THE LANCET
Primary Care

# Supplementary appendix

This appendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

Supplement to: O'Connor DA, Glasziou P, Schram D, et al. Nationwide audit and feedback to reduce overuse of pathology tests among high-requesting general practitioners in Australia: a factorial cluster randomised controlled trial. *Lancet Prim Care* 2026. https://doi.org/10.1016/j.lanprc.2026.100140

**SUPPLEMENTARY APPENDIX**

**Investigators:**
Denise A O'Connor, Paul Glasziou, Dina Schram, Alexandra Gorelik, Amelia Elwick, Kirsten McCaffery, Rae Thomas, Rachelle Buchbinder

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Australian Government

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**Chief Medical Officer**

Your reference: **«reference»**

14 May 2024

«title» «firstname» «surname»

«address1»

«address2»

«address3»

Dear «title» «surname»

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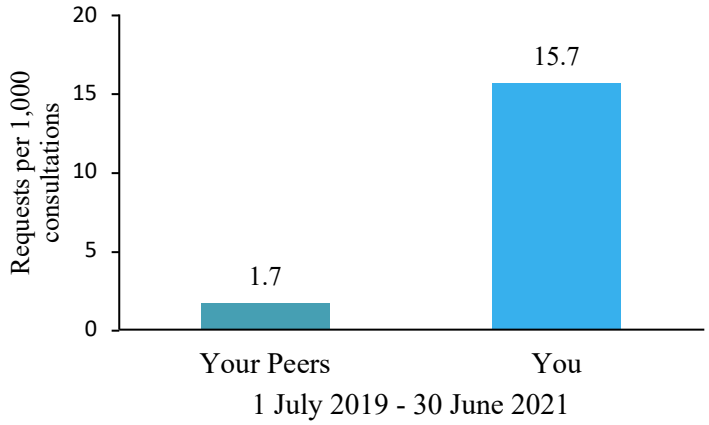


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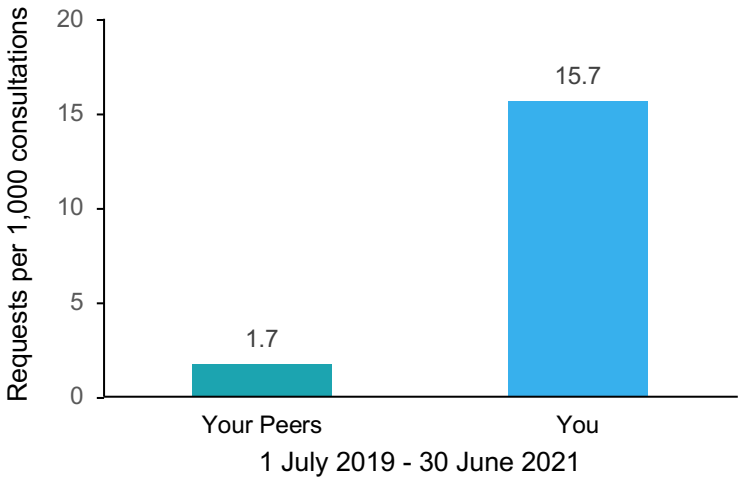


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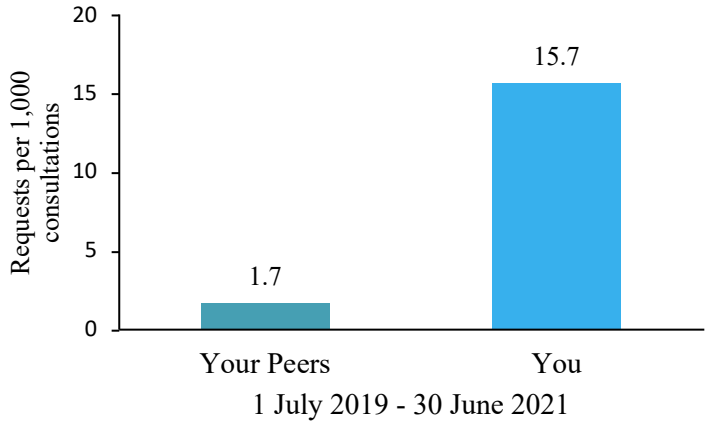


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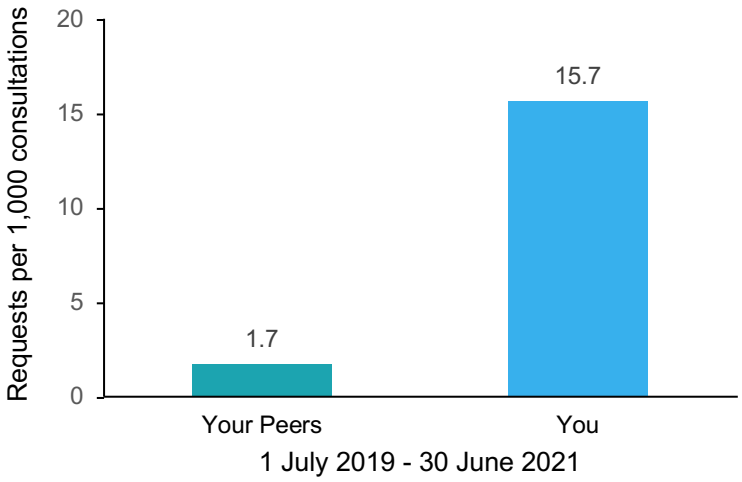


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Your reference: «reference»

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Australian Government

Department of Health

**Chief Medical Officer**

Your reference: **«reference»**

14 May 2024

«title» «firstname» «surname»

«address1»

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«address3»

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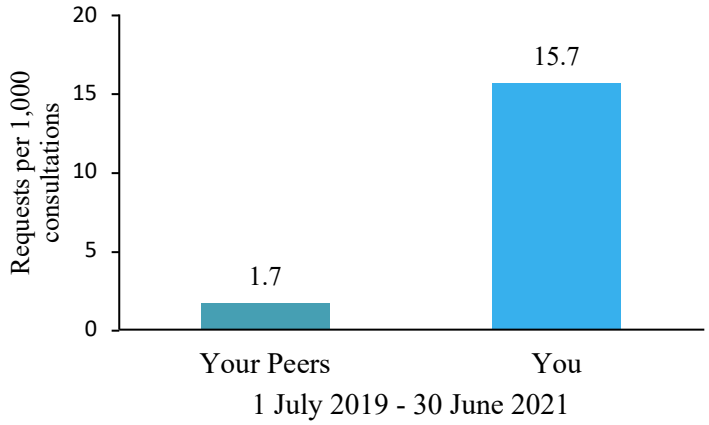


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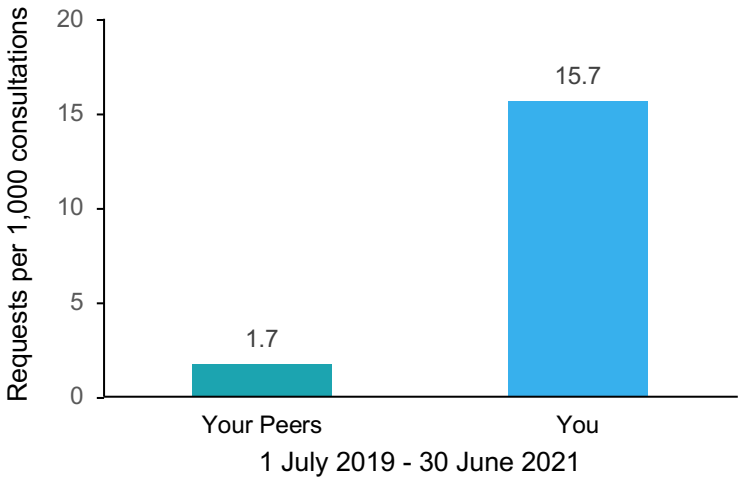


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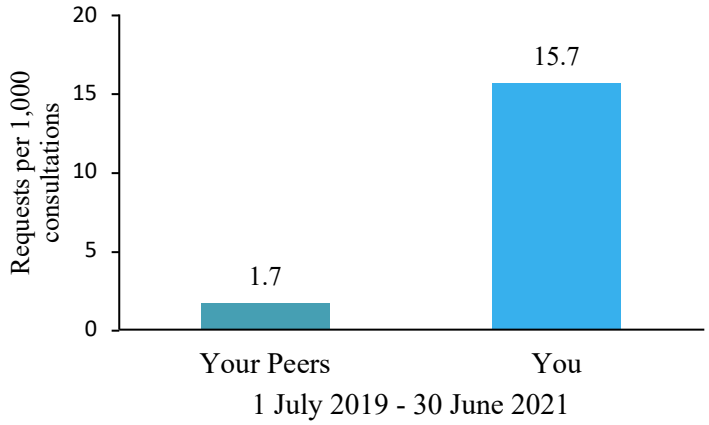


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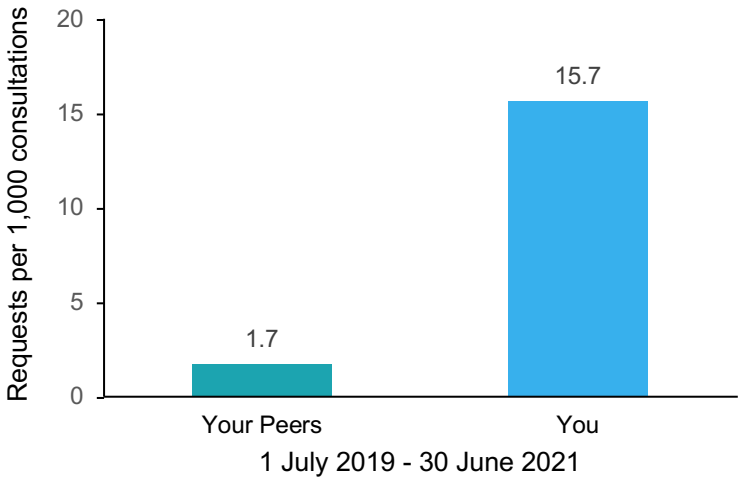


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**Description of the 3 elements tested in the factorial design**

*Factor 1: Invitation to participate in CPD-accredited education*

Participants randomised to receive an invitation to participate in CPD-accredited education received a weblink and QR code to register and attend a one-hour online case-based interactive webinar conducted by three GP opinion leaders and aimed at improving appropriate pathology test requesting. The webinar was conducted one month following feedback delivery and participants earned two CPD points for attendance. Participants were also invited to complete a self-directed review of their pathology test requesting, resulting in an additional 40 CPD points. Previous randomised trials of A&F on pathology requesting to GPs accompanied by educational meetings have shown mixed results.[1,2] To our knowledge, no trials have investigated the combination of A&F with a scalable online educational webinar compared with A&F alone.

