints in clinical practice
  - Clinician confidence
  - Access to specialist support

Facilitators included:

- Clear guideline recommendations
  - Team-based care
  - Engagement of carers and families

Rationale

The Guideline Development Group judged that:

- When treatment benefits no longer outweigh the risks, deprescribing resulted in small desirable effects and trivial undesirable effects, with very low certainty evidence.
- There was possibly important variability in how people living with dementia and carers valued the desirable and undesirable effects of deprescribing, and the balance of effects probably favoured deprescribing. The Group noted that preferences may vary depending on disease stage, perceived benefit, and individual circumstances, and that shared decision making was essential.
- Deprescribing probably had no impact on equity.
- Deprescribing is probably acceptable to people living with dementia, and is probably feasible to implement.

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Considering all judgments together, the Group agreed on a conditional recommendation for deprescribing cholinesterase inhibitors and memantine.

Clinical question/ PICO

Population: people who are currently prescribed a ChEI and/or memantine, in any care setting (community, residential aged care facility, inpatient and outpatient)
Intervention: Discontinuation of ChEI (donepezil, galantamine, rivastigmine) and/or memantine
Comparator: continuation of ChEI and/or memantine or no treatment

Outcome Timeframe	**Study results and measurements**	**Comparator** continuation of ChEI and/or memantine or no treatment	**Intervention** discontinuation of ChEI (donepezil, galantamine, rivastigmine)	**Certainty of the evidence** (Quality of evidence)	**Summary**
Serious Adverse Events (SAEs) - Mortality - RCTs 9 Critical	Relative risk 0.8 (CI 95% 0.51 — 1.27) Based on data from 361 participants in 3 studies. (Randomized controlled)	**159** per 1000 Difference:	**127** per 1000 **32 fewer per 1000** (CI 95% 78 fewer — 43 more)	**Very low** Due to serious risk of bias [1]	Discontinuation of ChEI and/or memantine may reduce mortality (Serious Adverse Events) based on RCTs but we are very uncertain about this outcome. (Threshold for an important effect: 10 deaths per 1000)

Outcome Timeframe	**Study results and measurements**	**Comparator** continuation of ChEI and/or memantine or no treatment	**Intervention** discontinuation of ChEI (donepezil, galantamine, rivastigmine)	**Certainty of the evidence** (Quality of evidence)	**Summary**
Serious Adverse Events (SAEs) - Mortality - NRSI 9 Critical	Relative risk 0.89 (CI 95% 0.72 — 1.09) Based on data from 3,612 participants in 1 studies. (Observational (non-randomized))	**99** per 1000 Difference:	**88** per 1000 **11 fewer per 1000** (CI 95% 28 fewer — 9 more)	**Low** Due to serious risk of bias, Due to serious imprecision [2]	Discontinuation of ChEI and/or memantine may reduce mortality (Serious Adverse Events) based on one NRSI. (Threshold for an important effect: 10 deaths per 1000)
Serious adverse events (SAEs) - Falls 9 Critical	Relative risk 0.47 (CI 95% 0.25 — 0.88) Based on data from 3,612 participants in 1 studies. (Observational (non-randomized))	**17** per 1000 Difference:	**8** per 1000 **9 fewer per 1000** (CI 95% 12 fewer — 2 fewer)	**Moderate** Due to serious risk of bias [3]	Discontinuation of ChEIs/ memantine may result in little to no difference in number of falls. Additional study not included in main analysis (Niznik 2020b) with sample size over 30,000 found in favour of reduced risk of falls with discontinuation (aOR= 0.64, 95% CI = 0.56-0.73, p < 0.001). (Threshold for an important difference: 20 falls per 1000)
Serious adverse events (SAEs) - Hospitalisation 9 Critical	Relative risk 0.4 (CI 95% 0.03 — 4.96) Based on data from 14 participants in 1 studies. (Randomized controlled)	**250** per 1000 Difference:	**100** per 1000 **150 fewer per 1000** (CI 95% 243 fewer — 990 more)	**Very low** [4]	We are very uncertain about the effect of discontinuation of ChEIs and/or memantine on hospitalisations (serious adverse events). (Threshold for an important effect: 10 hospitalisations per 1000).
Serious Adverse Events (SAEs) - Admission to RACF - RCTs 9 Critical	Relative risk 0.75 (CI 95% 0.14 — 3.9) Based on data from 160 participants in 2 studies. (Randomized controlled)	**481** per 1000 Difference:	**361** per 1000 **120 fewer per 1000** (CI 95% 413 fewer — 1,000 more)	**Very low** Due to serious inconsistency [5]	Discontinuation of ChEI and/or memantine may reduce admission to residential care facilities (Serious Adverse Events) based on RCTs but the evidence is very uncertain. Discontinuation may results in 120 fewer admissions per 1000 (>1% threshold), 95% CI 413 fewer to 1000 more.
Serious Adverse Events (SAEs) - Admission to RACF - NRSI 9 Critical	Relative risk 0.82 (CI 95% 0.57 — 1.18) Based on data from 3,612 participants in 1 studies. (Observational (non-randomized))	**34** per 1000 Difference:	**28** per 1000 **6 fewer per 1000** (CI 95% 15 fewer — 6 more)	**Low** Due to serious risk of bias, Due to serious imprecision [6]	Discontinuation of ChEI and/or memantine may result in little to no difference in admission to residential care (Serious Adverse Events) based on one NRSI. (Threshold for an important effect: 10 deaths per 1000).

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Outcome Timeframe	**Study results and measurements**	**Comparator** continuation of ChEI and/or memantine or no treatment	**Intervention** discontinuation of ChEI (donepezil, galantamine, rivastigmine)	**Certainty of the evidence** (Quality of evidence)	**Summary**
Adverse events (AEs) 6 Important	Relative risk 1.24 (CI 95% 0.79 — 1.95) Based on data from 429 participants in 4 studies. (Randomized controlled)	278 per 1000 Difference:	345 per 1000 **67 more per 1000** (CI 95% 58 fewer — 264 more)	**Very low** Due to serious risk of bias, Due to serious indirectness [7]	We are very uncertain about the effect of discontinuation of ChEIs and/or memantine on adverse events (AEs). (Threshold for an important effect: 10 more per 1000). An additional study not included in main analysis (Niznik 2020b) with >30,000 participants found no effect of discontinuation on adverse events (aOR=1.01; 95% CI 0.95 to 1.07)
Quality of life of person with dementia 9 Critical	High better Based on data from 54 participants in 2 studies. (Randomized controlled)	Difference:	**SMD 0.32 lower** (CI 95% 4.88 lower — 4.24 higher)	**Very low** Due to extremely serious imprecision [8]	We are very uncertain about the effect of discontinuation of ChEIs/ memantine on quality of life of the person with dementia (Threshold for an important effect: SMD 0.4)
Cognitive function - Global - RCTs 9 Critical	Based on data from 855 participants in 10 studies. (Randomized controlled)	Difference:	**SMD 0.22 lower** (CI 95% 0.47 lower — 0.03 higher)	**Very low** Due to serious risk of bias, Due to serious inconsistency, Due to serious indirectness [9]	Discontinuation of ChEI and/or memantine may result in little to no difference in global cognitive function based on RCTs, but we are very uncertain about this result. (Threshold for an important effect: SMD 0.4)
Cognitive function - Global - NRSIs 9 Critical	Based on data from 699 participants in 2 studies. (Observational (non-randomized))	Difference:	**SMD 0.35 lower** (CI 95% 1.94 lower — 1.23 higher)	**Very low** Due to serious risk of bias, Due to extremely serious imprecision [10]	We are very uncertain about the effect of discontinuation of ChEIs/ memantine on global cognitive function. (Threshold for an important effect: SMD 0.4)
Cognitive function - specific 9 Critical					No studies reported on the outcome of Cognitive function - specific
Behavioural and psychological symptoms (BPSD) - Overall	Based on data from 451 participants in 6 studies. (Randomized controlled)	Difference:	**SMD 0.3 higher** (CI 95% 0.1 higher — 0.51 higher)	**Very low** Due to serious risk of bias, Due to serious indirectness, Due to serious	Discontinuation of ChEIs/ memantine may have little to no effect on overall behavioural and psychological symptoms of

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Outcome Timeframe	**Study results and measurements**	**Comparator** continuation of ChEI and/or memantine or no treatment	**Intervention** discontinuation of ChEI (donepezil, galantamine, rivastigmine)	**Certainty of the evidence** (Quality of evidence)	**Summary**
9 Critical				inconsistency [11]	dementia.
Behavioural and psychological symptoms (BPSD) - Specific - RCTs 9 Critical	Based on data from 105 participants in 2 studies. (Randomized controlled)	Difference:	**SMD 0.08 higher** (CI 95% 4.28 lower — 4.44 higher)	**Very low** Due to serious risk of bias [12]	We are very uncertain about the effect of discontinuation of ChEIs/ memantine on specific behavioural and psychological symptoms (agitation) based on RCTs. (Threshold for an important effect: SMD 0.4)
Behavioural and psychological symptoms (BPSD) - Specific - NRSIs 9 Critical	Based on data from 30,966 participants in 2 studies. (Observational (non-randomized))	Difference:	**MD 0.04 higher** (CI 95% 0.51 lower — 0.58 higher)	**Very low** Due to serious imprecision, Due to very serious imprecision [13]	Discontinuation of ChEIs/ memantine may have little to no effect on specific BPSD symptoms (specifically aggression) but we are very uncertain about this result.
Clinical status - Dementia stage/ severity 6 Important	Based on data from 161 participants in 4 studies. (Randomized controlled)	Difference:	**SMD 0.29 higher** (CI 95% 0.67 lower — 1.24 higher)	**Very low** Due to serious risk of bias, Due to serious inconsistency, Due to serious indirectness [14]	Discontinuation of ChEI and/or memantine may have little to no effect on dementia stage/severity, but the evidence is very uncertain. (Threshold for an important effect: SMD 0.4)
Functional ability & participation - Overall - RCTs 6 Important	Based on data from 417 participants in 6 studies. (Randomized controlled)	Difference:	**SMD 0.11 lower** (CI 95% 0.32 lower — 0.09 higher)	**Moderate** Due to serious risk of bias [15]	Discontinuation of ChEI and/or memantine probably results in little to no effect on overall functional ability & participation based on RCTs. (Threshold for an important effect: SMD 0.4)
Functional ability & participation - Overall - NRSIs 6 Important	Based on data from 178 participants in 1 studies. (Observational (non-randomized))	Difference:	**SMD 0.34 lower** (CI 95% 0.65 lower — 0.03 lower)	**Low** Due to serious risk of bias, Due to serious imprecision [16]	Discontinuation of ChEI and/or memantine may result in little to no effect on overall functional ability & participation based on a single NRSI. (Threshold for an important effect: SMD 0.4)
Quality of life of the carer and family	Based on data from 14	Difference:	**SMD 0.09 lower** (CI 95% 1.25 lower — 1.07 higher)	**Very low** [17]	We are very uncertain about the effect of discontinuation of ChEIs

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Outcome Timeframe	**Study results and measurements**	**Comparator** continuation of ChEI and/or memantine or no treatment	**Intervention** discontinuation of ChEI (donepezil, galantamine, rivastigmine)	**Certainty of the evidence** (Quality of evidence)	**Summary**
6 Important	participants in 1 studies. (Randomized controlled)				and/or memantine on quality of life of the carer and family. (Threshold for an important effect: SMD 0.4)
Functional ability and independence - goal of the person 6 Important					No studies reported on the outcome of functional ability and independence - goal of the person.
Functional ability and participation - Physical - Specific 6 Important					No studies reported on the outcome of functional ability and participation - physical - specific.

