Appendix 6. Feedback from medical record audit (multifaceted intervention sites)

Hospital 1

Medical Record Audit

41 medical records audited of people discharged from [Hospital 1] from 1 October 2012 with stroke, excluded TIA and SAH.

Patient demographics
Age: ranged from 31 - 92 (median 69)

2 were not independently mobile on admission

NIHSS score on admission: ranged from 0 - 31 (median 5)

OSCS: 6 x ICH, 9 x LACI, 11 x PACI, 9 x POCI, 4 x TACI, 2 x na (no detectable symptoms)

Timing of admission: day of stroke (n = 30), 1 day delay (5); 2 day delay (1); 6+ days (5)

Assessment for rehabilitation

18 received documented assessment for rehabilitation by treating team

23 did not receive assessment for rehab by treating team

4 patients for palliative care

Excluding patients for palliative care, **18 of 37 eligible for rehabilitation under new framework (48%) received assessment for ongoing rehabilitation requirements by [Hospital 1] staff**

Disciplines conducting assessments:

- PT & OT (5); med & PT (5); PT only (3), med, PT, OT & SP (1), OT, SP & rural liaison (1), SP & DC planning nurse (1), med, RN & PT (1), SP & PT (1)
- PT involved in 16 assessments
- OT involved in 7 assessments
- Medical team involved in 7 assessments
- SP involved in 3 assessments
- Nurse (including DC planning and rural liaison nurse) involved in 3 assessments

17 of the 18 assessed as requiring rehabilitation. 1 of these progressed within admission and deemed not for rehab as had made full recovery, 1 patient assessed by acute team as not for rehab as didn't meet rehab inclusion criteria as too heavy wrt manual handling requirements, dysphasic, not aiming to walk

22 patients (59% of those not for pall care) were assessed either by treating team or external reviewer

Very basic analysis: More likely to receive an assessment for rehabilitation if younger, have lower score on NIHSS, and classified as POCI or LACI.

External review (by employee of rehabilitation service):

16 patients reviewed by external reviewer

4 had no documented assessment of rehabilitation potential/requirement prior to being reviewed by external assessor

Of the 12 patients assessed by treating team **and** external reviewer, there was 100% agreement between external reviewers and acute team re rehab suitability (11 requiring rehabilitation, 1 not for rehabilitation)

Timing of review ranged from 2 -11 days post admission, median 5 days

15 accepted for rehab, 1 not accepted as considered “not ready” (considered not for rehab by treating team)

Accessing rehabilitation

20 people received ongoing rehabilitation (15 inpatient, 3 community, 2 home)

General care provision

For patients not for pall care (n = 37):

- 35 were seen by PT
- 23 were seen by OT
- 28 were seen by SP
- 4 were seen by SW
- 5 were seen by dietician

Documented multi-disciplinary family meeting (all patients): 6

Observation of clinical practice April 2013

- Multi-disciplinary meetings held Mondays and Thursdays 2 - 3pm in Therapy Room. Medical records not in room during meeting
- Decisions and discussions regarding ongoing rehabilitation often take place in informal settings eg in nurses’ station or in therapy room before/after team meetings
- For patients requiring rehabilitation, seems to be healthy interaction between all staff regarding where team consider rehab best suited (eg home/community vs inpatient vs TCP), whether rehabilitation actually required or whether patient safe to go home without follow-up. Different health professionals provide relevant information; others listen and respond appropriately to each disciplines expertise
- Rehabilitation setting generally recommended by staff, using clinical judgement of patient’s rehabilitation requirements and current level of function. Time frames of anticipated recovery, likely discharge destination, private health insurance status, family support on discharge and residential address discussed when considering rehabilitation setting
- Rehabilitation potential not discussed for every patient – generally only those patients deemed likely to be discharged to rehabilitation service. i.e. **for people not being referred to rehabilitation, prospect of rehabilitation is not generally discussed or documented**
- Nurses responsible for referring to inpatient/home rehabilitation and liaising with rehabilitation providers, therapy staff responsible for organising community referrals, SW/NS for TCP referrals
- Referrals to external rehabilitation assessors generally delayed until all medical investigations completed
- Majority of patients during observation period that team recommended for rehabilitation accessed rehabilitation (1 person was refused rehabilitation via TCP)
- Approximately one third of stroke patients admitted to [hospital1] are admitted to medical wards. **Patients admitted with stroke to medical wards are not directly referred to the allied health disciplines.** Allied health professionals on medical wards review OACIS lists daily and check admitting diagnoses of all patients on the unit. If presenting complaint is registered as stroke, physiotherapist and occupational therapist will review these patients and refer to other disciplines (eg Speech pathology, dietetics, social work) as they deem clinically relevant. When a stroke is diagnosed during admission, allied health professionals rely on feedback from unit medical staff and ward nursing staff to alert them to patients with diagnosis of stroke.