*Factor 2: Provision of cost information*

Participants randomised to receive cost information received data on the cost to Medicare per displayed pathology test combination, the cost of an iron studies test, and the total cost of all iron studies conducted in Australia over the 2-year period from 1 July 2019 to 30 June 2021. A hyperlink to a website containing the individual and cumulative costs of pathology tests was also provided. While cost information was included with requesting data, the feedback emphasised use of clinical guidelines and judgement to inform appropriate pathology test requesting. Previous trials have shown that combining A&F with cost information about laboratory tests to physicians in hospital and outpatient settings can reduce request rates, although these studies include small numbers of physicians and clusters.[3,4]

*Factor 3: Feedback format*

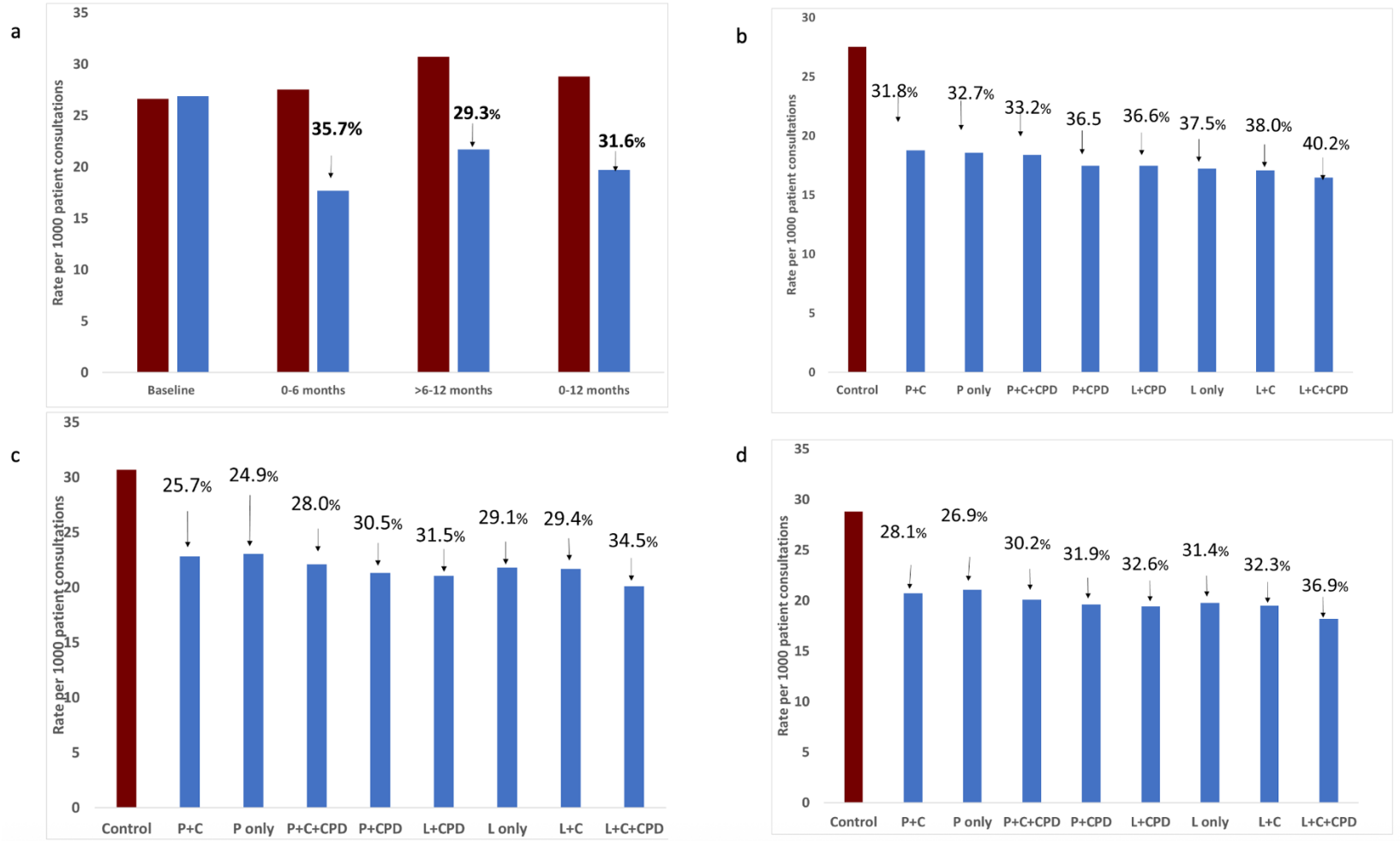
Participants randomised to the pamphlet received the same information as provided in the standard feedback letter, except in a booklet format with coloured subheadings and text boxes. A more visually appealing feedback format was hypothesised to increase recipients' interest and engagement with the feedback compared with the standard feedback format.[5]

References


1. Trietsch J, van Steenkiste B, Grol R, et al. Effect of audit and feedback with peer review on general practitioners' prescribing and test ordering performance: A cluster-randomized controlled trial. BMC Family Practice 2017;18:53.
2. Verstappen WHJM, van der Weijden T, Sijbrandij J, et al. Effect of a practice-based strategy on test ordering performance of primary care physicians. JAMA 2003;289:2407-12.
3. Everett GD, deBlois S, Chang PF, T H. Effect of cost education, cost audits, and faculty chart review on the use of laboratory services. Arch Intern Med 1983;143:942-4.
4. Marton KI, Tul V, Sox Jr HC. Modifying test-ordering behaviour in the outpatient medical clinic: a controlled trial of two educational interventions. Archives of Internal Medicine 1985;145:816-21.
5. Mayer RE. Multimedia learning. New York: Cambridge University Press; 2001.


**Key stakeholders from peak medical and pathology organisations were consulted to select the targeted combinations of pathology tests:** The Royal Australian College of General Practitioners, Australian Medical Association, The Royal College of Pathologists of Australasia, Australian College of Rural and Remote Medicine, Rural Doctors Association of Australia.

**Figure S1. Bar chart of rate reduction with audit and feedback relative to control over 0-6, >6-12 and 0-12 months**




Note: a – All intervention groups combined (blue bars) vs. control (red bars); b - Individual intervention groups (blue bars) vs. control (red bar) over 0-6 months; c - Individual intervention groups vs. control over >6-12 months; d - Individual intervention groups vs. control over 0-12 months. P - Pamphlet; C - Cost information; L - Letter; CPD – Continuing Professional Development-accredited education. Standard letter feedback + cost information + invitation to CPD-accredited education had greatest relative rate reduction compared to control at all time points