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1. **Risk of Bias: serious.** Serious RoB (-1). One or more studies were at high risk of bias due to missing outcomes and selective reporting.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: very serious.** Very serious imprecision (-2). The 95% confidence interval crosses the threshold for an important effect (10 deaths per 1000) is compatible with both large benefit (78 fewer deaths per 1000) and large harm (43 more deaths per 1000).. **Publication bias: no serious.**
2. **Risk of Bias: serious.** Serious (-1). Study was at high risk of bias due to confounding.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: serious.** Serious imprecision (-1). The 95% confidence interval crossed the threshold for an important effect (10 deaths per 1000) is compatible with both benefit (28 fewer deaths per 1000) and little/no difference (9 more deaths per 1000).. **Publication bias: no serious.**
3. **Risk of Bias: serious.** Serious (-1). Study was at high risk of bias due to confounding.. **Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.**
4. **Inconsistency: no serious. Indirectness: no serious. Imprecision: extremely serious.** Extremely serious imprecision (-3). The 95% CI interval crosses the threshold for an important effect (10 hospitalisations per 1000) and appears compatible with very large important benefit (243 fewer) and very large important harm (990 more).. **Publication bias: no serious.**
5. **Inconsistency: serious.** Serious inconsistency (-1). Included studies favour both discontinuation and continuation.. **Indirectness: no serious. Imprecision: extremely serious.** Extremely serious imprecision (-3). The 95% CI interval crosses the threshold for an important effect (10 admissions per 1000) and appears compatible with extremely large important benefit (413 fewer admissions) and extremeley large important harm (1,000 more admissions).. **Publication bias: no serious.**
6. **Risk of Bias: serious.** Serious (-1). Study was at high risk of bias due to confounding.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: serious.** Serious imprecision (-1). The 95% confidence interval crossed the threshold for an important effect (10 admissions per 1000) and is compatible with both benefit (15 fewer admissions per 1000) and little/no difference (6 more admissions per 1000).. **Publication bias: no serious.**
7. **Risk of Bias: serious.** Serious RoB (-1). One or more studies is at high risk of bias due to deviations from intended interventions and missing outcome data.. **Inconsistency: no serious. Indirectness: serious.** Serious indirectness (-1). Half the studies included populations that are not representative of the general population who use these medications and may be suitable for deprescribing.. **Imprecision: very serious.** Extremely serious imprecision (-3). The 95% CI interval crosses the threshold for an important effect (10 per 1000) and appears compatible with large important benefit (58 fewer experiencing adverse events) and large important harm (264 more experiencing adverse events).. **Publication bias: no serious.**
8. **Inconsistency: no serious. Indirectness: no serious. Imprecision: extremely serious.** Extremely serious imprecision (-3). The 95% CI interval crosses thresholds for a small but important effect (SMD=0.4) and a moderate effect (SMD=0.7) and appears compatible with very large important harm (SMD=4.88 lower) and very large important benefit (SMD=4.24 higher).. **Publication bias: no serious.**
9. **Risk of Bias: serious.** Serious RoB (-1). Several studies were at high risk of bias arising from randomisation; one or more studies were at high risk of bias due to missing outcomes and selective reporting. **Inconsistency: serious.** Serious inconsistency (-1): 3 studies showing important benefit, 3 studies showing little or no difference, 4 studies showing important harm. I2 = 49%, P <0.04. **Indirectness: serious.** Serious indirectness (-1). Rated down for indirectness as most studies included a younger population than the real world population of people living with dementia, several studies

were conducted in populations that would not be considered suitable for deprescribing and one study had placebo discontinuation as the comparison group. . **Imprecision: no serious.** No serious imprecision. The 95% CI interval crosses the threshold for an important effect (SMD=0.4) and appears compatible with important harm (SMD=0.47 lower) and little or no difference (SMD=0.03 lower), however the imprecision is likely due to inconsistent effects and so the evidence was not also rated down for imprecision. . **Publication bias: no serious.**
10. **Risk of Bias: serious.** Serious RoB (-1). One or more studies at high risk of bias due to confounding and selection of participants. **Inconsistency: no serious. Indirectness: no serious. Imprecision: extremely serious.** Extremely serious imprecision (-3). The 95% CI interval crosses thresholds for a small but important effect (SMD=0.4) and a moderate effect (SMD=0.7) and appears compatible with large important harm (SMD=1.94 lower) and large important benefit (SMD=1.23 higher).. **Publication bias: no serious.**
11. **Risk of Bias: serious.** Serious RoB (-1). One or more studies were at high risk of bias due to missing outcomes and selective reporting. **Inconsistency: serious.** Serious inconsistency (-1): 3 studies showing little or no difference, 3 studies showing important harm. . **Indirectness: serious.** Serious indirectness (-1). Rated down for indirectness as many studies have a mean age of participants which is lower (i.e. younger) than most people living with dementia. One or more studies included participants without any rationale for deprescribing. . **Imprecision: no serious.** No serious imprecision. The 95% CI interval crosses the threshold for an important effect (SMD=0.4) and appears compatible with little or no difference (SMD=0.01 higher) and important harm (SMD=0.51 higher), however the imprecision is likely due to inconsistent effects and so the evidence was not also rated down for imprecision. . **Publication bias: no serious.**
12. **Risk of Bias: serious.** Serious RoB (-1). One or more studies were at high risk of bias due to deviations from intended interventions. **Inconsistency: no serious. Indirectness: no serious. Imprecision: extremely serious.** Extremely serious imprecision (-3). The 95% CI interval crosses thresholds for a small but important effect (SMD=0.4) and a moderate effect (SMD=0.7) and appears compatible with very large important benefit (SMD=4.28) and large important harm (SMD=4.44 higher).. **Publication bias: no serious.**
13. **Risk of Bias: very serious.** Serious RoB (-2). Both studies at high risk of bias due to confounding and selection of participants.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: very serious.** Very serious imprecision (-2). The 95% confidence interval is compatible with both appreciable benefit (MD 0.51 lower) and appreciable harm (MD 0.58 higher) on the Aggressive Behaviour Scale.. **Publication bias: no serious.**
14. **Risk of Bias: serious.** Serious RoB (-1). One or more studies at high risk of bias due to deviations from intervention, missing data and/or measurement of the outcome. **Inconsistency: serious.** Serious inconsistency (-1): 1 study showing important benefit, 1 study showing little or no difference, 2 studies showing important harm. I2 = 65%, P <0.05. **Indirectness: serious.** Serious indirectness (-1). One or more of included studies have the control group of placebo discontinuation, and one or more studies have a select population with generally younger and healthier participants.. **Imprecision: no serious.** No serious imprecision. The 95% CI interval crosses the threshold for an important effect (SMD=0.4) and appears compatible with important benefit (SMD=0.67 lower) and large harm (SMD=1.24 higher), however the imprecision is likely due to inconsistent effects and so the evidence was not also rated down for imprecision. . **Publication bias: no serious.**
15. **Risk of Bias: serious.** Serious RoB (-1). One or more studies were at high risk of bias due to deviations from intended interventions, missing outcomes, or selective reporting.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.**
16. **Risk of Bias: serious.** Serious RoB (-1). The single study in the analysis is at high risk of bias due to confounding and selection of participants.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: serious.** Serious imprecision (-1). The 95% confidence interval crosses the threshold for an important effect (SMD 0.4) and is compatible with both harm (SMD=0.65 lower) and little or no difference (SMD=0.03 lower).. **Publication bias: no serious.**
17. **Inconsistency: no serious. Indirectness: no serious. Imprecision: extremely serious.** Extremely serious imprecision (-3). The 95% CI interval crosses thresholds for a small but important effect (SMD=0.4) and a moderate effect (SMD=0.7) and appears compatible with large important harm (SMD=1.25 lower) and large important benefit (SMD=1.07 higher).. **Publication bias: no serious.**

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Practice Statement

Good Practice Statement 12

When deprescribing cholinesterase inhibitors and memantine:

- Consider tapering the dose by reducing the dose by half (or stepping down through available dose formulations) every 4 weeks to the lowest available dose, followed by discontinuation.
- Abrupt discontinuation may be appropriate where the individual is experiencing harm or is at high risk of harm from continued use.
- Ensure there is a monitoring plan that includes scheduled follow-up (e.g., at each dose reduction and 4 weeks after discontinuation), with advice on what symptoms to self-monitor for and what to do if they occur.
- Re-initiate the medication at the previous minimum effective dose if the individual's condition worsens after withdrawal and alternative causes have been excluded.

Rationale

The Good Practice Statement for tapering and monitoring while deprescribing cholinesterase inhibitors and memantine was developed to emphasise essential principles of care to avoid adverse drug withdrawal reactions and ensure early detection of change in condition or emergence of new symptoms. The tapering regimen was also informed by the:

- Pharmacokinetic properties of the medications
- Regimens used in randomised controlled trials
- Time taken in studies for reappearance of dementia-related symptoms
- Available dose forms and number of doses usually pack (to reduce waste).

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9.5 Opioids for the treatment of chronic non-cancer pain in people living with dementia

What is pain?

Pain is 'an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage' *(958)*. Terms are also used which help to describe/classify different types of pain, based on the mechanism contributing to pain (e.g., nociceptive, neuropathic, or nociplastic pain), duration (acute versus chronic), or cause (cancer pain, musculoskeletal pain) *(602)*. Pain may persist despite successful management of the condition that caused it, or because the underlying medical condition cannot be cured (for example chronic disease, musculoskeletal conditions, cancer).

Chronic pain is pain that persists or recurs for longer than 3 months. Such pain often becomes the sole or predominant clinical problem in some patients *(602)*. Chronic pain is common in Australia, with an estimated one in five Australians over the age of 45 living with ongoing persistent pain *(141)*. Pain is commonly under-diagnosed and inadequately managed *(602)*.