[Hospital 3] medical record audit

40 medical records audited for people who were admitted from 1 October 2012 with stroke, excluded TIAs and SAHs.

Patient demographics
Age: ranged from 40 - 101 (median 75)

2 were not independently mobile on admission

NIHSS score on admission: ranged from 0 - 30 (median 3)

OSCS: 1 x ICH, 14 x LACI, 6 x PACI, 9 x POCI, 9 x TACI, 1 x na

Timing of admission: day of stroke (n = 24), 1 day delay (7); 2 day delay (1); 4+ days (8)

Assessment for rehabilitation

12 received assessment for rehab by treating team

28 did not receive assessment for rehab by treating team

4 patients for palliative care

Excluding patients for palliative care, **12 of 36 eligible for rehabilitation under new framework (33%) received assessment for ongoing rehabilitation requirements by [Hospital 3] staff**

Disciplines conducting assessments:

- OT only (4); PT & OT (2); PT only (2); med only (1); PT, OT & SP (1); RN, PT & SP (1); RN & OT (1)
- OT involved in 8 assessments
- PT involved in 6 assessments
- Nurse involved in 2 assessments
- SP involved in 2 assessments
- Medical team involved in 1 assessment

11 of the 12 assessed as requiring rehabilitation. 1 patient assessed as not requiring rehabilitation – patient refused and assessed as safe by staff (RN and OT).

20 patients (55% of those not for pall care) were assessed either by treating team or external reviewer

Very basic analysis: more likely to receive an assessment for rehabilitation if younger and classified as POCI

	Received assessment	Did not receive assessment (excluding pall care)
Age	Mean =69.6, median = 69	Median =76 , mean 73
Stroke classification:		
PACI (n=6)	n=3 , 50%	n=3, 50%
LACI (n=14)	n=6, 43%	n=8, 57%
ICH (n=0)	n=0	n=0
POCI (n=9)	n=8, 89%	n=1, 11%
TACI (n=6)	n=3, 50%	n=3, 50%
NA(n=1)	n=0	n=1, 100%
NIHSS	Median 3	Median 3

External review

15 patients reviewed by external reviewer (eg Rehab Medicine or private rehabilitation assessor)

8 had no documented assessment of rehabilitation potential/requirement prior to being reviewed by external assessor

Of the 7 assessed by both the treating team and external reviewers, there was 100% agreement regarding rehabilitation requirements (all for rehabilitation)

Timing of external rehab review ranged from 1 to 25 days post-admission (median day 5)

Results of assessment:

- 11 accepted when first assessed
- 2 initially deemed not for rehabilitation ("significant impairments, mostly speech and cognitive, not suitable"; "not suitable for X rehabilitation service, refer to X rehabilitation unit") but accepted after subsequent assessments
- 1 not accepted ("limited goals, for high level of care"),
- 1 "further assessment required" and not documented subsequently

Accessing rehabilitation

17 people accessed rehabilitation (9 inpatient, 6 community, 2 home)

General care provision

For patients not for pall care (n=36):

- 31 were seen by PT
- 17 were seen by OT
- 20 were seen by SP
- 6 were seen by SW
- 6 were seen by dietician

Documented family meeting (all patients): 2

Observation of clinical practice on stroke unit

- Rehabilitation potential not discussed for every patient – generally only those patients deemed likely to be discharged to rehabilitation service. i.e. **for people not being referred to rehabilitation, rehabilitation is not discussed or documented – is it considered? What is driving the judgement regarding who is suitable for rehabilitation/not?** This generally is not discussed in the team meetings or documented in the medical record.
- Patients with severe stroke generally not discussed for rehab, not referred for rehab.
- Mild strokes/short-stay admissions discussed in case conference regarding ongoing rehabilitation requirements (this discussion not always documented) – for people admitted and discharged between weekly meetings, does this get discussed across disciplines and documented?
- Multi-D meetings: medical staff present relevant medical information, Stroke CPC or ward CSC usually lead discussion regarding ongoing care, and invite allied health professionals to contribute opinions/recommendations to facilitate planning eg current level of function, or need for ongoing therapy. Rehabilitation liaison nurse asks questions regarding patients' rehabilitation requirements, and other background information for patients referred for rehabilitation.
- Rehabilitation liaison nurse guiding rehabilitation referrals during discussions, recommending eg TCP rather than inpatient rehabilitation, recommending one facility over another for particular patients