**Figure S2. Forest plot of changes in primary outcome based on prespecified subgroups**

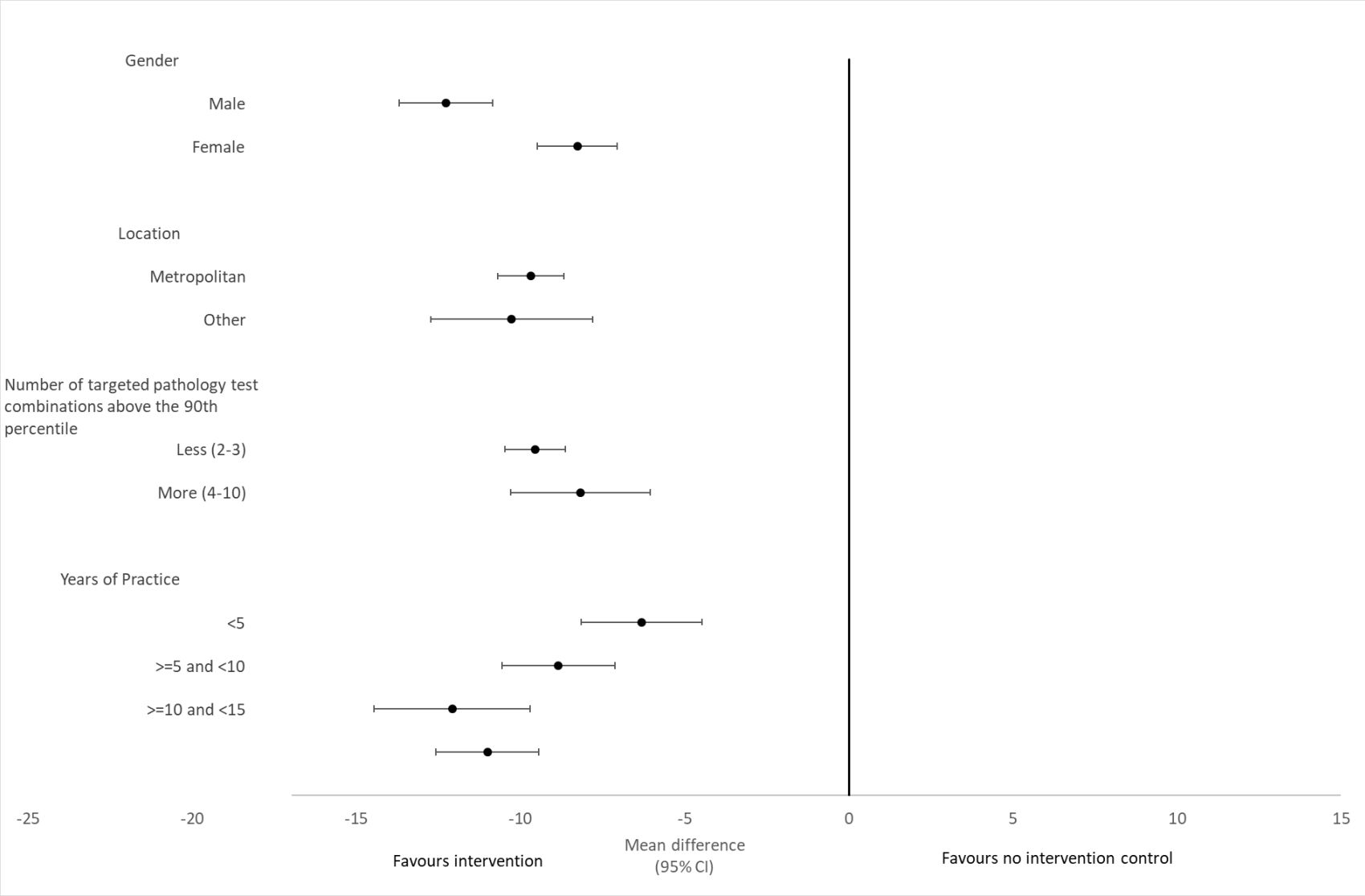


**Table S1. Behaviour change techniques and features incorporated in the A&F interventions**

| Behaviour change techniques | Recommended features for optimising A&F effects |
|---|---|
| 1. *Feedback on behaviour* – feedback on requesting of pathology test combinations<br>2. *Social comparison* - recipient performance was contrasted with that of deidentified peers<br>3. *Credible source* - the most senior medical advisor in the Australian Government Department of Health and Aged Care provided the feedback, the educational resources were produced/endorsed by peak medical and pathology organisations, and CPD-accredited online education was facilitated by respected opinion leaders<br>4. *Information about health consequences* - feedback and education emphasised the benefits to patients, clinicians and the health system associated with reducing unnecessary pathology testing, including reducing patient anxiety, waste of healthcare resources<br>5. *Information about emotional consequences* – as per 4 above<br>6. *Information about social and/or environmental consequences* - as per 4 above<br>7. *Education (unspecified)* - invitation to participate in education and self-directed review of pathology requesting<br>8. *Instruction on how to perform the behaviour* - via educational webinar and resources | 1. *Recommending actions that could improve and were under the recipient's control* - targeting pathology test combination requesting by GPs who were in the top 10% of requesters<br>2. *Providing individual rather than general data* - recipients were provided with individualised, not practice-level, feedback<br>3. *Choosing comparators that are likely to reinforce desired behaviour change* - median request rate of peers practising in similar geographic regions<br>4. *Closely linking the summary message and visual display* - included subject heading was consistent with graphical and numeric data<br>5. *Providing feedback in more than one way* – feedback presented in figure, table and text<br>6. *Minimising extraneous cognitive load* – use of bar chart so recipients could understand their performance within seconds and length of A&F limited to four pages<br>7. *Addressing barriers to feedback use* – recipients were provided educational resources and CPD-accredited education to support appropriate pathology testing<br>8. *Providing short, actionable messages followed by optional detail* - key messages and indicators were front-loaded on first page<br>9. *Addressing the credibility of the information* - the source of feedback was the Chief Medical Officer of Australia, MBS data was used to generate feedback<br>10. *Minimising defensive reactions* - factual information without value judgement was presented, and limitations of the data were acknowledged<br>11. *Constructing feedback through social interaction* - CPD-accredited online education led by GP opinion leaders was offered<br>12. *Targeting a decrease rather than increase in recipients' current behaviour* - requesting of commonly overused pathology test combinations by GPs known to frequently request them |

**Table S2. Demographic and baseline request rates between GPs included in and excluded from the main analysis**

| | Total randomised N=5,964 | Included in primary analysis N=5,732 | Excluded from primary analysis N=232 | p.value |
|---|---|---|---|---|
| **Treatment arm** | | | | 0.42 |
| **Control** | 625 (10.5%) | 597 (10.4%) | 28 (12.1%) | |
| **Intervention** | 5,339 (89.5%) | 5,135 (89.6%) | 204 (87.9%) | |
| **GP age (years)** | | | | <0.0001 |
| **Under 40** | 837 (14.0%) | 779 (13.6%) | 58 (25.0%) | |
| **40 - 49** | 1,757 (29.5%) | 1,728 (30.1%) | 29 (12.5%) | |
| **50 - 59** | 1,719 (28.8%) | 1,686 (29.4%) | 33 (14.2%) | |
| **60 - 69** | 1,217 (20.4%) | 1,159 (20.2%) | 58 (25.0%) | |
| **70 and over** | 434 (7.3%) | 380 (6.6%) | 54 (23.3%) | |
| **Gender (self-reported)** | | | | 0.19 |
| **Female** | 3,900 (65.4%) | 3,761 (65.6%) | 139 (59.9%) | |
| **Male** | 2,062 (34.6%) | 1,969 (34.4%) | 93 (40.1%) | |
| **Unknown** | 2 (0.03%) | 2 (0.03%) | 0 | |
| **Geographical region** | | | | 0.10 |
| **Metropolitan** | 4,963 (83.2%) | 4,779 (83.4%) | 184 (79.3%) | |
| **State** | | | | 0.58 |
| **Australian Capital Territory (ACT)** | 119 (2.0%) | 114 (2.0%) | 5 (2.2%) | |
| **New South Wales (NSW)** | 2,022 (33.9%) | 1,935 (33.8%) | 87 (37.5%) | |
| **Northern Territory (NT)** | 15 (0.3%) | 15 (0.3%) | 0 | |
| **Queensland (QLD)** | 1,098 (18.4%) | 1.051 (18.3%) | 47 (20.3%) | |
| **South Australia (SA)** | 397 (6.7%) | 380 (6.6%) | 17 (7.3%) | |
| **Tasmania (TAS)** | 122 (2.1%) | 115 (2.0%) | 7 (3.0%) | |
| **Victoria (VIC)** | 1,587 (26.6%) | 1,538 (26.8%) | 49 (21.1%) | |
| **Western Australia (WA)** | 602 (10.1%) | 582 (10.2%) | 20 (8.6%) | |
| **NA** | 2 (0.03%) | 2 (0.03%) | 0 | |
| **Years of practicing, median (Q1 - Q3)** | 12.8 (6.3 - 29.4) | 12.7 (6.3 - 29.3) | 16.8 (5.6 - 36.6) | 0.013 |
| **Total Category 1 patient consultations at baseline median (Q1 - Q3)** | 4,825 (2,923 - 7,414) | 4,982 (3,088 - 7,563) | 963 (133 - 2,169) | <0.0001 |
| **Total audited pathology combinations, median (Q1 - Q3)** | 2 (2 - 3) | 2 (2 - 3) | 2 (2 - 3) | |
| **Overall baseline request rate, per 1000 consultations, median (Q1 - Q3)** | 52.3 (38.9 - 68.6) | 52.6 (39.2 - 68.7) | 46.9 (32.2 - 64.7) | 0.0030 |
| **Overall request rate of displayed combinations, per 1,000 consultations, median (Q1 - Q3)** | 26.7 (16.3 - 40.2) | 26.9 (16.4 - 40.5) | 22.4 (12.5 - 33.6) | <0.0001 |
| **Study group** | | | | 0.31 |
| **Control** | 625 (10.5%) | 597 (10.4%) | 28 (12.1%) | |
| **P+CPD** | 649 (10.9%) | 621 (10.8%) | 28 (12.1%) | |
| **L Only** | 676 (11.3%) | 657 (11.5%) | 19 (8.2%) | |
| **L+C** | 684 (11.5%) | 660 (11.5%) | 24 (10.3%) | |
| **P+C+CPD** | 686 (11.5%) | 668 (11.7%) | 18 (7.8%) | |
| **P only** | 639 (10.7%) | 611 (10.7%) | 28 (12.1%) | |
| **L+C+CPD** | 659 (11.1%) | 626 (10.9%) | 33 (14.2%) | |
| **P+C** | 687 (11.5%) | 662 (11.5%) | 25 (10.8%) | |
| **L+CPD** | 659 (11.1%) | 630 (11.0%) | 29 (12.5%) | |

P- Pamphlet; C- Cost information; L- Letter; CPD – Continuing Professional Development (CPD)-accredited education.