Pain in people living with dementia

Pain is a common condition in people living with dementia with rates between 50-80% described depending on setting, and presence of a range of different causes including musculoskeletal, gastrointestinal and cardiac conditions, skin problems (wounds, pressure injury) and urinary tract infections *(79)*. We often do not fully understand the pain experience of a person living with dementia if they are unable to communicate easily with us. Therefore, we cannot assume that the pain experience of people living with dementia is less bothersome or significant compared to those without dementia simply because they cannot tell us *(1023)*.

How pain is assessed in people living with dementia

Assessment starts with a high level of vigilance for the potential for pain, and recognition of conditions which are potentially associated with pain. The gold standard in pain assessment is self-report, often supported by a numeric or visual analogue scale *(79)*. For people living with dementia with impaired language and communication expressing pain can be difficult, and pain can present with other symptoms such as changes in mood, agitation or psychological distress *(587)*. Self-report should always be sought in the first instance, especially for people living with mild to moderate dementia, with consideration of adaptation of the approach to self-report based on the capability of the person. Observational tools may be required to complement self-report or be the predominant approach to pain assessment in later stage dementia. These rely on the three behavioural domains impacted by pain namely facial responses, vocalization, and body movement or body posture *(79)*. Assessment should also consider the psychological, functional and social impacts of the pain.

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Multidimensional approach to pain management

Access to pain assessment and management is a fundamental human right. Pain assessment and management should consider a multidimensional approach considering the biological, psychological and social contributions to pain and its impacts *(79)*. It is important to listen to the person and show understanding as they explain how the pain has impacted their life *(601)*. For a comprehensive overview of the approach to pain assessment and management in aged care, see the Pain Management Guide published by the Australian Pain Society and National Ageing Research Institute *(1023)*. It is important to recognise the approach to pain due to cancer and/or its treatment and pain at the end of life is underpinned by different evidence and takes a different approach (Outlined in the Cancer Pain Management in Adults Guideline, *(273)*). The pharmacological approach in this setting is guided by the WHO pain ladder which provides a stepwise approach to pain management, commencing with non-opioid analgesics with the addition of opioids based on pain severity *(1285)*. Non-pharmacological and non-opioid therapies are the first-line therapeutic modalities for chronic non-cancer pain.

What is the role of analgesics in chronic non-cancer pain?

Analgesics as a sole management strategy are unlikely to eliminate pain or impact on the related distress and functional impacts, but can complement a multidimensional approach in some circumstances *(79)*. When considering analgesics, it is important to consider whether adverse effects will outweigh benefits, especially in the long term *(1023)*. Important principles are only commencing one analgesic at a time, and at the lowest dose with slow titration, allowing adequate time for the medication to take effect before adding additional or substituting analgesics. Regular review is also essential *(409)*.

The profile of individual drugs and their known activity in particular pain types is important *(1271)*. For example:

- Paracetamol and non-steroidal anti-inflammatory drugs (NSAIDs) can be more effective for nociceptive pain
- Adjuvant analgesics (gabapentinoids, serotonin and noradrenaline reuptake inhibitors, tricyclic antidepressants) may be indicated for neuropathic pain.

Similarly, understanding whether age related changes in how the drug is handled, impacts of impaired liver or kidney function, or interaction with other medications or medical conditions are important to consider when assessing the potential side effect profiles and risk of a particular medication *(1271)*.

What is the role of opioids in chronic non-cancer pain?

Opioids have a limited role in the management of chronic non-cancer pain *(256)(553)*, regardless of the contributing pain type. In recognition of the harm associated with opioid use, the Therapeutic Goods Administration (TGA) has restricted the use of modified-release opioids for chronic non-cancer pain *(1142)*.

The psychoactive side effects of opioids *(978)* are particularly important to consider in people living with dementia and can include drowsiness and sedation, dizziness, impaired cognition, and can also contribute to occurrence of falls and delirium.

The table below is a glossary of medicines for pain (analgesics) that may be referred to in the Evidence Review *(74)*.

Medicine	How it works	Formulations available
Buprenorphine	opioid analgesic that works as a partial agonist (partial agonists demonstrate a ceiling response above which an increase in dose does not produce an additional increase in effect)	patch, sublingual tablet, injection
Codeine	opioid analgesic; metabolised to morphine	tablet, liquid
Fentanyl	opioid analgesic	tablet, lozenge, patch, injection
Morphine	opioid analgesic	tablet, liquid, injection
Oxycodone	opioid analgesic	tablet, liquid, injection, suppository
Pregabalin	adjunct analgesic, usually used for neuropathic pain	capsule
Tramadol	opioid analgesic and noradrenaline and serotonin inhibitor	capsule

Question 15
Should opioids (or no opioids) be used for chronic non-cancer pain among people living with dementia?

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Conditional recommendation against , Very low certainty evidence

Recommendation 15
Do not routinely use opioids for the treatment of chronic non-cancer pain in people living with dementia.

Remarks
Before considering an opioid analgesic, a comprehensive re-assessment of pain is required, particularly for new contributing factors, cancer pain, or pain at the end of life, which requires a different management approach.

In the setting of chronic non-cancer pain that is significantly impacting on a person's quality of life and is refractory to non-pharmacological and non-opioid analgesics, if an opioid analgesic is to be used it should be a time-limited trial with careful consideration of the risk of adverse effects.

If an opioid analgesic is used, there should be a plan for regular and structured review of efficacy and signs and symptoms suggestive of adverse events, and to withdraw if the opioid is ineffective or when no longer required.

Practical info

Optimise use of non-opioids (e.g., paracetamol, non-steroidal anti-inflammatory drugs) before considering a trial of an opioid analgesic.

Use shared or supported decision-making with the person living with dementia when considering the use of an opioid analgesic for chronic non-cancer pain, which informs them of the potential benefits and harms, with agreement of the goals of therapy, method for measuring outcomes, and decision-making for ongoing use.

Regularly assess the individual's pain and pain management, monitoring for benefits and harms.

Take into account that some people living with moderate to severe dementia may be unable to express their experience of pain and will require alternative approaches for pain assessment other than self-report, and that people living with dementia are likely to be more susceptible to adverse events associated with opioid analgesics.

If a time-limited trial of an opioid analgesic is considered:

- tailor therapy to the individual's circumstances including comorbidities, age, concomitant medications and falls risk
- use a stepwise approach, with the lowest effective dose for a defined period of time
- consider dose reduction or cessation (via tapering) on each review
- establish a clear plan for discontinuation if the treatment goals are not met.

Useful resources

RACGP - Opioids to treat chronic non-cancer pain (CNCP)

Guideline for Deprescribing Opioid Analgesics

Evidence to decision

Benefits and harms Important harms

Research evidence

Desirable effects (benefits)

Evidence about potentially desirable effects comes from two randomised trials *(433)(588)*, both in residential aged care (Norway, same research team). Both trials evaluated the effects of a stepwise pain treatment protocol. Direct evidence about the effects of opioids within this stepwise protocol was only available from one small trial (89 participants).

There is very low certainty evidence that, compared to placebo, opioids may have little to no (trivial) effect on:

- pain, but the evidence is very uncertain [CRITICAL],
- specific behavioural and psychological symptoms of dementia (depression), but the evidence is very uncertain [IMPORTANT],

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There is very low certainty evidence that compared to usual care, a stepwise pain treatment protocol may

- reduce pain slightly, but the evidence is very uncertain [CRITICAL]
- have little to overall effect on specific behavioural and psychological symptoms of dementia (agitation), but the evidence is very uncertain [IMPORTANT]

There is low certainty evidence that, that compared to usual care, a stepwise pain treatment protocol may have little to no (trivial) effect on

- functional ability and participation [IMPORTANT]
- global cognitive function [IMPORTANT]
- behavioural and psychological symptoms of dementia [IMPORTANT]

The effects of opioids within a stepwise pain protocol are unknown (i.e., they cannot be isolated from the effects of other analgesics).

No studies reported on

- health-related quality of life of the person living with dementia [IMPORTANT]
- specific cognitive function [IMPORTANT]
- functional ability - specific - physical [IMPORTANT]
- health-related quality of life of the carer [IMPORTANT]

Interpretation of results. Results are reported on the original scale as a mean difference (MD). When available, we have used published estimates of the minimal important difference (MID) as a threshold to interpret whether the intervention has an important desirable (or undesirable) effect on each outcome of interest. For global cognitive function assessed with MMSE, we have used an MID of 3 points on a 30-point scale as per Andrews 2019 *(102)*. In the absence of established credible MIDs for all other continuous scales in our population, the threshold has been set as a 10% difference in effect size.

Undesirable effects (harms)

Evidence about potentially undesirable effects comes from two non-randomised studies (NRSIs) *(615)(908)* one set in the community and the other in any setting (32% of participants were in residential aged care). Additional, but very low certainty, evidence comes from the two randomised trials noted above (both in residential aged care).

There is low certainty evidence that, compared to no opioids, opioids may

- increase the risk of excess mortality [CRITICAL], but the evidence is from a single non-randomised study and other factors may explain the observed increase

There is very low certainty evidence that, compared to no opioids, opioids may

- may increase the rate of falls [IMPORTANT], but the evidence is from a single non-randomised study and other factors such as differences in comorbidities, physical function and environmental factors may explain the observed increase

We are uncertain of the effects of opioids on:

- hospitalisation [IMPORTANT]
- adverse events (sedation/somnolence) [IMPORTANT]

We are uncertain of the effects of using a stepwise pain treatment protocol on mortality [CRITICAL]

- mortality [CRITICAL]

Interpretation of results. We have used a threshold to interpret whether the intervention has an important desirable (or undesirable) effect on each outcome of interest. For dichotomous outcomes, results are reported as an absolute risk difference (ARD), and the thresholds used to determine the minimal important effect are:

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- mortality - 10 per 1000 (1% ARD)
- falls - 20 per 1000 (2% ARD)
- hospitalisation - 10 per 1000 (1% ARD)
- adverse events - 100 per 1000 (10% ARD)

Summary

Balance of effects: Guideline Development Group judgement and discussion

To decide on the balance of effects, the Guideline Development Group initially considered and made separate judgements about:

- the size of desirable anticipated effects (benefit) – **don't know/trivial**
- the size of undesirable anticipated effects (harm) – **small**
- the overall certainty of the evidence for critical outcomes – **very low**
- whether there is important variability (or uncertainty) in how much people value the main outcomes – **important uncertainty or variability**

There is high prevalence of opioid use in people living with and without dementia in residential aged care (up to 30%), and opioids are often used in addition to other analgesics. This contextual information can be considered when deciding on the balance of effects. However, the Group was reminded to only consider the direct evidence from the two included randomised controlled trials when judging how large the anticipated desirable effects are, and from the included randomised and non-randomised trials when judging how large the anticipated undesirable effects are.