- For patients presenting with mild-moderate severity stroke with family support, absence of special needs, likely to be discharged home: smooth system of referral and discussion regarding rehabilitation. Early (sometimes on day of admission) referral system commenced by Stroke CPC
- Patients with specialised needs more difficult: when team in disagreement re suitability for rehabilitation, referral then delayed. Some team members discussing rehab centre criteria to explain why patient not suitable for rehabilitation (ie not recommending for rehabilitation based on service selection criteria rather than patient need for, or likely response to rehabilitation)
- Some assessments determined by length of stay: eg patient won't get X assessment if going home tomorrow
- Some therapy provision determined by discharge destination eg low priority for X therapy at [Hospital 3] if likely to go to inpatient rehabilitation
- Sometimes, discharge destination determines recommendations for follow-up services, eg if patient going to inpatient rehabilitation where certain service is available, would be referred to that service, but not referred if being discharged home (service availability vs patient need influencing referral)
- Ward rounds: frequent discussion between medical and nursing staff and between staff and patients and/or family members regarding rehabilitation for people with 'middle-band' severity strokes. These discussions not observed for people with mild or very severe strokes

Hospital 6: Implementing best practice in Australia: a comprehensive assessment for rehabilitation for every stroke survivor: Feedback from medical record audit

32 medical records audited of people discharged from [Hospital 6] from 1 May 2013 with stroke, excluded TIA and SAH.

Patient demographics

Age ranged from 33-93 (median 75)

Identical numbers of males (16) and females (16)

NIHSS score on admission ranged 1-22 (median 5)

OSCS: 3 x ICH, 11 x LACI, 13 x PACI, 2 x POCI, 3 x TACI

Timing of admission: day of stroke (n=26), 1 day delay (n=3), 7 day delay (1), stroke as inpatient (1)

Assessment for rehabilitation by treating team

12 received documented assessment for rehabilitation by treating team

20 did not receive documented assessment for rehabilitation requirements by treating team

3 patients for palliative care

Excluding patients for palliative care, 12 of 29 (41%) eligible for rehabilitation assessment received assessment for ongoing rehabilitation requirements by [ASU6] staff

Disciplines conducting assessments: PT & med (1); med only (1); PT only (6); SP only (2), OT only (1), RN only (1).

Assessment recommendations:

- not for rehabilitation: 5
- rehabilitation recommended: 7

External review (eg rehabilitation medicine, geriatric medicine, employee of specific rehabilitation service)

16 people were reviewed by external reviewer (55% of those eligible for rehab assessment)

- rehabilitation recommended: 7
- not for rehabilitation: 7
- initially for rehabilitation (by registrar), then reassessed as not being suitable for rehabilitation (by consultant): 1
- recommendation not documented: 1

11 of the people reviewed by external assessor had no documented assessment of rehabilitation potential/requirement by the clinicians from the treating team.

Rehab assessment by either treating team or external reviewer: 22/29 (76%)

Of the 5 people assessed by treating team and external reviewer there was 60% agreement between documented suitability for rehabilitation (1 for rehabilitation, 2 not for rehabilitation). One patient the acute team recommended for rehabilitation was assessed by the rehabilitation reviewers but the assessment outcome was not documented; this person was transferred to inpatient rehabilitation. One patient was recommended for rehabilitation by the external reviewer but the acute team determined the patient was back to baseline so rehabilitation was not indicated; this patient was discharged home without further rehabilitation.

Reasons why assessed as 'not for rehabilitation':

- Doesn't need rehab at moment *(had return to work and driving goals)*
- Back to baseline (2)
- No change in function *(since stroke*), rehab not appropriate, recommend permanent high level care
- prospect of safe return home given poor premorbid functional status
- Will review. *On next review rehab not mentioned, documentation regarding NH placement*
- unlikely to benefit given cognitive decline
- limited rehab potential
- from nursing home, mobilising *(?= back to baseline)*
- recovering well from acute infarct *(?=back to baseline)*

Accessing Rehabilitation

11 people (38% of those not on palliative care pathway) received ongoing rehabilitation: 7 inpatient, 3 community, 1 home

3 people who were deemed suitable for rehabilitation did not access rehabilitation:

- 1 refused and returned to residential care facility (pre-stroke residence)
- 1 was deemed back to baseline by treating team after rehab had been recommended by external reviewer, was discharged home without further rehabilitation
- 1 was deemed in need of rehabilitation by registrar as had return to work and driving goals, but reviewed by consultant who deemed patient didn't need rehab at present and was discharged home without rehabilitation.