**Table S3. Request rates for displayed individual pathology test combinations across groups at baseline**

| | Intervention | | | | | | | | | Control[c] (n=597) |
|---|---|---|---|---|---|---|---|---|---|---|
| | P+CPD (n=621) | L only (n=657) | L+C (n=660) | P+C+CPD (n=668) | P only (n=611) | L+C+CPD (n=626) | P+C (n=662) | L+CPD (n=630) | All Interventions combined (n=5,135) | |
| **Iron studies (66596), TSH (66716) and Vitamin D (66833)** | n=178, 19.0 (13.9-25.3) | n=192, 17.2 (13.5-22.4) | n=179, 17.5 (13.6-23.3) | n=208, 18.4 (14.0-25.6) | n=152, 17.4 (12.8-23.0) | n=183, 19.6 (13.4-26.5) | n=191, 18.9 (13.6-24.6) | n=186, 18.1 (12.7-24.2) | n=1,469, 18.2 (13.4-24.4) | n=180, 17.6 (12.5-25.4) |
| **Iron studies (66596), Vitamin D (66833) and Vitamin B12 (66838/66839)** | n=185, 22.7 (16.4-30.2) | n=192, 22.9 (17.2-30.7) | n=175, 21.0 (15.5-27.3) | n=172, 21.8 (15.5-28.4) | n=168, 20.7 (14.9-28.8) | n=162, 21.1 (16.2-28.2) | n=196, 20.7 (16.0-28.4) | n=169, 19.1 (14.4-25.1) | n=1,419, 21.4 (15.8-28.4) | n=181, 21.4 (15.8-28.6) |
| **Iron studies (66596), TSH (66716) and Vitamin B12 (66838/66839)** | n=113, 4.0 (2.4-6.7) | n=121, 4.3 (2.3-6.2) | n=130, 4.2 (2.0-7.2) | n=122, 3.4 (2.0-5.4) | n=121, 4.0 (2.5-6.0) | n=134, 3.9 (1.8-6.4) | n=117, 4.5 (2.6-7.0) | n=134, 3.9 (1.6-6.1) | n=992, 4.0 (2.1-6.3) | n=106, 3.6 (1.9-5.2) |
| **Iron studies (66596), TFT (66719) and Vitamin B12 (66838/66839)** | n=192, 2.7 (0.6-9.5) | n=202, 2.6 (0.7-9.0) | n=222, 2.7 (0.7-9.2) | n=199, 2.2 (0.5-8.7) | n=172, 2.8 (0.8-8.7) | n=159, 3.9 (1.1-9.7) | n=190, 3.6 (0.6-11.7) | n=162, 4.5 (1.1-12.5) | n=1,498, 3.0 (0.7-9.9) | n=164, 3.6 (1.0-10.4) |
| **Iron studies (66596), TFT (66719) and Vitamin D (66833)** | n=181, 3.8 (2.5-6.3) | n=186, 4.4 (2.6-7.1) | n=209, 4.2 (2.7-6.5) | n=196, 4.6 (2.8-7.0) | n=174, 4.1 (2.4-7.0) | n=172, 4.4 (3.0-7.1) | n=179, 4.5 (3.0-6.8) | n=187, 3.9 (2.5-6.2) | n=1,484, 4.2 (2.7-6.8) | n=198, 4.2 (2.6-6.7) |
| **TSH (66716), Vitamin D (66833) and Vitamin B12 (66838/66839)** | n=116, 6.1 (2.3-11.1) | n=108, 6.7 (3.4-15.0) | n=94, 7.6 (3.2-18.6) | n=109, 7.5 (3.7-15.1) | n=105, 7.0 (3.4-14.5) | n=122, 6.1 (3.0-12.0) | n=119, 6.1 (3.8-10.7) | n=108, 7.6 (3.8-12.9) | n=881, 6.9 (3.3-13.1) | n=97, 7.4 (4.2-12.0) |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Iron studies (66596) and Vitamin D (66833)** | n=174, 11.4 (8.1-16.8) | n=192, 11.8 (8.2-16.2) | n=176, 11.2 (8.2-16.7) | n=190, 10.9 (7.6-16.5) | n=190, 11.7 (8.0-16.9) | n=182, 11.1 (7.6-15.6) | n=196, 12.7 (8.9-17.9) | n=177, 12.1 (8.2-17.0) | n=1,477, 11.7 (8.1-16.8) | n=164, 10.8 (8.4-14.7) |
| **Iron studies (66596) and Vitamin B12 (66838/66839)** | n=143, 11.7 (8.5-17.9) | n=188, 13.1 (8.9-18.7) | n=184, 11.9 (8.8-16.8) | n=179, 11.9 (8.4-17.2) | n=188, 12.5 (9.1-18.0) | n=184, 11.8 (8.4-17.8) | n=178, 12.1 (8.3-19.3) | n=181, 11.9 (8.3-17.0) | n=1,425, 12.1 (8.5-17.7) | n=155, 12.4 (8.4-17.0) |
| **Iron studies (66596) and TFT (66719)** | n=137, 7.6 (4.9-11.7) | n=163, 6.8 (4.9-11.1) | n=156, 7.4 (5.1-11.5) | n=157, 7.1 (4.6-11.1) | n=136, 6.7 (4.9-9.1) | n=122, 7.1 (4.6-11.2) | n=144, 7.7 (5.0-11.1) | n=138, 7.3 (4.0-11.8) | n=1,153, 7.3 (4.8 -11.2) | n=133, 7.0 (4.5-10.1) |
| **TSH (66716) and Vitamin D (66833)** | n=121, 8.3 (4.0-12.2) | n=112, 6.2 (3.5-12.1) | n=117, 6.8 (3.9-12.3) | n=139, 7.7 (5.3-13.6) | n=127 8.0 (4.5-14.1) | n=130 6.8 (4.0-12.0) | n=132, 6.7 (4.3-11.5) | n=124, 7.8 (4.0-13.5) | n=1,002, 7.3 (4.1-12.7) | n=109, 8.1 (4.5-14.5) |

[c] Includes combinations that would have been included if randomised into the intervention arm. Results reported as median (Q1-Q3).
Pathology tests and corresponding MBS items shown in column 1.

**Table S4. Analysis of secondary outcomes according to factor 1: Invitation to participate in CPD-accredited education**

| | CPD (n=2,545)<br>Median (Q1 - Q3) | No CPD (n=2,590)<br>Median (Q1 - Q3) | Main model<br>Adj mean difference<br>(98.3% CI), p-value |
|---|---|---|---|
| **Iron studies (66596), TSH (66716) and Vitamin D (66833)** | | | |
| **Baseline** | n=755, 18.8 (13.4 - 25.4) | n=714, 17.7 (13.3 - 23.4) | |
| **0-6 months** | 11.6 (5.4 - 19.0) | 11.2 (5.0 - 17.8) | 0.2 (-0.5, 0.8), 0.55 |
| **>6 to 12 months** | 13.6 (5.8 - 22.2) | 13.4 (6.5 - 20.6) | 0.1 (-0.6, 0.7), 0.80 |
| **0-12 months** | 12.4 (6.1 - 20.5) | 12.4 (6.1 - 18.9) | -0.02 (-0.7, 0.7), 0.94 |
| **Iron studies (66596), Vitamin D (66833) and Vitamin B12 (66838/66839)** | | | |
| **Baseline** | n=688, 21.2 (15.8 - 28.3) | n=731, 21.5 (15.7 - 28.6) | |
| **0-6 months** | 14.4 (6.0 - 25.2) | 14.5 (5.8 - 26.5) | -0.00498 (-0.7, 0.6), 0.99 |
| **>6 to 12 months** | 19.1 (7.8 - 32.4) | 18.9 (8.0 - 30.4) | -0.5 (-1.2, 0.2), 0.10 |
| **0-12 months** | 16.8 (7.3 - 28.6) | 16.4 (7.2 - 26.8) | -0.2 (-1.0, 0.5), 0.43 |
| **Iron studies (66596), TSH (66716) and Vitamin B12 (66838/66839)** | | | |
| **Baseline** | n=503, 3.8 (1.9 - 6.0) | n=489, 4.2 (2.3 - 6.5) | |
| **0-6 months** | 2.4 (0.8 - 4.7) | 2.5 (1.0 - 5.2) | -0.2 (-0.5, 0.1), 0.15 |
| **>6 to 12 months** | 3.3 (1.2 - 6.8) | 3.4 (1.4 - 7.0) | -0.1 (-0.5, 0.3), 0.54 |
| **0-12 months** | 2.9 (1.2 - 5.6) | 3.1 (1.2 - 5.9) | -0.1 (-0.5, 0.2), 0.32 |
| **Iron studies (66596), TFT (66719) and Vitamin B12 (66838/66839)** | | | |
| **Baseline** | n=712, 3.2 (0.7 - 10.0) | n=786, 2.8 (0.7 - 9.9) | |
| **0-6 months** | 2.3 (0.5 - 6.9) | 2.2 (0.5 - 7.0) | 0.2 (-0.3, 0.7), 0.33 |
| **>6 to 12 months** | 3.0 (0.7 - 8.8) | 2.4 (0.5 - 8.5) | 0.5 (-0.1, 1.1), 0.040 |
| **0-12 months** | 2.7 (0.7 - 7.5) | 2.6 (0.6 - 7.7) | 0.3 (-0.3, 0.9), 0.23 |
| **Iron studies (66596), TFT (66719) and Vitamin D (66833)** | | | |
| **Baseline** | n=736, 4.2 (2.7 - 6.7) | n=748, 4.3 (2.6 - 6.8) | |
| **0-6 months** | 2.4 (1.0 - 4.8) | 2.5 (1.0 - 4.9) | -0.01 (-0.2, 0.2), 0.92 |
| **>6 to 12 months** | 2.8 (0.9 - 5.3) | 3.0 (1.2 - 5.5) | -0.3 (-0.5, -0.02), 0.011 |
| **0-12 months** | 2.7 (1.2 - 5.0) | 2.9 (1.3 - 5.0) | -0.1 (-0.3, 0.1), 0.21 |
| **TSH (66716) and Vitamin D (66833) and Vitamin B12 (66838/66839)** | | | |
| **Baseline** | n=455, 6.9 (3.2 - 12.6) | n=426, 6.8 (3.4 - 13.8) | |
| **0-6 months** | 3.2 (1.0 - 7.9) | 3.7 (1.3 - 7.8) | -0.3 (-0.8, 0.2), 0.11 |