The Group decided that the balance of effects probably favours no opioids.

Desirable effect (benefits): Guideline Development Group judgement and discussion

There is a scarcity of evidence in people living with dementia and chronic non-cancer pain, with only two randomised controlled trials in people living with moderate to severe dementia in residential aged care settings contributing to the body of evidence. Only one of these trials (n=89 participants) provided direct evidence of the effects of opioids. The Guideline Development Group noted there is no evidence of sufficient certainty of desirable effects to support the use of opioids, and that no studies reported results for some of our important outcomes.

A Living/Lived Experience Advisory Group member noted that the impact of opioids on cognition can increase the difficulty of living with dementia. While the Husebo 2011 *(588)* study did consider the impact of a stepwise pain treatment protocol on global cognition (low certainty evidence of little to no effect), the effects of opioids could not be isolated.

The Group noted that there is little evidence to support the use of opioids for chronic non-cancer pain in the general population, and there is evidence of harm. A Group member noted that professional groups have recommended against use of opioids for chronic non-cancer pain in the general population. Overall, the Group voted that the benefits of using opioids were unknown or trivial.

Undesirable effects (harms): Guideline Development Group judgement and discussion

Evidence for undesirable effects is from two randomised (mortality, falls, hospitalisation, adverse events) and two non-randomised studies (mortality, falls).

Guideline Development Group members expressed concerns about overmedication, dependence or tolerance, noting these outcomes were not measured in the included studies.

Certainty of the evidence

Very low

Research evidence

The overall certainty of the body of evidence is determined by the lowest certainty rating of all the critical outcomes.

- **Low** certainty: mortality
- **Very low** certainty: pain

Summary

The overall certainty of the body of evidence for this question is considered to be very **low**.

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Values and preferences

Substantial variability is expected or uncertain

Research evidence

Considerations for Aboriginal and Torres Strait Islander peoples

In respect to pain, for Aboriginal and Torres Strait Islander peoples it may be important to recognise emotional pain caused by historical discrimination, stereotypes and stigma, and it should be recognised that these aspects may not be easily captured with available pain assessment measures *(202)*. Sometimes an Aboriginal or Torres Strait Islander person may prioritise family and community commitments and responsibilities as more important than physical pain.

Considerations for people from culturally and linguistically diverse backgrounds

Different cultural groups may prioritise an approach to how pain is perceived and expressed (stoicism, versus more open expression of pain) but it is important not to make generalisations *(521)*). For some people complementary approaches to pain management may be embraced (Tai Chi, acupuncture, and herbal remedies/traditional medicines), and non-medication approaches such as massage, heat therapy, and physical rehabilitation are widely accepted and commonly practiced. However, it is important to ensure that there are no harmful interactions between herbal remedies and prescribed medications. People from culturally and linguistically diverse backgrounds may have concern or misunderstanding about opioids and their risks, particularly of addiction.

Considerations for LGBTQIA+ people

We did not identify direct evidence in relation to preferences for the use of opioids in LGBTQIA+ people living with dementia.

Considerations for people with younger onset dementia

One study examining preferences of people living with younger onset dementia in general found that connectedness with others and dignity are recognised as being valued highly for this group *(777)*. A review of the literature in 2016 captures the various general issues in relation to outcomes for people living with younger onset dementia *(1016)*. These include loss or diminishment in roles such as provider, parent, and spouse; loss of income and financial problems; and loss of empowerment. There was a strong desire expressed by many to remain engaged and in control of their lives as best they could. Carer stress, burden and grief were considered important, as were psychosocial stress and anxiety for children of the affected person. All these factors combined to reflect the overall quality of life for the person and the family unit.

Chronic pain can impact work, family roles, and independence, and may require specific consideration given their life stage.

Considerations for people living with disability

A systematic review of experiences of people living with intellectual disability (including Down's syndrome) and dementia (8 studies, 13 men and 18 women, 2 Australian studies) highlighted person-centred outcomes *(607)*. People experienced a narrowing of lives due to loss of abilities, stigma and marginalisation, loss of autonomy in decision-making for care. Relationships with others (including peers) were highly valued, and the preference was to stay supported in their homes while avoiding frequent moves. For people living with Down's Syndrome and dementia, person-centred outcomes such as being able to live one's best life with dementia, a sense of place and community, and having autonomy were highlighted in the recent Post-Diagnostic dementia support guidelines for people living with an intellectual disability *(783)*.

Considerations for people living outside major cities

We did not identify direct evidence in relation to preferences for the use of opioids in people living outside major cities with dementia.

Additional considerations

Input from the Living/Lived Experience Advisory Group

Quality of life and function is really important.

There is variability among the Living/Lived Experience Advisory Group about who would agree to personally take opioids. However, they agreed on the points below for those who choose to take opioids:

- balancing benefits with addiction risk and perceptions of unmet needs or misperception of pain reactions as "behaviours"
- individual choice, which can be supported by advanced care plans
- variability in how opioids affect one person compared to another even with the same conditions; you may have totally different reactions, pain levels and quality of life.

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Summary

Key points

- With respect to pain, for Aboriginal and Torres Strait Islander people, it may be important to recognise emotional pain caused by historical discrimination, stereotypes and stigma, and that these aspects may not be easily captured with available pain assessment measures *(202)*.
- Sometimes an Aboriginal or Torres Strait Islander person may prioritise family and community commitments and responsibilities as more important than physical pain *(202)*.
- People from culturally and linguistically diverse (CALD) backgrounds may prioritise an approach to how pain is perceived and expressed (stoicism, versus more open expression of pain) but it is important not to make generalisations *(521)*. Different cultural groups may have concern or misunderstanding about opioids and their risks, particularly of addiction.
- People living with younger onset dementia in general found that connectedness with others and dignity are recognised as being valued highly for this group *(777)*. Carer stress, burden and grief were considered important, as were psychosocial stress and anxiety for children of the affected person *(1016)*. All these factors combined to reflect the overall quality of life for the person and the family unit.
- For people living with Down's Syndrome and dementia, person-centred outcomes such as being able to live one's best life with dementia, a sense of place and community, and having autonomy were highlighted in the recent Post-Diagnostic dementia support guidelines for people with an intellectual disability *(783)*.
- For people who live outside major cities, engagement in meaningful activities (including social) was important to people living with dementia. Both people living with dementia and carers highly valued relationship-centred care support (e.g., a consistent care support person who treated them with respect) *(495)*.

Guideline Development Group judgement and discussion

Pain control is important to allow people to attend and be able to do the things they want to do (e.g., connecting with people), but also psychosocial and emotional aspects can impact on the pain experience and are equally important to address as part of holistic pain management.

Guideline Development Group members noted that some of the statements regarding priority populations could equally apply to the general population. While the indirect evidence for values only focussed on priority populations, the conclusions drawn are more general in nature, and not necessarily due or exclusively applicable to the respondent's background or belonging to a specific group. There is an absence of qualitative literature in the general population.

Other sources of variability in response to opioids were noted by the Group: pharmacogenomics, severity of dementia, individual responses to pain, etc. Living/Lived Experience Advisory Group members highlighted the variability in values relating to opioids - there may be concern about the risk of dependence and societal views on opioid use, alongside a need for pain relief. This could make the decision to use opioids a conflicted one for some people.

Given the important variability noted, any recommendation for or against opioids will be conditional.

Resources Important issues, or potential issues not investigated

Research evidence

General considerations

Direct costs of prescription opioid analgesics to individuals are generally relatively low, although prescribing rules in Australia require frequent visits to healthcare providers for ongoing prescriptions which may result in higher out-of-pocket costs or may have an impact on work *(66)*.

The societal costs of chronic non-cancer pain are significant. Approximately 3 million Australian adults use prescription opioids each year for both cancer and noncancer pain (2018) *(686)*. The majority of these are people with non-cancer pain, although it is likely that opioid use in people living with dementia represents only a small fraction of these cases. Potential costs to society of widespread use of opioids for chronic non-cancer pain include direct and indirect costs relating to overdose, misuse and dependence *A ustralia. Brit J Clinical Pharma 2014;78(5):1159–1166">(209)*.

Considerations for Aboriginal and Torres Strait Islander peoples

Access to qualified health professionals who value cultural safety and establish trust and recognise the importance of integrating cultural knowledge in the management of pain.

We did not identify studies that provided direct or indirect resource evidence in relation to the use of opioids for Aboriginal and Torres Strait Islander peoples.

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Considerations for people from culturally and linguistically diverse backgrounds

If a person speaks a language other than English, access to an accredited health care interpreter to support pain assessment, and also shared decision-making and information about pain management.

Access to multicultural health workers.

We did not identify studies that provided direct or indirect resource evidence in relation to the use of opioids for people from culturally and linguistically diverse backgrounds.

Considerations for LGBTQIA+ people

Access to qualified health professionals who are trauma-informed.

We did not identify studies that provided direct or indirect resource evidence in relation to the use of opioids for LGBTQIA+ people.

Considerations for people with younger onset dementia

People who live in rural and remote areas with younger onset dementia are more likely to receive care from primary care physicians, suggesting that clinician training or consultative guidance to primary care clinicians may be needed to overcome neuroscience workforce deficiencies in rural areas *(1353)*.

Considerations for people living outside major cities

There is a need for additional training around working with people living with dementia in rural/regional workforces *(1146)*.

Additional considerations

Input from Living/Lived Experience Advisory Group

- Use of opioids requires adequately trained GPs and pain specialists that understand chronic pain.
- Opioids are financially affordable and may be more cost-effective for society than emergency department presentations.
- There are social costs of not prescribing opioids (negative family interactions) that likely outweighs negative behavioural impacts of opioids.

Input from External Interest Holder Organisations

- Workforce shortages were identified as a key barrier for pain management, especially in delivering non-pharmacological pain management and safely administering opioids. Limited access to trained staff including those qualified to prescribe opioids effectively impacts care decisions and compromises patient-centred approaches. Upskilling, mentorship, and access to validated tools were cited as critical enablers.
- Access to qualified palliative care and/or pain professionals may be limited in residential aged care settings and for individuals receiving home care packages; and for regional/rural and remote communities. This can result in unmet needs for people with chronic pain in these settings, particularly when specialised support or equipment is required.

Summary

Key Points

- Direct costs of prescription opioid analgesics to individuals are generally relatively low, although regulatory and registration parameters which govern prescribing rules in Australia require frequent visits to healthcare providers for ongoing prescriptions and regular review which may result in higher out-of-pocket costs or may have an impact on work *(66)*.
- Access to qualified health professionals who value cultural safety and establish trust and recognise the importance of integrating cultural knowledge in the management of pain.
- There is a need for additional training in rural/regional workforces around working with people living with dementia.