Discharge destination

- 14 discharged home
- 7 to inpatient rehab
- 1 to private hospital for convalescence
- 7 to residential care (3 were previously independent in community, 4 were from residential care pre-admission)

Of the 3 people previously independently mobile and living independently in the community who were discharged to residential care facilities, all were assessed as not requiring rehabilitation (2 by treating team, 3 by external reviewers). Ages were 86, 86, 90. Not for rehab as 'unlikely to benefit given cognitive deficit & would recommend placement for safety re function and cognition', 'prospect of safe return home given poor premorbid functional status'. The assessment outcome for the 3rd patient was not documented, plan was to review, but when reviewed again rehabilitation was not discussed, and documentation concerned residential care placement.

General care provision for patients not for pall care (n=29):

- Seen by PT: 29
- Seen by OT: 24
- Seen by SP: 25
- Seen by SW: 25
- Seen by dietician: 7
- Documented family meeting: 1

[Hospital 7] Intervention: Feedback from medical record audit

Medical records of 35 people with stroke who were discharged from [Hospital 7] from 1 January 2014 were audited. Medical records were excluded for people with TIA and SAH. 22 of these people were admitted to the stroke unit (SU). Results presented here are SU patients only.

People receiving documented rehabilitation assessment by ASU7 team (n=14)

14 people (64%) admitted to ASU7 received documented assessment for rehabilitation by someone working on the SU:

- PT documented recommendations for 10 people
- OT documented recommendations for 6 people
- SP documented recommendations for 3 people
- Team meeting scribe documented recommendations for 3 people
- Medical and nursing staff did not document rehabilitation recommendations

10 of the 14 people who received a documented assessment were deemed to require rehabilitation.

Reasons stroke unit team judged not for rehabilitation:

- Patient/family refused (3)
- Discussed with rehabilitation representative – not suitable for inpatient rehabilitation at this stage (severe symptoms)

People who did not receive documented rehabilitation assessment by ASU7 team (n=8)

- 2 receiving palliative care
- 1 discharged home without follow-up or assessment by rehabilitation representative (NIHSS 4)
- 3 assessed by external assessor and transferred to inpatient rehabilitation
- 1 transferred to inpatient rehabilitation without a documented rehabilitation assessment by anyone
- 1 assessed by external assessor and deemed not for rehabilitation (currently not able to benefit from inpatient rehab - drowsy, aphasic, full nursing care required). Discharged to nursing home with plan to be reviewed in 6/52

Accessing rehabilitation

11 people of the 22 admitted to the ASU accessed rehabilitation (10 inpatient, 1 community)

4 people who did not receive a documented rehabilitation assessment by the SU team accessed inpatient rehabilitation.

Of the 10 people who were assessed as requiring rehabilitation

- 7 people accessed rehabilitation (6 inpatient, 1 community)
- 1 person had extension of stroke and changed to palliative care pathway
- 2 people did not have documentation that rehabilitation was organized (1 discharged over weekend)

'Rehabilitation' was mentioned (without recommendation or assessment) for 19 people – not for the 2 people receiving palliative care or for the 1 person who was discharged home without followup or documented rehabilitation assessment.