| | | | |
|---|---|---|---|
| **>6 to 12 months** | 3.6 (1.2 - 10.3) | 4.3 (1.2 - 9.5) | -0.1 (-0.6, 0.4), 0.65 |
| **0-12 months** | 3.6 (1.2 - 8.7) | 4.1 (1.6 - 8.7) | -0.3 (-0.8, 0.2), 0.13 |
| **Iron studies (66596) and Vitamin D (66833)** | | | |
| **Baseline** | n=723, 11.2 (8.1 - 16.5) | n=754, 11.9 (8.2 - 16.9) | |
| **0-6 months** | 8.3 (4.2 - 14.3) | 8.0 (4.5 - 13.3) | 0.1 (-0.5, 0.7), 0.73 |
| **>6 to 12 months** | 9.0 (4.4 - 14.9) | 9.4 (4.7 - 14.6) | -0.001 (-0.5, 0.5), 1.00 |
| **0-12 months** | 8.6 (4.6 - 14.4) | 9.1 (5.1 - 13.7) | -0.1 (-0.7, 0.5), 0.65 |
| **Iron studies (66596) and Vitamin B12 (66838/66839)** | | | |
| **Baseline** | n=687, 11.8 (8.3 - 17.5) | n=738, 12.5 (8.7 - 17.9) | |
| **0-6 months** | 9.5 (5.0 - 15.8) | 10.2 (5.9 - 10.8) | -0.5 (-1.1, 0.03), 0.065 |
| **>6 to 12 months** | 11.8 (6.5 - 19.4) | 12.9 (7.2 - 19.5) | -0.6 (-1.4, 0.1), 0.048 |
| **0-12 months** | 10.8 (6.0 - 17.0) | 11.5 (6.9 - 17.5) | -0.7 (-1.4, 0.049), 0.026 |
| **Iron studies (66596) and TFT (66719)** | | | |
| **Baseline** | n=554, 7.3 (4.6 - 11.4) | n=599, 7.3 (5.0 - 10.9) | |
| **0-6 months** | 5.8 (3.2 - 10.0) | 6.3 (3.4 - 10.1) | -0.1 (-0.7, 0.5), 0.70 |
| **>6 to 12 months** | 7.0 (4.0 - 10.0) | 7.2 (3.9 - 11.9) | 0.3 (-0.4, 1.1), 0.28 |
| **0-12 months** | 6.6 (3.7 - 10.4) | 6.9 (3.9 - 10.6) | 0.1 (-0.6, 0.8), 0.71 |
| **TSH (66716) and Vitamin D (66833)** | | | |
| **Baseline** | n=514, 7.7 (4.1 - 12.7) | n=488, 6.8 (4.1 - 12.4) | |
| **0-6 months** | 4.8 (1.8 - 9.7) | 4.7 (2.0 - 9.1) | 0.1 (-0.4, 0.7), 0.62 |
| **>6 to 12 months** | 5.4 (2.2 - 11.1) | 5.4 (2.2 - 10.9) | -0.004 (-0.6, 0.6), 0.99 |
| **0-12 months** | 5.2 (2.4 - 10.2) | 5.1 (2.4 - 9.7) | 0.01 (-0.6, 0.6), 0.96 |
| | | | |
| **Ferritin** | | | |
| **Baseline** | 0.2 (0 - 1.2) | 0.2 (0 - 1.4) | |
| **0-6 months** | 0.3 (0 - 5.8) | 0.3 (0 - 4.4) | 0.3 (-0.3, 1.0), 0.2029 |
| **>6 to 12 months** | 0.3 (0 - 5.5) | 0.3 (0 - 4.3) | 0.3 (-0.3, 0.9), 0.23 |
| **0-12 months** | 0.4 (0 - 5.9) | 0.4 (0 - 4.6) | 0.3 (-0.3, 1.0), 0.25 |
| **Iron studies (66596)** | | | |
| **Baseline** | 66.6 (46.5 - 87.1) | 66.8 (47.5 - 88.3) | |
| **0-6 months** | 58.5 (32.3 - 80.7) | 58.1 (34.5 - 82.0) | -1.6 (-3.5, 0.3), 0.0402 |
| **>6 to 12 months** | 70.5 (39.5 - 96.5) | 70.7 (43.1 - 97.2) | -1.7 (-3.7, 0.4), 0.055 |
| **0-12 months** | 64.4 (36.7 - 88.0) | 64.3 (39.3 - 88.3) | -1.9 (-3.9, 0.1), 0.022 |
| **TSH (66716)** | | | |
| **Baseline** | 27.5 (17.9 - 39.7) | 26.5 (17.2 - 38.9) | |
| **0-6 months** | 25.4 (15.9 - 38.7) | 25.6 (15.4 - 37.5) | 0.3 (-0.5, 1.1), 0.38 |
| **>6 to 12 months** | 30.4 (18.4 - 45.5) | 29.3 (18.5 - 43.9) | 0.8 (-0.1, 1.8), 0.029 |
| **0-12 months** | 28.1 (17.4 - 41.7) | 27.5 (17.4 - 40.3) | 0.3 (-0.5, 1.2), 0.35 |

| | | | |
|---|---|---|---|
| **TFT (66719)** | | | |
| **Baseline** | 15.8 (9.6 - 24.5) | 16.7 (10.0 - 26.0) | |
| **0-6 months** | 14.8 (9.0 - 23.9) | 15.9 (8.9 - 25.0) | -0.5 (-1.4, 0.4), 0.18 |
| **>6 to 12 months** | 17.8 (10.7 - 28.1) | 18.7 (11.0 - 29.2) | -0.9 (-1.9, 0.01), 0.018 |
| **0-12 months** | 16.3 (10.1 - 25.5) | 17.3 (10.3 - 26.5) | -0.8 (-1.7, 0.1), 0.0404 |
| **Vitamin D (66833)** | | | |
| **Baseline** | 42.5 (27.1 - 58.1) | 42.9 (27.4 - 58.1) | |
| **0-6 months** | 33.4 (17.4 - 51.5) | 34.1 (18.6 - 50.6) | -0.5 (-1.6, 0.5), 0.21 |
| **>6 to 12 months** | 40.1 (20.8 - 61.5) | 41.0 (22.0 - 60.2) | -0.4 (-1.6, 0.9), 0.48 |
| **0-12 months** | 36.5 (19.8 - 55.9) | 37.8 (21.3 - 54.7) | -0.8 (-1.9, 0.3), 0.092 |
| **Vitamin B12 (66838/66839)** | | | |
| **Baseline** | 35.8 (22.7 - 49.9) | 36.9 (23.7 - 51.4) | |
| **0-6 months** | 30.0 (16.2 - 47.0) | 30.7 (16.8 - 47.8) | -0.9 (-2.0, 0.1), 0.029 |
| **>6-12 months** | 38.9 (22.3 - 58.4) | 39.3 (22.3 - 59.2) | -0.7 (-1.9, 0.5), 0.16 |
| **0-12 months** | 34.1 (19.7 - 52.3) | 34.8 (20.3 - 52.7) | -0.9 (-2.0, 0.2), 0.048 |

CPD – Continuing Professional Development (CPD)-accredited education.
Pathology tests and corresponding MBS items shown in column 1.

**Table S5. Analysis of secondary outcomes according to factor 2: Provision of cost information**

| | Cost information included (n=2,616) Median (Q1 - Q3) | Cost information not included (n=2,519) Median (Q1 - Q3) | Main model Adj mean difference (98.3% CI), p-value |
|---|---|---|---|
| **Iron studies (66596), TSH (66716) and Vitamin D (66833)** | | | |
| **Baseline** | n=761, 18.5 (13.6 - 24.3) | n=708, 18.0 (13.2 - 23.8) | |
| **0-6 months** | 11.9 (5.3 - 19.3) | 11.0 (5.0 - 17.2) | 1.1 (0.5, 1.8), <0.0001 |
| **>6 to 12 months** | 13.8 (5.9 - 22.8) | 13.1 (6.0 - 19.9) | 0.7 (0.1, 1.4), 0.0063 |
| **0-12 months** | 12.8 (6.3 - 20.9) | 12.1 (6.1 - 18.1) | 1.1 (0.5, 1.8), 0.0001 |
| **Iron studies (66596), Vitamin D (66833) and Vitamin B12 (66838/66839)** | | | |
| **Baseline** | n=705, 21.2 (15.9 - 28.0) | n=714, 21.5 (15.7 - 29.0) | |
| **0-6 months** | 14.9 (5.8 - 26.4) | 14.3 (5.9 - 23.9) | 0.6 (-0.1, 1.2), 0.032 |
| **>6 to 12 months** | 18.6 (7.8 - 31.7) | 19.5 (7.9 - 30.8) | -0.3 (-1.0, 0.5), 0.37 |
| **0-12 months** | 16.4 (7.4 - 28.6) | 16.7 (7.2 - 26.4) | 0.1 (-0.6, 0.8), 0.81 |
| **Iron studies (66596), TSH (66716) and Vitamin B12 (66838/66839)** | | | |
| **Baseline** | n=503, 4.0 (2.0 - 6.5) | n=489, 4.0 (2.2 - 6.2) | |
| **0-6 months** | 2.4 (0.9 - 4.8) | 2.7 (0.9 - 5.1) | -0.1 (-0.4, 0.1), 0.22 |
| **>6 to 12 months** | 3.3 (1.3 - 7.0) | 3.5 (1.4 - 6.8) | -0.2 (-0.5, 0.2), 0.27 |
| **0-12 months** | 2.8 (1.3 - 5.7) | 3.3 (1.2 - 5.8) | -0.1 (-0.5, 0.2), 0.39 |
| **Iron studies (66596), TFT (66719) and Vitamin B12 (66838/66839)** | | | |
| **Baseline** | n=770, 3.0 (0.7 - 10.3) | n=728, 3.0 (0.7 - 9.5) | |
| **0-6 months** | 2.1 (0.5 - 6.7) | 2.3 (0.4 - 7.2) | 0.1 (0.4, 0.6), 0.74 |
| **>6 to 12 months** | 2.7 (0.6 - 8.4) | 2.7 (0.6 - 8.8) | 0.1 (-0.5, 0.7), 0.67 |
| **0-12 months** | 2.7 (0.7 - 7.6) | 2.6 (0.6 - 7.6) | 0.1 (-0.5, 0.7), 0.66 |
| **Iron studies (66596), TFT (66719) and Vitamin D (66833)** | | | |
| **Baseline** | n=756, 4.4 (2.8 - 6.9) | n=728, 4.0 (2.5 - 6.6) | |
| **0-6 months** | 2.6 (1.1 - 5.1) | 2.3 (0.9 - 4.6) | 0.3 (0.1, 0.5), <0.0001 |
| **>6 to 12 months** | 2.9 (1.0 - 5.9) | 2.9 (1.1 - 5.2) | 0.1 (-0.2, 0.3), 0.52 |
| **0-12 months** | 2.9 (1.4 - 5.3) | 2.7 (1.1 - 4.8) | 0.2 (-0.01, 0.4), 0.022 |
| **TSH (66716), Vitamin D (66833) and Vitamin B12 (66838/66839)** | | | |
| **Baseline** | n=444, 6.8 (3.3 - 13.6) | n=437, 6.9 (3.2 - 12.9) | |