Guideline Development Group judgement and discussion

It was noted by the Guideline Development Group that the information about Resources will be important when discussing under which circumstances opioids may be considered. It is also important to note that some people may choose opioids if more expensive, non-pharmacological pain management approaches are not affordable. Good clinical practice suggests that non-pharmacological pain management strategies should be continued when prescribing an opioid and will contribute to baseline costs. The Group had mixed views on whether there would be an increase or decrease in costs with opioids, and overall did not reach consensus.

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Equity

Important issues, or potential issues not investigated

Research evidence

General Considerations

It is important to acknowledge the diverse expressions of pain and avoid stereotypes. Pain assessment needs to consider equity across language, health literacy and cognition. Person-centred communication which is culturally safe, trauma informed and inclusive is critical to pain assessment and management. Universal access to multidisciplinary pain services, including psychology and allied health, not just pharmacological care.

Considerations for Aboriginal and Torres Strait Islander peoples

The prevalence of chronic non-cancer pain (and levels of disability) in Indigenous Australians is higher than their non-Indigenous counterparts *(202)*.

Aboriginal and Torres Strait Islander people require access to health professionals who communicate effectively in a culturally safe way, which establishes the trust required for effective pain management *(202)(1118)*. Fear of discrimination and being labelled as 'drug seeking' are major barriers to disclosing pain and receiving effective pain management *(202)*.

Considerations for people from culturally and linguistically diverse (CALD) backgrounds

We did not identify studies that provided direct or indirect equity evidence in relation to use of opioids for people from CALD backgrounds.

Considerations for LGBTQIA+ people

For people experiencing chronic pain and identifying as either Lesbian, Gay, Bisexual, Transgender, Transsexual, Queer, Questioning or Two-Spirit (LGBTQ2S) experiences of pain can be deeply influenced by a composite of experiences including discrimination and symptom dismissal *(1213)*.

Considerations for people living with younger onset dementia

People with younger onset dementia and pain may fall between the gaps between aged care, mental health and disability services, which may be needed to support holistic approach to pain management. Younger adults are less likely to be suspected of frailty or comorbidities that drive pain, so musculoskeletal conditions, autoimmune disorders, or injuries may be missed.

Considerations for people living outside major cities

Significant health inequities persist between rural and metropolitan communities. The cost to access interdisciplinary pain services often includes travel costs, which makes the intervention prohibitively expensive for those living outside major cities *(1146)(1281)*.

Additional considerations

Input from the Living/Lived Experience Advisory Group

There may be variability in patient knowledge about opioid use and support to take medications (e.g., remember doses and times). Risks of negative side effects exacerbated by lack of social support or education.

Inequity in access to trained clinicians for chronic pain management in residential aged care.

There is a lack of education about opioid medicines tailored for Aboriginal and Torres Strait Islander peoples available in their language.

There is a lack of education about opioid medicines for people from culturally and linguistically diverse communities available in their language, lack of a pain assessment tools which are culturally appropriate or easily understood, and lack of access to health care interpreters.

LGBTQIA+ people are more likely to age alone and their risk of adverse effects is exacerbated by lack of social support.

Time taken to get into specialists for people who live outside major cities is months in the meantime the chronic pain becomes entrenched. In rural areas there is a lack of access to trained clinicians for chronic pain management.

Input from External Interest Holder Organisations

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Equitable access to pain relief remains constrained, particularly for people living with dementia or those receiving home care packages. System limitations, compliance burdens, and limited practitioner availability contribute to disparities in care. Education and advocacy need to be prioritised to ensure good pain management becomes more visible.

Systemic challenges: Complexities within government and health systems shape opioid related policies and practices. Risk-averse cultures and reporting requirements contribute to conservative prescribing, particularly for older people with cognitive impairment or falls risk. Structural gaps in education and system knowledge further limit appropriate pain management.

Summary

Key points

- It is important to acknowledge the diverse expressions of pain and avoid stereotypes. Pain assessment needs to consider equity across language, health literacy and cognition. Person-centred communication which is culturally safe, trauma informed and inclusive is critical to pain assessment and management. Universal access to multidisciplinary pain services, including psychology and allied health, not just pharmacological care.
- The prevalence of chronic non-cancer pain (and levels of disability) in Indigenous Australians is higher than their non-Indigenous counterparts *(202)*.
- People living with younger onset dementia and pain may fall between the gaps between aged care, mental health and disability services, which may be needed to support holistic approach to pain management.
- Significant health inequities persist between rural and metropolitan communities. The cost to access interdisciplinary pain services often includes travel costs, which makes the intervention prohibitively expensive for those living outside major cities *(1146)(1281)*.

Guideline Development Group judgement and discussion

The Guideline Development Group acknowledged the indirect evidence and contributions from the Living/Lived Experience Advisory Group and External Interest Holder Organisations. The Group had variable voting results, with almost half voting that they **did not know** what the overall impact on health equity would be. The variability in the voting results demonstrated that the GDG were uncertain about the impact of opioids on health equity and the circumstances under which health equity could be increased or decreased.

Acceptability Important issues, or potential issues not investigated

Research evidence

General Considerations

People taking opioids may experience a range of adverse events and they may not be tolerated. In one of the included randomised controlled trials, 23/44 participants (52.3%) in the buprenorphine group discontinued treatment compared with 6/45 (13.3%) in the placebo group *(433)*. Confounding factors that were adjusted for included age, sex, cognition (MMSE), pain (MOBID-2), and depression (CSDD).

Considerations for Aboriginal and Torres Strait Islander peoples

Cultural safety and a trauma-informed approach is key in devising assessments and delivering acceptable interventions. A holistic approach to pain management broader than just medication is more acceptable *(202)*.

Considerations for people from culturally and linguistically diverse backgrounds

Consider a holistic approach to pain management broader than medication including consideration of the person's use or interest in complementary and alternative therapies.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct or indirect evidence regarding the acceptability of the use of opioids for LGBTQIA+ people living with dementia.

Considerations for people with disability

We did not identify studies that provided direct or indirect acceptability evidence in relation to the use of opioids for people with disability.

Considerations for people with younger onset dementia

We did not identify studies that provided direct or indirect evidence regarding the acceptability of the use of opioids for people living with younger onset dementia.

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Considerations for people living outside major cities

We did not identify studies that provided direct or indirect evidence regarding the use of opioids for people living with dementia living outside major cities.

Additional considerations

Input from Living/Lived Experience Advisory Group

- Individual pain, co-morbidities, and choices need to be taken into account.
- Consider the need to ensure wills, advanced care plans and the "business of life" are taken care of before embarking with opioids as that could be complicated by dementia diagnosis and opioid prescription.
- As long as all considerations have been considered, opioids are an acceptable choice.

Input form External Interest holder Organisations

Pain is frequently misunderstood as behavioural issues in older adults living with dementia, yet it often signals underlying distress. Recognising pain as a leading contributor to behaviours of concern is crucial, and improved clinician awareness is essential to ensure appropriate assessment and management.

Summary

Key points

- People taking opioids may experience a range of adverse events and they may not be tolerated.
- Cultural safety and a trauma-informed approach is key in devising assessments and delivering acceptable interventions. A holistic approach to pain management broader than just medication is more acceptable *(202)*.
- Consider a holistic approach to pain management broader than medication including consideration of the person's use or interest in complementary and alternative therapies, particularly for people from culturally and linguistically diverse backgrounds.
- Potential previous drug use may be a concern particularly with gay, bisexual men.

Guideline Development Group judgement and discussion

Due to time limitations, this factor was not discussed by the Guideline Development Group and no vote was taken. A Group member had noted during previous discussion that the beliefs of prescribers in relation to opioids are important and variable. Another member noted that for some people opioids may be considered acceptable for the pain relief and resulting improved quality of life, despite the risk of dependence, or actual dependence.

Feasibility

Important issues, or potential issues not investigated

Research evidence

Considerations for Aboriginal and Torres Strait Islander peoples

We did not identify studies that provided direct or indirect feasibility evidence in relation to the use of opioids for Aboriginal and Torres Strait Islander peoples.

Considerations for people from culturally and linguistically diverse backgrounds

We did not identify studies that provided direct or indirect feasibility evidence in relation to the use of opioids for people from culturally and linguistically diverse backgrounds.

Considerations for LGBTQIA+ people

We did not identify studies that provided direct indirect or feasibility evidence in relation to the use of opioids for LGBTQIA+ people.

Considerations for people with disability

We did not identify studies that provided direct or indirect feasibility evidence in relation to the use of opioids for people with disability.

Considerations for people living with younger onset dementia

Diagnostic and therapeutic management services are not set up for people living with younger onset dementia. Often multiple specialists are required, and are not age appropriate or connected. There are few settings that are set up to assess and manage people with younger onset dementia. Residential aged care is complicated for people living with younger onset dementia *(740)*.

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Considerations for people living outside major cities

We did not identify studies that provided direct or indirect feasibility evidence in relation to the use of opioids for people living outside major cities.

People living outside major cities may not have access to a service or support.

Additional considerations

Input from External Interest Holder Organisations

- A comprehensive person-centred approach to pain management and use of opioids is important, integrating clinical, psychological, and social factors. Pain-related behaviours in older adults are potential indicators of underlying distress.
- Prevention and management of pain improves patient and carer experience, mitigates hospital acquired complications and reduces behaviours of concern.
- Effective pain management can reduce strain on the workforce and improve quality of life.
- Pain management requires initial assessment and ongoing reviews, with clear delineation of roles across the care pathway — including who assesses pain, prescribes and dispenses medication, ensures safe storage and administration, evaluates effectiveness, and addresses errors or concerns when sentinel events occur. Sustainability of care requires effective interest holder engagement from the frontline to leadership alongside consensus on tools for assessment, pathways, and management.
- There are a number of legal considerations:
  - Pain management for individuals with limited capacity requires safeguards to ensure ethical practice.
  - Advance directives and care plans should explicitly address opioid use.

Input from the Living/Lived Experience Advisory Group

- Lack of access to skilled chronic pain management specialists who deal with pain holistically. People living with dementia need to have ongoing review of pain management throughout any treatment.
- Taking medications is difficult for people living with dementia who live alone. LGBTQIA+ people are more likely to live alone and have this challenge. Use of opioids for people living with dementia requires strategies (e.g., phone) or support or systems to be put in place. People living outside major cities may not have access to services or

support.
- Consider home/telehealth consultations to access specialists, with carers involved when people living with dementia cannot communicate easily.
- In remote and very remote Northern Territory, clinics with fly-in-fly-out doctors provide medications in Webster packs, but patients may not take them.
- The use of opioids may not be feasible for people living on their own, without human resources and social support. This is likely to have a greater effect on LGBTQIA+ people.