	July-October 2013 (n=32)	**January-May 2014 [Hospital 7] wide (n=35)**	**January-May 2014, ASU7 only (n=22, 63%)**	**January-May 2014, ASU7 only, not on pall care (n=19)**
Age (mean)	70	75	77	76
Living in community	29 (91%)	30 (86%)	20 (91%)	17 (89%)
Not indep mobile pre-stroke	2	2	0	0
NIHSS (median) Mild (<8) Moderate (8-16) Severe (>16)	4 25 (78%) 5 (16%) 2 (6%)	5 20 (57%) 8 (23%) 6 (17%)	6 12 (55%) 5 (23%) 5 (23%)	5 11 (58%) 5 (26%) 3 (16%)
Pall care	1	7	3	
Rehab Ax treating team	**18 (56%)**	**19 (54%)**	**14 (64%)**	**13 (68%)**
"Rehabilitation" mentioned	22 (69%)	26 (74%)	19 (86%)	18 (95%)
Rehab pathway implemented	17 (53%)	18 (51%)	13 (59%)	13 (68%)
Accessed ongoing rehab	17 (53%)	15 (43%)	11 (50%)	11 (58%)
PT	31 (97%)	29 (83%)	21 (95%)	19 (100%)
OT	30 (94%)	26 (74%)	20 (91%)	18 (95%)
SP	24 (75%)	23 (66%)	18 (82%)	17 (89%)
SW	10 (31%)	8 (23%)	4 (18%)	4 (21%)

[Regional Hospital 1] medical record audit

27 medical records audited for patients admitted from 1 October 2012 with stroke, excluded TIA, SAH

Patient demographics:

Age: ranged from 42 to 95 (median 75)

2 were not independent with mobility prior to stroke

NIHSS score on admission range 1-36, median 6 (recorded in medical records for 3 patients)

OSCS: 9 x PACI, 4 x POCI, 6 x LACI, 4 x TACI, 4 x ICH

Timing of admission: day of stroke n=25, 1 x 3 day delay, 1 x 5 day delay

Assessment for Rehabilitation

1 person received assessment for rehabilitation by member of non-rehab team (PT)

20 received assessment for rehabilitation by rehabilitation team and/or rehabilitation medicine

Rehabilitation assessment conducted between 1-13 days after admission (median 5 days)

Results of assessment (n=20)

- For rehabilitation: n=12
- Not for rehabilitation: n=3 (1 made full recovery; 1 pre-morbidly required assistance with ADLs and difficult to rouse; 1 after short burst of rehabilitation/period of assessment: condition not improving, comfort measures initiated).
- Not documented: n=5 (all went on to rehab program)

7 patients did not receive assessment for rehab. 2 of these were for palliative care.

5 eligible patients who did not receive assessment:

- 56yo male, initial NIHSS 4 reviewed by SP, was discharged home (rehab not mentioned in medical record)
- 47yo male, initial NIHSS 4, reviewed by SP and PT, was transferred to [Metro hospital 2] for rehabilitation input (rehab mentioned in medical record by RN, but assessment/recommendation not documented)
- 42yo female, initial NIHSS 5, reviewed by PT and OT, was discharged home (rehabilitation was mentioned by PT and OT in medical record but no assessment/recommendation documented)
- 74yo male, initial NIHSS 1, reviewed by PT, OT, SP, was discharged home (rehabilitation mentioned in medical record by OT, no assessment or recommendation)
- 79yo male, initial NIHSS 1, reviewed by PT & SP, was discharged home (rehabilitation mentioned in medical record by medical staff but assessment/recommendation not documented)

Accessing rehabilitation

Everyone assessed as requiring rehabilitation accessed rehabilitation.

19 received rehabilitation following assessment: 16 inpatient rehab at [RH1], (3 then moved onto community rehab, 2 progressed to rehab at home, 1 transferred to [SRU]) 2 transferred to [Metro hospital 2] for inpatient rehab, 1 straight to community

Discharge destination

Home n=14

Nursing home (same as pre-stroke):2

Nursing home (previously from home): 3

Other hospital: 4

Died: 4

General care provision

- 24 were reviewed by PT (of the 3 not seen, 1 was for palliative care)
- 21 were reviewed by OT (of the 6 not seen, 1 was for palliative care)
- 23 reviewed by SP (of the 4 not seen, 1 was for palliative care)
- 1 seen by SW, 8 seen by nutrition/dietetics.

Documented family meeting for 6 patients

Summary from medical record audit

- 80% of eligible stroke patients receiving assessment for rehabilitation – higher rates than reported in NSF audit (45%) but lower than best practice guidelines (aiming for 100%)
- Rehabilitation assessments conducted by multi-D rehab team, on average commencing 5 days after admission
- Decision/recommendation regarding rehabilitation assessment often not documented (25%)
- 100% access to rehabilitation for people assessed as requiring rehabilitation
- No patient went from home to nursing home after stroke without a trial of rehabilitation
- 20% eligible patients with stroke not being seen by rehab team – all received some form of allied health input, most (80%) had documented the possibility of rehabilitation for these patients but did not make an assessment or recommendation. All were discharged home.