| | | | |
|---|---|---|---|
| **0-6 months** | 3.8 (1.3 - 8.3) | 3.2 (1.1 - 7.6) | 0.4 (-0.1, 0.9), 0.046 |
| **>6 to 12 months** | 4.5 (1.3 - 10.4) | 3.3 (1.2 - 8.8) | 0.8 (0.3, 1.2), 0.0004 |
| **0-12 months** | 4.2 (1.5 - 9.3) | 3.5 (1.3 - 8.2) | 0.5 (-0.003, 1.0), 0.018 |
| **Iron studies (66596) and Vitamin D (66833)** | | | |
| **Baseline** | n=744, 11.5 (8.2-16.8) | n=733, 11.8 (8.1 - 16.7) | |
| **0-6 months** | 8.3 (4.5 - 13.0) | 7.8 (4.3 - 14.1) | -0.1 (-0.7, 0.4), 0.57 |
| **>6 to 12 months** | 9.0 (4.2 - 14.6) | 9.3 (4.7 - 14.8) | -0.4 (-0.9, 0.1), 0.062 |
| **0-12 months** | 8.9 (4.8 - 13.8) | 8.8 (4.9 - 14.2) | -0.4 (-1.0, 0.2), 0.095 |
| **Iron studies (66596) and Vitamin B12 (66838/66839)** | | | |
| **Baseline** | n=725, 11.9 (8.4 - 17.5) | n=700, 12.3 (8.6 - 17.9) | |
| **0-6 months** | 9.4 (5.5 - 15.5) | 10.3 (5.7 - 16.8) | -0.9 (-1.6, -0.2), 0.0030 |
| **>6 to 12 months** | 12.0 (6.3 - 18.5) | 12.8 (7.4 - 20.2) | -1.9 (-2.6, -1.1), <0.0001 |
| **0-12 months** | 10.6 (6.3 - 16.6) | 11.7 (6.7 - 17.9) | -1.3 (-2.1, -0.6), <0.0001 |
| **Iron studies (66596) and TFT (66719)** | | | |
| **Baseline** | n=579, 7.4 (4.8 - 11.3) | n=574, 7.1 (4.7 - 11.1) | |
| **0-6 months** | 5.8 (3.4 - 10.0) | 6.2 (3.4 - 10.1) | 0.04 (-0.6, 0.7), 0.88 |
| **>6 to 12 months** | 7.2 (3.8 - 11.9) | 7.1 (4.0 - 12.0) | 0.04 (-0.7, 0.8), 0.89 |
| **0-12 months** | 6.7 (3.7 - 10.4) | 6.8 (3.9 - 10.5) | 0.02 (-0.6, 0.7), 0.93 |
| **TSH (66716) and Vitamin D (66833)** | | | |
| **Baseline** | n=518, 7.0 (4.3 - 12.4) | n=484, 7.5 (3.9 - 13.0) | |
| **0-6 months** | 5.0 (2.0 - 9.4) | 4.4 (1.9 - 9.5) | 0.1 (-0.4, 0.6), 0.67 |
| **>6 to 12 months** | 5.3 (2.2 - 10.5) | 5.4 (2.2 - 11.1) | -0.3 (-1.0, 0.3), 0.24 |
| **0-12 months** | 5.2 (2.5 - 9.7) | 5.0 (2.3 - 10.2) | -0.1 (-0.7, 0.6), 0.59 |
| | | | |
| **Ferritin** | | | |
| **Baseline** | 0.2 (0 - 1.5) | 0.1 (0 - 1.2) | |
| **0-6 months** | 0.3 (0 - 5.7) | 0.3 (0 - 4.6) | -0.4 (-0.3, 1.0), 0.16 |
| **>6 to 12 months** | 0.3 (0 - 5.2) | 0.3 (0 - 4.5) | 0.4 (-0.2, 1.0), 0.12 |
| **0-12 months** | 0.4 (0 - 5.7) | 0.3 (0 - 4.6) | 0.4 (-0.3, 1.0), 0.17 |
| **Iron studies (66596)** | | | |
| **Baseline** | 66.8 (47.2 - 88.1) | 66.6 (47.0 - 87.3) | |
| **0-6 months** | 58.3 (33.9 - 81.0) | 58.3 (32.9 - 81.8) | -0.3 (-2.2, 1.5), 0.67 |
| **>6 to 12 months** | 70.6 (41.8 - 97.1) | 70.5 (41.4 - 96.6) | -0.6 (-2.7, 1.5), 0.50 |
| **0-12 months** | 64.3 (38.5 - 88.5) | 64.5 (37.7 - 87.7) | -0.5 (-2.5, 1.4), 0.53 |
| **TSH (66716)** | | | |
| **Baseline** | 27.0 (17.6 - 39.6) | 27.0 (17.4 - 38.9) | |
| **0-6 months** | 25.5 (15.4 - 38.5) | 25.5 (15.8 - 37.3) | -0.3 (-1.1, 0.5), 0.39 |
| **>6 to 12 months** | 30.4 (18.7 - 45.5) | 29.5 (18.2 - 43.6) | 0.4 (-0.6, 1.3), 0.36 |

| | | | |
|---|---|---|---|
| **0-12 months** | 27.7 (17.4 - 41.8) | 27.9 (17.4 - 40.2) | -0.09 (-0.9, 0.8), 0.81 |
| **TFT (66719)** | | | |
| **Baseline** | 16.4 (9.9 - 25.1) | 16.1 (9.7 - 25.5) | |
| **0-6 months** | 15.4 (9.0 - 24.4) | 15.3 (9.0 - 24.4) | 0.5 (-0.3, 1.4), 0.14 |
| **>6 to 12 months** | 18.3 (11.0 - 28.4) | 18.1 (10.7 - 28.6) | 0.7 (-0.3, 1.6), 0.089 |
| **0-12 months** | 16.8 (10.3 – 26.0) | 16.6 (10.1 - 26.2) | 0.5 (-0.4, 1.4), 0.18 |
| **Vitamin D (66833)** | | | |
| **Baseline** | 43.0 (27.7 - 58.2) | 42.4 (27.0 - 57.9) | |
| **0-6 months** | 34.0 (17.8 - 51.9) | 33.5 (18.2 - 50.3) | 0.2 (-0.8, 1.3), 0.62 |
| **>6 to 12 months** | 40.6 (21.0 - 61.7) | 40.5 (22.0 - 59.8) | -0.5 (-1.8, 0.7), 0.30 |
| **0-12 months** | 37.4 (20.4 - 56.2) | 37.2 (20.9 - 54.6) | -0.1 (-1.2, 1.0), 0.83 |
| **Vitamin B12 (66838/66839)** | | | |
| **Baseline** | 35.7 (23.2 - 50.2) | 37.0 (23.1 - 51.1) | |
| **0-6 months** | 30.3 (16.8 - 47.6) | 30.3 (16.4 - 47.4) | 0.5 (-0.6, 1.5), 0.28 |
| **>6 to 12 months** | 39.1 (22.2 - 58.8) | 39.0 (22.4 - 58.6) | 0.1 (-1.1, 1.3), 0.78 |
| **0-12 months** | 34.4 (19.8 - 52.7) | 34.4 (20.1 - 52.0) | 0.2 (-0.9, 1.3), 0.59 |

Pathology tests and corresponding MBS items shown in column 1.