Summary

Key points

- Diagnostic and therapeutic management services are not set up for people living with younger onset dementia, inclusive of those with pain management expertise. Often multiple specialists are required, and are not age appropriate or connected.
- People living outside major cities may not have access to services or support, inclusive of pain management expertise.

Guideline Development Group judgement and discussion

Due to time limitations, this factor was not discussed by the Guideline Development Group and no vote was taken.

Rationale

The Guideline Development Group judged that:

- Use of opioids in people living with dementia resulted in uncertain or trivial desirable effects, and small undesirable effects, with very low certainty evidence.
- There was important variability in how much people living with dementia valued the desirable and undesirable effects, and the balance of effects probably favoured not routinely using opioids.
- The impact of using opioids on equity for people living with dementia was uncertain.

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The Group did not achieve consensus on whether use of opioids is associated with costs or savings, recognising that some costs may be associated with adjunct non-pharmacological approaches.

The Group agreed on a conditional recommendation against the use of opioid analgesics based on the balance of effects, and variability in values, preferences and acceptability for people living with dementia. There is insufficient direct evidence of harms in people living with dementia that would justify a strong recommendation against using opioids.

Clinical question/ PICO

Population: management of chronic non-cancer pain in people living with dementia, in community-dwelling or residential aged care facilities
Intervention: opioids
Comparator: no opioids

Outcome Timeframe	**Study results and measurements**	**Comparator** no opioids	**Intervention** opioids	**Certainty of the evidence** (Quality of evidence)	**Summary**
Mortality (all cause) 9 Critical	Hazard ratio 5.06 (CI 95% 4.86 — 5.29) Based on data from 94,854 participants in 1 studies. (Observational (non-randomized)) Follow up: 180 days (mean).	60 per 100 Difference:	81 per 100 **21 more per 100** (CI 95% 20 more — 22 more)	**Low** 1	Opioids may lead to excess mortality. In addition to findings from this non-randomised study, a single RCT reported on mortality but the result is too imprecise to interpret (RR 1.70, 95% CI: 0.43 to 6.71, 89 participants; ARD 5%

Outcome Timeframe	**Study results and measurements**	**Comparator** no opioids	**Intervention** opioids	**Certainty of the evidence** (Quality of evidence)	**Summary**
					more, 95% CI 4% fewer to 38% more; very low certainty evidence). - The result for mortality from the RCT was rated as very low certainty due to extremely serious imprecision (the 95% CI was compatible with an important reduction in mortality and very large increase in mortality). (Threshold for an important effect: mortality 10 per 1000 (1% ARD))
Mortality (SPTP) [2] 9 Critical	Relative risk 0.74 (CI 95% 0.26 — 2.09) Based on data from 352 participants in 1 studies. (Randomized controlled) Follow up: 8 weeks.	**46** per 1000 Difference:	**34** per 1000 **12 fewer per 1000** (CI 95% 34 fewer — 50 more)	**Very low** [3]	The evidence is very uncertain about the effect of using a stepwise pain treatment protocol on mortality. (Threshold for an important effect: mortality 10 per 1000 (1% ARD))
Rate of falls [4] 6 Important	Rate ratio 4.27 (CI 95% 2.92 — 6.24) Based on data from 194 participants in 1 studies. (Observational (non-randomized)) Follow up: 12 months (mean).	**2,240** per 1000 Difference:	**7 more per 1000** (CI 95% 4 more — 12 more)	**Very low** [5]	Opioids may increase the rate of falls but the evidence is very uncertain. In addition to evidence from this non-randomised study, a single RCT reported on falls but the result is too imprecise to interpret (RR 4.09, 95% CI: 0.48 to 35.17, 89 participants; ARD 7% more, 95% CI 1% fewer to 76% more; very low certainty evidence). - The result for falls from the RCT was rated as very low certainty due to very serious risk of bias and extremely serious imprecision (the 95% CI was compatible with little to no effect and very large harm). (Threshold for an important effect: falls 20 per 1000 (2% ARD))
Hospitalisation (opioids v placebo) [6] 6 Important	Relative risk 5.11 (CI 95% 0.25 — 103.53) Based on data from 89 participants in 1 studies. (Randomized controlled)	**0** per 100 Difference:	**5** per 100 **0 fewer per 100** (CI 95% 0 fewer — 0 fewer)	**Very low** Due to serious imprecision [7]	The evidence is very uncertain about the effect of opioids on hospitalisation (there are too few events to interpret this result). (Threshold for an important effect: hospitalisation 10 per 1000

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Outcome Timeframe	**Study results and measurements**	**Comparator** no opioids	**Intervention** opioids	**Certainty of the evidence** (Quality of evidence)	**Summary**
					(1% ARD))
Adverse events (opioids vs placebo) [8] 6 Important	Relative risk 4.6 (CI 95% 1.05 — 20.11) Based on data from 89 participants in 1 studies. (Randomized controlled) Follow up: 13 weeks.	44 per 1000 Difference:	202 per 1000 **158 more per 1000** (CI 95% 2 more — 841 more)	**Very low** Due to serious imprecision [9]	The evidence is very uncertain about the effect of opioids on adverse events (sedation/ somnolence). (Threshold for an important effect: adverse events 109 per 1000 (10% ARD))
Cognitive function - specific 6 Important					No studies reported on specific cognitive function.
Pain (opioids vs placebo) 9 Critical	Measured by: Mobilisation-Observation-Behaviour-Intensity-Dementia-2 Pain Scale (MOBID-2). Scale: 0 — 11 Lower better Based on data from 78 participants in 1 studies. (Randomized controlled) Follow up: 13 weeks.	Difference:	**MD 0.47 higher** (CI 95% 0.73 lower — 1.67 higher)	**Very low** Due to serious imprecision, Due to serious publication bias [10]	Opioids may have little to no effect on pain, but the evidence is very uncertain. (Threshold for an important effect: in the absence of an established credible minimal important difference (MID), the MID was set as a 10% difference in effect size)
Pain (SPTP) [11] 9 Critical	Measured by: Mobilisation-Observation-Behaviour-Intensity-Dementia-2 Pain Scale (MOBID-2). Scale: 0 — 11 Lower better Based on data from 299 participants in 1 studies. (Randomized controlled) Follow up: 8 weeks.	Difference:	**MD 1.3 lower** (CI 95% 1.75 lower — 0.85 lower)	**Very low** Due to serious imprecision, Due to serious publication bias [12]	Use of a stepwise pain treatment protocol may lead to a small but important reduction in pain, but the evidence is very uncertain. The effect of opioids within a stepwise pain treatment protocol cannot be estimated. - Serious imprecision (-1). 95% confidence interval crosses the threshold for an important effect. There are too few events to interpret this result (2 hospitalisations in the opioid group, 0 in the control group) (Threshold for an important effect: in the absence of an established credible minimal important difference (MID), the MID was set as a 10% difference in effect size)

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Outcome Timeframe	**Study results and measurements**	**Comparator** no opioids	**Intervention** opioids	**Certainty of the evidence** (Quality of evidence)	**Summary**
Functional ability and participation - overall (SPTP) [13] 6 Important	Measured by: Barthel Index High better Based on data from 304 participants in 1 studies. (Randomized controlled) Follow up: 8 weeks.	Difference:	**MD 0.5 lower** (CI 95% 1.77 lower — 0.77 higher)	**Low** [14]	Use of a stepwise pain treatment protocol may have little to no effect on overall functional ability and participation. (Threshold for an important effect: in the absence of an established credible minimal important difference (MID), the MID was set as a 10% difference in effect size)
Behavioural and psychological symptoms - specific (opioids vs placebo) 6 Important	Measured by: Cornell Scale for Depression in Dementia (CSDD) Lower better Based on data from 89 participants in 1 studies. (Randomized controlled) Follow up: 13 weeks.	Difference:	**MD 3.03 higher** (CI 95% 0.03 lower — 6.09 higher)	**Very low** Due to serious imprecision, Due to serious publication bias [15]	Opioids may have little to no effect on specific behavioural and psychological symptoms - specific (depression) but the evidence is very uncertain. (Threshold for an important effect: in the absence of an established credible minimal important difference (MID), the MID was set as a 10% difference in effect size)
Behavioural and psychological symptoms - specific (SPTP) [16] 6 Important	Measured by: Cohen-Mansfield Agitation Inventory (CMAI) Lower better Based on data from 304 participants in 1 studies. (Randomized controlled) Follow up: 8 weeks.	Difference:	**MD 7 lower** (CI 95% 10.27 lower — 3.73 lower)	**Very low** Due to serious publication bias [17]	Using a stepwise pain treatment protocol may have little to no effect on specific behavioural and psychological symptoms (agitation) but the evidence is very uncertain. (Threshold for an important effect: in the absence of an established credible minimal important difference (MID), the MID was set as a 10% difference in effect size)
Behavioural and psychological symptoms - overall (SPTP) [18] 6 Important	Measured by: Neuropsychiatric Inventory-Nursing Home version (NPI-NH total score) Lower better Based on data from 304 participants in 1 studies. (Randomized controlled) Follow up: 8 weeks.	Difference:	**MD 9 lower** (CI 95% 12.53 lower — 5.47 lower)	**Low** [19]	Using a stepwise pain treatment protocol may have little to no effect on overall behavioural and psychological symptoms. (Threshold for an important effect: in the absence of an established credible minimal important difference (MID), the MID was set as a 10% difference in effect size)
Cognitive function	Measured by: Mini Mental	Difference:	**MD 1.2 lower**	**Low**	Using a stepwise pain

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Outcome Timeframe	**Study results and measurements**	**Comparator** no opioids	**Intervention** opioids	**Certainty of the evidence** (Quality of evidence)	**Summary**
- global (SPTP) [20] 6 Important	State Examination (MMSE) High better Based on data from 304 participants in 1 studies. (Randomized controlled) Follow up: 8 weeks.		(CI 95% 2.73 lower — 0.33 higher)	21	treatment protocol may have little to no effect on global cognitive function. (Threshold for an important effect: minimal important difference (MID) of 3 points on a 30-point scale)
Functional ability – physical – specific 6 Important					No studies reported on functional ability – physical – specific.
Health-related quality of the life of the carer 6 Important					No studies reported on the health-related quality of life of the carer.
Health-related quality of life of the person with dementia 6 Important					No studies reported on the health-related quality of life of the person living with dementia.
Health-related quality of life of the person with dementia 6 Important					No studies reported on the health-related quality of life of the person living with dementia.