**Table S6. Analysis of secondary outcomes according to factor 3: Feedback format**

| | Pamphlet (n=2,562) Median (Q1 - Q3) | Letter (n=2,573) Median (Q1 - Q3) | Main model Adj mean difference (98.3% CI), p-value |
|---|---|---|---|
| **Iron studies (66596), TSH (66716) and Vitamin D (66833)** | | | |
| **Baseline** | n=729, 18.3 (13.5 - 24.9) | n=740, 18.0 (13.3 - 24.0) | |
| **0-6 months** | 11.3 (5.0 - 19.0) | 11.7 (5.4 - 17.7) | 0.3 (-0.4, 0.9), 0.33 |
| **>6 to 12 months** | 13.5 (5.8 - 21.7) | 13.5 (6.4 - 20.6) | 0.5 (-0.2, 1.1), 0.069 |
| **0-12 months** | 12.4 (6.0 - 19.9) | 12.3 (6.3 - 19.4) | 0.3 (-0.4, 0.9), 0.33 |
| **Iron studies (66596), Vitamin D (66833) and Vitamin B12 (66838/66839)** | | | |
| **Baseline** | n=721, 21.5 (15.8 - 28.8) | n=698, 21.1 (15.7 - 27.6) | |
| **0-6 months** | 15.0 (6.0 - 26.0) | 14.2 (5.8 - 24.0) | 0.9 (0.2, 1.5), 0.0012 |
| **>6 to 12 months** | 19.1 (8.0 - 32.5) | 19.0 (7.7 - 30.2) | 0.8 (0.02, 1.5), 0.014 |
| **0-12 months** | 16.8 (7.3 - 28.6) | 16.4 (7.2 - 26.2) | 0.8 (0.1, 1.6), 0.0057 |
| **Iron studies (66596), TSH (66716) and Vitamin B12 (66838/66839)** | | | |
| **Baseline** | n=473, 4.0 (2.4 - 6.2) | n=519, 4.0 (2.0 - 6.4) | |
| **0-6 months** | 2.4 (0.9 - 5.1) | 2.5 (0.9 - 4.9) | -0.1 (-0.4, 0.2), 0.47 |
| **>6 to 12 months** | 3.3 (1.4 - 7.0) | 3.4 (1.2 - 6.7) | 0.1 (-0.2, 0.5), 0.36 |
| **0-12 months** | 3.0 (1.3 - 5.7) | 3.1 (1.2 - 5.7) | 0.1 (-0.3, 0.4), 0.71 |
| **Iron studies (66596), TFT (66719) and Vitamin B12 (66838/66839)** | | | |
| **Baseline** | n=753, 2.7 (0.6 - 9.8) | n=745, 3.5 (0.8 - 10.1) | |
| **0-6 months** | 2.0 (0.4 - 6.7) | 2.4 (0.6 - 7.2) | -0.4 (-0.9, 0.2), 0.097 |
| **>6 to 12 months** | 2.4 (0.5 - 8.1) | 3.1 (0.7 - 9.2) | -0.5 (-1.1, 0.1), 0.039 |
| **0-12 months** | 2.4 (0.6 - 6.8) | 2.9 (0.8 - 8.1) | -0.5 (-1.1, 0.1), 0.043 |
| **Iron studies (66596), TFT (66719) and Vitamin D (66833)** | | | |
| **Baseline** | n=730, 4.3 (2.6-6.8) | n=754, 4.2 (2.7-6.7) | |
| **0-6 months** | 2.3 (0.9 - 4.8) | 2.6 (1.1 - 4.8) | -0.1 (-0.4, 0.1), 0.098 |
| **>6 to 12 months** | 2.7 (1.0 - 5.2) | 3.2 (1.1 - 5.7) | -0.1 (-0.4, 0.1), 0.22 |
| **0-12 months** | 2.6 (1.1 - 4.9) | 2.9 (1.4 - 5.1) | -0.1 (-0.4, 0.1), 0.16 |
| **TSH (66716), Vitamin D (66833) and Vitamin B12 (66838/66839)** | | | |
| **Baseline** | n=449, 6.8 (3.3 - 12.3) | n=432, 7.0 (3.3 - 13.8) | |
| **0-6 months** | 3.7 (1.3 - 8.2) | 2.2 (1.0 - 7.6) | 0.3 (-0.2, 0.8), 0.11 |

| | | | |
|---|---|---|---|
| **>6 to 12 months** | 4.1 (1.3 - 11.2) | 3.6 (1.1 - 8.8) | 0.5 (-0.04, 1.0), 0.027 |
| **0-12 months** | 4.1 (1.4 - 9.2) | 3.7 (1.3 - 8.5) | 0.3 (-0.2, 0.8), 0.20 |
| **Iron studies (66596) and Vitamin D (66833)** | | | |
| **Baseline** | n=750, 11.8 (8.1 - 16.9) | n=727, 11.5 (8.1 - 16.2) | |
| **0-6 months** | 8.5 (4.5 - 13.4) | 7.8 (4.3 - 13.6) | 0.3 (-0.3, 0.9), 0.22 |
| **>6 to 12 months** | 9.4 (4.7 - 14.6) | 9.0 (4.4 - 14.9) | 0.7 (0.2, 1.2), 0.0021 |
| **0-12 months** | 9.0 (4.9 - 13.9) | 8.7 (4.6 - 14.2) | 0.4 (-0.2, 1.0), 0.11 |
| **Iron studies (66596) and Vitamin B12 (66838/66839)** | | | |
| **Baseline** | n=688, 12.0 (8.5 - 17.9) | n=737, 12.2 (8.5 - 17.3) | |
| **0-6 months** | 10.3 (5.9 - 16.1) | 9.4 (5.2 - 15.9) | 1.0 (0.3, 1.7), <0.0001 |
| **>6 to 12 months** | 12.8 (7.2 - 19.3) | 12.1 (6.4 - 19.8) | 1.0 (0.3, 1.8), 0.0016 |
| **0-12 months** | 11.6 (6.9 - 17.6) | 10.8 (6.1 - 17.0) | 1.1 (0.4, 1.8), <0.0001 |
| **Iron studies (66596) and TFT (66719)** | | | |
| **Baseline** | n=574, 7.4 (4.8 - 10.9) | n=579, 7.2 (4.7 - 11.4) | |
| **0-6 months** | 5.9 (3.2 - 9.8) | 6.3 (3.4 - 10.1) | -0.3 (-0.9, 0.3), 0.195 |
| **>6 to 12 months** | 6.9 (3.5 - 11.6) | 7.4 (4.4 - 12.4) | -0.5 (1.1, 0.3), 0.14 |
| **0-12 months** | 6.4 (3.7 - 10.2) | 7.0 (4.0 - 10.9) | -0.3 (-1.0, 0.4), 0.27 |
| **TSH (66716) and Vitamin D (66833)** | | | |
| **Baseline** | n=519, 7.6 (4.5 - 13.2) | n=483, 6.7 (3.8 - 12.3) | |
| **0-6 months** | 5.1 (2.2 - 10.4) | 4.1 (1.8 - 8.6) | 0.8 (0.2, 1.3), 0.0007 |
| **>6 to 12 months** | 5.6 (2.3 - 11.5) | 4.7 (2.0 - 10.5) | 0.8 (0.2, 1.5), 0.0016 |
| **0-12 months** | 5.5 (2.5 - 10.7) | 4.7 (2.3 - 9.3) | 0.7 (0.1, 1.3), 0.0062 |
| | | | |
| | **Intervention** | **Control** | |
| **Ferritin** | | | |
| **Baseline** | 0.2 (0 -1 .4) | 0.2 (0 - 1.2) | |
| **0-6 months** | 0.3 (0 - 5.5) | 0.3 (0 - 4.8) | -0.5 (-0.2, 1.1), 0.073 |
| **>6 to 12 months** | 0.3 (0 - 4.9) | 0.3 (0 - 4.6) | 0.4 (-0.2, 1.0), 0.12 |
| **0-12 months** | 0.4 (0 - 5.5) | 0.3 (0 - 4.9) | 0.5 (-0.2, 1.1), 0.084 |
| **Iron studies (66596)** | | | |
| **Baseline** | 66.7 (46.9 - 88.2) | 66.7 (47.3 - 87.4) | |
| **0-6 months** | 58.8 (33.3 - 82.1) | 58.0 (33.4 - 80.8) | -0.04 (-1.9, 1.8), 0.96 |
| **>6 to 12 months** | 70.8 (40.5 - 96.7) | 70.3 (42.9 - 97.1) | -0.2 (-2.2, 1.9), 0.85 |
| **0-12 months** | 65.0 (37.7 - 88.0) | 63.6 (38.7 - 88.3) | -0.1 (-2.1, 1.9), 0.91 |
| **TSH (66716)** | | | |
| **Baseline** | 27.0 (17.6 - 39.2) | 26.9 (17.3 - 39.5) | |
| **0-6 months** | 26.1 (15.7 - 39.0) | 25.1 (15.5 - 37.2) | 0.8 (0.01, 1.6), 0.016 |
| **>6 to 12 months** | 30.0 (18.4 - 45.0) | 29.8 (18.5 – 44.0) | 1.1 (0.1, 2.0), 0.0056 |

| | | | |
|---|---|---|---|
| **0-12 months** | 28.0 (17.4 - 41.7) | 27.5 (17.5 - 40.3) | -0.7 (-0.1, 1.6), 0.044 |
| **TFT (66719)** | | | |
| **Baseline** | 16.2 (10.0 - 25.3) | 16.2 (9.7 - 25.2) | |
| **0-6 months** | 15.1 (9.0 - 24.6) | 15.6 (9.0 - 24.2) | 0.1 (-0.7, 1.0), 0.73 |
| **>6 to 12 months** | 18.0 (10.8 - 28.2) | 18.5 (11.0 - 29.0) | -0.1 (-1.0, 0.9), 0.84 |
| **0-12 months** | 16.5 (10.2 - 26.0) | 16.9 (10.2 - 26.1) | 0.1 (-0.8, 1.0), 0.74 |
| **Vitamin D (66833)** | | | |
| **Baseline** | 43.7 (28.4 - 58.7) | 41.7 (26.3 - 57.0) | |
| **0-6 months** | 35.1 (19.1 - 52.8) | 32.5 (17.1 - 49.7) | 2.4 (1.4, 3.5), <0.0001 |
| **>6 to 12 months** | 41.5 (22.3 - 62.2) | 39.6 (20.4 - 59.1) | 2.0 (0.7, 3.2), <0.0001 |
| **0-12 months** | 38.0 (21.7 - 56.5) | 36.2 (19.5 - 54.1) | 2.1 (1.0, 3.3), <0.0001 |
| **Vitamin B12 (66838/66839)** | | | |
| **Baseline** | 36.3 (23.2 - 50.6) | 36.3 (23.1 - 51.0) | |
| **0-6 months** | 30.9 (16.9 - 48.2) | 29.9 (16.1 - 46.4) | 1.3 (0.3, 2.3), 0.0022 |
| **>6 to 12 months** | 39.7 (22.6 - 59.8) | 38.7 (22.1 - 58.0) | 1.3 (0.1, 2.5), 0.0104 |
| **0-12 months** | 34.6 (20.2 - 53.6) | 34.2 (19.6 - 51.1) | 1.4 (0.3, 2.5), 0.0020 |

Pathology tests and corresponding MBS items shown in column 1.