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1. **Risk of Bias: very serious.** Very serious risk of bias (-2): single non-randomised study at moderate risk of bias due to residual confounding (incomplete adjustment for time-varying confounding) and bias in the selection of the reported result (no report of a pre-specified statistical analysis plan). In addition, the effect of adhering to opioids (i.e. the per protocol effect) is at moderate risk of bias due to deviations from the intended intervention (Censoring approximates a per-protocol effect, but no inverse probability weighting for informative censoring; sensitivities mitigate).. **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious.** No concerns about imprecision. The threshold for a small but important effect on mortality is 10 deaths per 1000 people (1%). The 95% confidence interval does not cross this threshold, and both the upper and lower bound are compatible with an important increase in mortality.. **Publication bias: no serious.**
2. The data in this analysis come from a study comparing a stepwise pain treatment protocol with usual care. Participants allocated to the stepwise pain protocol started at step 1 (low dose oral paracetamol), of it they were already receiving treatment, were adjusted to either step 2 (full dose oral paracetamol or low-dose morphine), step 3 (low-dose buprenorphine) or step 4 (pregabaline). 55/175 (31%) participants in the SPTP arm received opioids. The number of participants in the usual care arm who received opioids during the intervention period was not reported (18% at baseline). MID: 10 per 1000;
3. **Inconsistency: no serious. Indirectness: no serious. Imprecision: extremely serious.** Extremely serious imprecision (-3). The 95% confidence interval crosses the threshold for both an important benefit (MID of 10 fewer per 1000) and important harm (MID of 10 more per 1000), so the result is compatible with both important benefit (34 fewer per 1000) and large important harm (50 more per 1000). There were few events and the estimate is too imprecise to interpret.. **Publication bias: no serious.** Publication bias not detected. Unable to formally assess risk given small number of included studies; extent of concerns re publication bias may be underestimated..

4. Rate of falls assessed with: falls diary (completed by participant's spouse)
5. **Risk of Bias: extremely serious.** Extremely serious risk of bias (-3). single non-randomised study at serious risk of bias due to residual confounding (no adjustment for comorbidities, physical function, or environmental factors) which is likely to have material impact on the result (i.e. could explain the increase in falls) and per protocol effects. There is also risk of bias in the measurement of the outcome and selection of the reported result (no report of a pre-specified statistical analysis plan).. **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious.** No concerns about imprecision. The threshold for a small but important effect on falls is 20 per 1000 people (2%) or a 2% increase in falls per person per year. The 95% confidence interval does not cross this threshold, and both the upper and lower bound are compatible with an important increase in falls. . **Publication bias: no serious.**
6. Assessed with: falls diary completed by spouse/carer; MID: 20 per 1000; 13-week follow-up
7. **Risk of Bias: very serious.** Very serious risk of bias (-2). The data in this analysis comes from a study at high risk of bias due to bias from missing data.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: serious.** Serious imprecision (-1). 95% confidence interval crosses the threshold for an important effect. There are too few events to interpret this result (2 hospitalisations in the opioid group, 0 in the control group). **Publication bias: no serious.** Publication bias not detected. Unable to formally assess risk given small number of included studies; extent of concerns re publication bias may be underestimated..
8. Sedation/somnolence (measure not reported); MID 100 per 1000; lower is better
9. **Risk of Bias: very serious.** Very serious risk of bias (-2). The data in this analysis comes from a study at high risk of bias due to bias from missing data.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: serious.** Serious imprecision (-1). The 95% confidence interval crosses the threshold for an important harm (MID of 100 per 1000), so the result is compatible with little or no difference (2 more per 1000) and important large harm (849 more per 1000). There were few events and the estimate is too imprecise to interpret.. **Publication bias: no serious.** Publication bias not detected. Unable to formally assess risk given small number of included studies; extent of concerns re publication bias may be underestimated..
10. **Risk of Bias: very serious.** Very serious risk of bias (-2). The data in this analysis comes from a study at high risk of bias due to bias from missing data.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: serious.** Serious imprecision (-1). The 95% confidence interval crosses the threshold for a small but important effect (MID of 1 point), so the result is compatible with little or no difference (MD 0.73 higher) and important harm (MD 1.67 higher). . **Publication bias: serious.** Publication bias suspected (-1). One unpublished study identified. Unable to formally assess risk given small number of included studies; extent of concerns re publication bias may be underestimated..
11, 13, 16, 18, 20. The data in this analysis come from a study comparing a stepwise pain treatment protocol with usual care. Participants allocated to the stepwise pain protocol started at step 1 (low dose oral paracetamol), of it they were already receiving treatment, were adjusted to either step 2 (full dose oral paracetamol or low-dose morphine), step 3 (low-dose buprenorphine) or step 4 (pregabaline). 55/175 (31%) participants in the SPTP arm received opioids. The number of participants in the usual care arm who received opioids during the intervention period was not reported (18% at baseline).
12. **Risk of Bias: very serious.** Very serious risk of bias (-2). The data in this analysis comes from a study at high risk of bias. Unblinded carers completed the assessments.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: serious.** Serious imprecision (-1). The 95% confidence interval crosses the threshold for a small but important effect (MID of 1 point), so the result is compatible with important benefit (MD -1.75) and little or no difference (MD -0.85). **Publication bias: serious.** Publication bias suspected (-1). One unpublished study identified. Unable to formally assess risk given small number of included studies; extent of concerns re publication bias may be underestimated..
14, 19, 21. **Risk of Bias: very serious.** Very serious risk of bias (-2). The data in this analysis comes from a study at high risk of bias. Unblinded carers completed the assessments.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious. Publication bias: no serious.** Publication bias not detected. Unable to formally assess risk given small number of included studies; extent of concerns re publication bias may be underestimated..
15. **Risk of Bias: very serious.** Very serious risk of bias (-2). The data in this analysis comes from a study at high risk of bias due to bias from missing data.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: serious.** Serious imprecision (-1). The 95% confidence interval crosses the threshold for a small but important effect (MID of 4 points), so the result is compatible with little or no difference (MD -1.75) and important harm (MD 6.09).. **Publication bias: serious.** Publication bias suspected (-1). One unpublished study identified. Unable to formally assess risk given small number of included studies; extent of concerns re publication bias may be underestimated..
17. **Risk of Bias: very serious.** Very serious risk of bias (-2). The data in this analysis comes from a study at high risk of bias. Unblinded carers completed the assessments.. **Inconsistency: no serious. Indirectness: no serious. Imprecision: no serious. Publication bias: serious.** Publication bias suspected (-1). One unpublished study identified. Unable to formally assess risk given small number of included studies; extent of concerns re publication bias may be underestimated..

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Practice Statement

Good Practice Statement 13
Pharmacological approaches should not replace non-pharmacological approaches for pain management in people living with dementia who have chronic non-cancer pain, while acknowledging that some people living with dementia may have limited ability to engage with many non-pharmacological pain therapies or may require them to be adapted.

Rationale

The good practice statement was developed to emphasise essential principles of care in clinical practice if opioid analgesia is being considered in people living with dementia.

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10. Draft example materials to support implementation of the Guidelines

Dementia Clinical Practice Guidelines – Fact Sheet – Physical Rehabilitation

Dementia Clinical Practice Guidelines – Fact Sheet – Cognitive Rehabilitation

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11. Glossary

Term	Definition
Aboriginal and Torres Strait Islander peoples	People who have identified themselves or have been identified by a representative (for example, their parent or guardian), as being of Aboriginal and/or Torres Strait Islander origin.
Adolopment	Adolopment is a process for guideline development that combines adoption, adaptation, and de novo development of recommendations with evidence from an existing high-quality guideline or systematic review (GRADE).
Adverse event	Any undesirable experience associated with medication or health intervention. Adverse events can be serious and result in hospitalisations, persistent disability or death. Adverse events are sometimes known as side-effects.
Alzheimer's disease dementia	Alzheimer's disease dementia is a condition with symptoms of impaired memory, thinking and behaviour. Alzheimer's disease dementia is a progressive dementia—caused by a progressive degeneration of brain cells. The brain degeneration that occurs in Alzheimer's disease affects memory, thinking skills, emotions, behaviour and mood.
Alzheimer's disease pathology	Refers to the abnormal proteins beta-amyloid and tau that accumulate in the brain, and are commonly present in people with the diagnosis of Alzheimer's disease dementia
Amyloid PET (Positron Emission Tomography)	Amyloid PET is a neuroimaging technique used to accurately measure the burden of beta-amyloid (Aβ) in the brain.
Behavioural and psychological symptoms of dementia (BPSD)	Behavioural and Psychological Symptoms of Dementia (BPSD) is a collective term for the non-cognitive symptoms that occur in people living with dementia. People living with dementia and their carers may prefer alternative terms such as responsive behaviours, unmet needs, or changed behaviours, reflecting the importance of using terms that are respectful and acceptable to the individual and carers.
Blood-based biomarkers	Blood-based biomarkers are measurable molecules in blood that reflect underlying processes of neurodegeneration, including amyloid and tau pathology, and brain cell injury. They may support screening, diagnosis, or monitoring of dementia.
Carer/s	A person who provides any informal assistance, in terms of help or supervision, to people with disability or older people (aged 65 years and over). Assistance must be ongoing, or likely to be ongoing, for at least six months.
Cerebrospinal fluid (CSF) biomarkers	Fluid obtained by lumbar puncture, that provides a window into brain pathology by measuring relevant proteins such as beta-amyloid and tau.
Cochrane review	A systematic review conducted according to the methods described in The Cochrane Handbook and published in the Cochrane Library. The reviews are regarded as high in methodological quality.

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Term	Definition
Cultural safety	According to the Australian Institute of Health and Welfare, cultural safety refers to healthcare that is provided in a way that is safe, accessible and responsive for individuals from all cultural backgrounds, as determined by the experience of the individual receiving care. It requires practitioners to reflect on and address their own cultural values, beliefs and attitudes that consciously or unconsciously affect their behaviours, and to actively work toward creating an environment that respects all cultural identities and addresses racism and inequity.
Dementia risk reduction	Dementia risk reduction refers to strategies and actions that aim to lower the likelihood of developing dementia or delay its onset.
Deprescribing	Deprescribing is the structured withdrawal of an inappropriate medication (any medication where the likely harms outweigh the likely risks, including unnecessary and high-risk medications), supervised by a healthcare professional. It may involve tapering and dose reduction.
Evidence to Decision framework	The GRADE (Grading of Recommendations, Assessment, Development, and Evaluation) Evidence to Decision (EtD) framework is a structured, transparent, and systematic tool used to move from evidence synthesis to recommendations or decisions. It helps the Guideline Development Group consider all necessary factors, such as evidence quality, balance of benefits/harms, values, equity, and feasibility.
[^{18}F]-fluorodeoxyglucose Positron Emission Tomography (FDG-PET)	FDG-PET assesses cerebral glucose metabolism, which reflects neuronal activity. Glucose is the main energy substrate for brain cells, and reduced uptake in specific cortical regions can signal neurodegenerative damage. Typical metabolic patterns differ among dementia types, for instance, posterior and temporoparietal hypometabolism in AD versus frontal or anterior and temporal reductions in frontotemporal dementia (FTD). In clinical practice, FDG-PET is most useful for differentiating AD from FTD or other atypical dementias. (National Institute on Aging).
Functional assessment	A functional assessment for dementia evaluates a person's ability to perform daily tasks to understand how cognitive decline is impacting their life. It includes evaluating both basic activities of daily living (ADLs), like dressing and eating, and more complex instrumental activities of daily living (IADLs), such as managing finances, cooking, and shopping. This assessment is crucial for diagnosing dementia, determining its severity, guiding care planning, and supporting both the patient and their caregivers.
Health-related quality of life	Used in some treatment studies to show improvement in a person's condition beyond reduction in symptoms, measures of quality of life can be defined broadly and include satisfaction, especially within important areas of one's life, the level of functioning in different areas and the objective circumstances in which one lives.
LGBTQIA+ person/people	According to the Australian Institute of Health and Welfare, people who identify as lesbian, gay, bisexual, transgender, intersex, queer, or asexual, or people otherwise diverse in gender, sexual orientation and/or innate variations of sex characteristics. There are many different abbreviations and letter orders. This term has been chosen to be as inclusive as possible. Variations on this abbreviation and specific sub-group terms will be used throughout the guidelines where appropriate.

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Term	Definition
Meta-analysis	The use of statistical techniques in a systematic review to integrate the results of several independent studies.
Multi-domain interventions for risk reduction	Multi-domain interventions are programs designed to address multiple dementia risk factors simultaneously, rather than focusing on a single intervention such as physical activity or diet alone.
Negative likelihood ratios (LR-)	Describe how many times less likely negative features are in people with the condition compared with people without the condition.
Negative Predictive Value (NPV)	Probability that a person with a negative test result truly does not have the disease.
Neuropathology	Neuropathology is the post-mortem examination of brain tissue to confirm dementia. In Alzheimer's disease, it identifies β-amyloid plaques, tau neurofibrillary tangles, and related neurodegeneration, graded by frameworks such as NIA-AA and CERAD/Braak staging.
Older person/people	Generally, those aged 65 and over. For older Aboriginal and Torres Strait Islander peoples, and people experiencing homelessness the age range 50 and over is used.
Person/people experiencing homelessness	Those living in non–conventional accommodation (such as living on the street), or short–term or emergency accommodation (such as living temporarily with friends and relatives).
Person/people from a culturally and linguistically diverse background/s	A person who identifies with a culture or religion that is not predominantly represented in Australian society or speaks a language other than English at home.
Person/people living outside major cities	The guidelines adopt the term "people living outside major cities" to represent all people living in regional, remote and very remote Australia. Specific remoteness areas names will be used throughout the guidelines where appropriate.
Person/people living with disability	Those experiencing different degrees of impairment, activity limitation and participation restriction. Disability can be related to genetic disorders, illnesses, accidents, ageing, injuries or a combination of these factors.

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Term	Definition
Person/people living with mental illness	A person who is currently diagnosed with a mental disorder, excluding dementia. According to the World Health Organization, a "mental disorder is characterized by a clinically significant disturbance in an individual's cognition, emotional regulation, or behaviour. People living with mental illness are more likely to experience comorbidity of physical conditions, more likely to be hospitalized for potentially preventable reasons and tend to die earlier than the general population" The more commonly used term "person with a lived experience of mental illness" has not been chosen to be consistent with other terminology in the guidelines and to distinguish between those who are actively experiencing mental ill-health and those who have recovered or those with other lived experience (e.g., as carers of people living with mental illness).
Person/people living with younger onset dementia (YOD)	Younger onset dementia is used to describe any form of dementia diagnosed in someone under the age of 65.
Positive likelihood ratios (LR+)	Describe how many times more likely positive features are in people with the condition compared with people without the condition.
Positive predictive value (PPV)	Probability that a person with a positive test result truly has the disease.
Practical assessment for driving	A practical assessment for driving refers to further examination by road authorities to assess fitness to drive. There is a wide range of practical assessments available, including off-road and on-road assessments.
Primary care	Primary health care refers to a broad range of health services most often delivered in community-based settings. Primary health care services seek to intervene early to maximise health and wellbeing outcomes and prevent or slow the progression of ill health
Priority population group/s	Those vulnerable minority groups who do not yet have equal access to high-quality care. Nor do they enjoy equal health outcomes with the broader population.
Randomised controlled trial (RCT)	A prospective study design used to evaluate the effectiveness of an intervention or treatment. Participants are randomly assigned to either the intervention or comparator group, which balances participant characteristics and reduces bias. The study population, interventions and outcomes are carefully selected, and experimental conditions are often blinded. RCTs are generally considered to provide the strongest level of evidence below a systematic review.
Reference standard	A reference standard (often called a "gold standard") is the best available method for establishing the presence or absence of a target condition or disease. It serves as the benchmark against which new diagnostic tests (index tests) are compared to measure accuracy, sensitivity, and specificity.
Rehabilitation	Rehabilitation is a set of interventions designed to optimize functioning and reduce disability in individuals with health conditions in interaction with their environment.

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Term	Definition
Sensitivity (Sn)	Proportion of people with the disease correctly identified as positive (true positive rate) (Trevethan R.).
Shared decision making	A collaborative and participatory process in which clinicians and patients work together to make healthcare decisions and develop a care plan that aligns with the patient's individual preferences, values, and goals.
Specificity (Sp)	Proportion of people without the disease correctly identified as negative (true negative rate).
Standard clinical assessment (history, cognitive exam, physical exam, basic labs)	Defined as a comprehensive evaluation that focuses on cognitive symptoms, functional abilities, behavioural and psychological symptoms, unmet needs, mood, personal values, and the well-being of family caregivers to inform appropriate intervention for individuals with dementia.
Systematic review	Research that summarises the evidence on a clearly formulated question according to a predefined protocol using systematic and explicit methods to identify, select and appraise relevant studies, and to extract, collate and report their findings.
Veteran/s	Traditionally describing former Australian Defence Force personnel who were deployed to serve in war or war-like environments, veterans are now considered people who have any experience in the Australian Defence Force including permanent, reserve, and former (ex-serving) personnel.

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Abbreviations	Definition
AAT	Anti-amyloid therapy
AD	Alzheimer's Disease
ADD	Alzheimer's Disease Dementia
ADAS-Cog13	Alzheimer's Disease Assessment Scale - Cognitive Subscale
ADCS-iADL	Alzheimer's Disease Cooperative Study Activities of Daily Living Inventory - instrumental items
ADD	Alzheimer's Disease dementia
ADNeT	Australian Dementia Network
ADL	Activities of daily living
ADRDA	Alzheimer's Disease and Related Disorders Association
AIBL	Australian Imaging, Biomarkers and Lifestyle
AIHW	Australian Institute of Health and Welfare
AIREN	Internationale pour la Recherche et l'Enseignement en Neurosciences
Amyloid-PET	Amyloid Positron Emission Tomography

Abbreviations	Definition
APOE	Apolipoprotein E
APOE ε4	Apolipoprotein E epsilon-4
ARIA	Amyloid-related imaging abnormalities
ARIA-E	Amyloid-Related Imaging Abnormalities - Edema/Effusion
ARIA-H	Amyloid-Related Imaging Abnormalities - Hemosiderin
AUD	Australian dollar
AV45	[18F]Florbetapir
Aβ	Beta-amyloid
BBM	Blood-Based Biomarkers
BPSD	Behavioural and psychological symptoms of dementia
CALD	Culturally and linguistically diverse
CDR-SB	Clinical Dementia Rating - Sum of Boxes
CI	Confidence Interval
CoE	Certainty of Evidence
CSF	Cerebrospinal fluid
CU	Cognitively unimpaired
DLB	Dementia with Lewy Bodies
DSM-5	The Diagnostic and Statistical Manual of Mental Disorders, fifth Edition
DTA	Diagnostic test accuracy
EEC	Electroencephalography
EtD	Evidence to Decision
FBB	[18F]Florbetaben
FDG-PET	18F-fluoro-deoxyglucose Positron Emission Tomography
FLUTE	[18F]Flutemetamol
FN	False negative
FP	False positive
FTD	Frontotemporal dementia
GFAP	Glial fibrillary acidic protein

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Abbreviations	Definition
GP	General Practitioner
GRADE	Grading of Recommendations Assessment, Development and Evaluation
HR-QoL	Health-related quality of life
ICD-10	International Classification of Diseases, Tenth Revision
ICD-11	International Classification of Diseases 11th Revision ·
LEARN	Longitudinal Evaluation to Understand Risk
LGBTQIA+	Lesbian, Gay, Bisexual, Transgender, Queer/Questioning, Intersex, and Asexual/Aromantic and all other identities and experiences not explicitly covered by the letters
LR	Likelihood Ratios
mAb	Monoclonal antibody
MBS	Medicare Benefit Scheme
MCI	Mild Cognitive Impairment
MeSH	Medical Subject Headings
MMSE	Mini-Mental State Examination
MRI	Magnetic Resonance Imaging
MSAC	Medical Services Advisory Committee
NDDL	National Dementia Diagnostics Laboratory
NDIS	National Disability Insurance Scheme
NfL	Neurofilament light chain
NHMRC	National Health and Medical Research Council
NICE	National Institute for Health and Care Excellence
NINCDS	National Institute of Neurological and Communicative Disorders
p-tau	Phosphorylated tau
PBAC	Pharmaceutical Benefits Advisory Committee
PBS	Pharmaceutical Benefits Scheme
PET	Positron Emission Tomography
pGlu3-Aβ	pyroglutamate-modified N-terminal form of Aβ
PiB	[11C]Pittsburgh Compound B
QALY	Quality-Adjusted Life Year
QUADAS-2	Quality Assessment of Diagnostic Accuracy Studies

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Abbreviations	Definition
RCT	Randomised Control Trial
RoB 2	Cochrane risk-of-bias tool for randomized trials
RE-URG	Under-represented groups
SCD	Subjective Cognitive decline
SD	Standard Deviation
SHTG	The Scottish Health Technologies Group
SMD	Standardised mean difference
Sn	Sensitivity
SoF	Summary of Findings
Sp	Specificity
SPECT	Single-Photon Emission Computed Tomography
SR	Systematic Review
TGA	Therapeutic Goods Administration
TN	True negative
TP	True positive

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12. Supporting Guideline Reports

Administrative report

Technical report

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