## Table S7. Overall request rate for all targeted pathology test combinations (n=10)

| | Intervention (n=5,135) | Control (n=597) | Main model[a] Adjusted mean difference (95% CI) | Adjusted model[b] Adjusted mean difference (95% CI) |
|---|---|---|---|---|
| | Median (Q1-Q3) | Median (Q1-Q3) | | |
| **Baseline** | 52.1 (39.0 - 68.5) | 54.2 (39.9 - 69.4) | | |
| **0-6 months** | 41.1 (23.9 - 59.6) | 57.8 (42.0 - 74.7) | -17.8 (-19.3, -16.4) | -18.0 (-19.5, -16.4) |
| **>6-12 months** | 51.4 (30.9 - 72.2) | 65.3 (46.7 - 84.3) | -16.3 (-18.0, -14.5) | -16.3 (-18.1, -14.5) |
| **12 months** | 46.2 (27.7 - 64.8) | 60.7 (44.8 - 78.8) | -17.3 (-18.9, -15.7) | -17.4 (-19.1, -15.7) |

[a] Estimates were adjusted for the baseline rate of all targeted pathology requests of each GP as well as remoteness and years of practice.
[b] Main model with further adjustments for GP age, sex and baseline number of targeted pathology test combinations above the 90$^{th}$ percentile.

## Table S8. Overall request rate for pathology test combinations that were not displayed for the main comparison

| | Intervention (n=5,135) | Control[c] (n=597) | Main model[a] Adjusted mean difference (95% CI) | Adjusted model[b] Adjusted mean difference (95% CI) |
|---|---|---|---|---|
| | Median (Q1-Q3) | Median (Q1-Q3) | | |
| **Baseline** | 22.4 (13.6 - 33.3) | 24.0 (14.7 - 35.2) | | |
| **0-6 months** | 18.6 (9.9 - 29.8) | 25.4 (15.2 - 37.4) | -7.0 (-8.0, -6.1) | -7.1 (-8.1, -6.1) |
| **>6-12 months** | 23.7 (13.0 - 36.8) | 30.2 (18.9 – 42.1) | -6.6 (-7.7, -5.5) | -6.6 (-7.8, -5.5) |
| **12 months** | 21.2 (11.8 - 32.9) | 28.2 (17.8 - 39.4) | -6.8 (-7.9, -5.8) | -6.9 (-7.9, -5.8) |

[a] Estimates were adjusted for the baseline rate of not included pathology requests of each GP as well as remoteness and years of practice.
[b] Main model with further adjustments for GP age, sex and baseline number of targeted pathology test combinations above the 90$^{th}$ percentile.
[c] Includes combinations that would have not been included if randomised to the intervention group.

**Table S9. Request rates at baseline and 0-6 months for prespecified subgroups**

| | Baseline rate of displayed pathology requests Median (IQR) | | Rate of displayed pathology requests at 0-6 months Median (IQR) | | Model based rates at 0-6 months Mean (SE)[a] | | Adjusted mean difference (95% CI) |
|---|---|---|---|---|---|---|---|
| | **Intervention** | **Control** | **Intervention** | **Control** | **Intervention** | **Control** | |
| **Gender** | | | | | | | |
| **Male** | 25.5 (15.8 - 38.3) | 27.4 (16.2 - 40.6) | 15.3 (6.5 - 28.8) | 27.2 (15.0 - 45.0) | 15.8 (0.2) | 28.0 (1.0) | -12.3 (-13.7, -10.9) |
| **Female** | 27.7 (16.6 - 41.2) | 26.2 (17.5 - 41.8) | 18.8 (9.2 - 33.3) | 27.7 (16.8 - 40.9) | 19.4 (0.2) | 27.6 (0 .7) | -8.3 (-9.5, -7.0) |
| **Location** | | | | | | | |
| **Metropolitan** | 27.1 (16.7 - 40.4) | 26.5 (17.3 - 41.7) | 18.2 (8.5 - 32.0) | 27.8 (16.4 - 41.2) | 18.2 (0.2) | 27.9 (0.6) | -9.7 (-10.7, -8.7) |
| **Other** | 25.9 (14.6 - 39.8) | 26.8 (17.1 - 41.9) | 15.8 (7.2 - 39.5) | 25.9 (17.4 - 44.6) | 17.3 (0.4) | 27.6 (1.6) | -10.3 (-12.7, -7.8) |
| **Number of targeted pathology test combinations above the 90th percentile** | | | | | | | |
| **Less (2-3)** | 24.0 (14.5 - 36.0) | 23.8 (14.9 - 36.4) | 15.1 (6.7 - 27.9) | 25.1 (14.4 - 38.5) | 15.5 (0.1) | 25.1 (0.6) | -9.6 (-10.5, -8.6) |
| **More (4-10)** | 38.7 (26.8 - 52.7) | 39.2 (26.0 - 47.4) | 28.0 (15.2 - 44.3) | 37.4 (25.4 - 50.3) | 27.6 (0.4) | 35.8 (1.1) | -8.2 (-10.3, -6.0) |
| **Years of practice** | | | | | | | |
| **<5** | 25.8 (14.2 - 36.5) | 22.9 (14.3 - 34.5) | 15.1 (6.7 - 28.8) | 25.2 (12.0 - 35.4) | 15.4 (0.3) | 21.7 (1.2) | -6.3 (-8.2, -4.5) |
| **>=5 and <10** | 25.4 (15.9 - 30.9) | 25.7 (18.5 - 39.0) | 16.4 (7.4 - 29.9) | 27.5 (15.4 - 37.8) | 16.7 (0.3) | 25.6 (1.0) | -8.8 (-10.6, -7.1) |
| **>=10 and <15** | 27.6 (17.2 - 40.2) | 30.9 (17.6 - 42.1) | 18.9 (9.2 - 33.0) | 30.4 (18.0 - 44.0) | 19.3 (0.4) | 31.4 (1.5) | -12.1 (-14.5, -9.7) |
| **>=15** | 28.5 (17.1 - 42.8) | 27.3 (17.6 - 44.0) | 18.9 (8.8 - 33.9) | 28.8 (17.2 - 47.4) | 19.5 (0.2) | 30.5 (1.0) | -11.0 (-12.6, -9.4) |

[a] Estimates based on mixed effect model, adjusted for the baseline level.

**Table S10. Sensitivity analyses of the primary outcome for the main comparison**

| | Intervention | Control | Main model [a] | | Adjusted model [b] | |
|---|---|---|---|---|---|---|
| | Median (Q1-Q3) rate | Median (Q1-Q3) rate | Adjusted mean difference (95% CI) | p-value | Adjusted mean difference (95% CI) | p-value |
| **PP population** | n=4793 | n=597 | | | | |
| **Baseline** | 26.9 (16.5 - 40.5) | 26.6 (17.3 - 41.7) | | | | |
| **0-6 months** | 17.0 (7.9 - 30.9) | 27.5 (16.5 - 42.2) | -10.3 (-11.2, -9.3) | <0.0001 | -10.4 (-11.4, -9.4) | <0.0001 |
| **>6-12 months** | 21.3 (9.7 - 37.1) | 30.7 (18.3 - 48.5) | -9.5 (-10.5, -8.4) | <0.0001 | -9.5 (-10.7, -8.4) | <0.0001 |
| **12 months** | 19.1 (9.2 - 33.6) | 28.8 (17.8 - 45.2) | -10.1 (-11.1, -9.1) | <0.0001 | -10.2 (-11.2, -9.1) | <0.0001 |
| **Active practice[c]** | n=4,937 | n=570 | | | | |
| **Baseline** | 26.9 (16.5 - 40.4) | 26.5 (17.3 - 41.7) | | | | |
| **0-6 months** | 17.9 (8.4 - 31.5) | 27.7 (17.0 - 42.2) | -10.8 (-11.7, -9.8) | <0.0001 | -10.9 (-11.9, -9.9) | <0.0001 |
| **>6-12 months** | 21.9 (10.1 - 37.9) | 30.9 (19.2 - 48.7) | -9.8 (-10.9, -8.7) | <0.0001 | -9.9 (-11.0, -8.7) | <0.0001 |
| **12 months** | 19.8 (9.6 - 34.2) | 29.0 (18.0 - 45.5) | -10.4 (-11.4, -9.4) | <0.0001 | -10.5 (-11.6, -9.4) | <0.0001 |

[a] Estimates were adjusted for the baseline rate, rurality and years of practice.
[b] Main model with further adjustments for GP age, sex and baseline number of targeted pathology test combinations above the 90$^{th}$ percentile.
[c] At least 500 consultations over the 6-month period**.**

**Table S11. Baseline comparison between included and excluded GPs for per protocol analysis**

| | Total included in the primary analysis N=5,732 | Included in the Per-protocol analysis N=5,390 | Excluded from the Per-protocol analysis N=342 | p.value |
|---|---|---|---|---|
| **GP age (years)** | | | | 0.022 |
| **Under 40** | 779 (13.6%) | 732 (13.6%) | 47 (13.7%) | |
| **40 - 49** | 1,728 (30.1%) | 1,602 (29.7%) | 126 (36.8%) | |
| **50 - 59** | 1,686 (29.4%) | 1,609 (29.9%) | 77 (22.5%) | |
| **60 - 69** | 1,159 (20.2%) | 1,088 (20.2%) | 71 (20.8%) | |
| **70 and over** | 380 (6.6%) | 359 (6.7%) | 21 (6.1%) | |
| **Gender (self-reported)** | | | | 0.57 |
| **Female** | 3,761 (65.6%) | 3,528 (65.5%) | 233 (68.1%) | |
| **Male** | 1,969 (34.4%) | 1,860 (34.5%) | 109 (31.9%) | |
| **Unknown** | 2 (0.03%) | 2 (0.04%) | 0 (0.0%) | |
| **Geographical region** | | | | |
| **Metropolitan** | 4,779 (83.4%) | 4,484 (83.2%) | 295 (86.3%) | 0.33 |
| **State** | | | | 0.089 |
| **Australian Capital Territory (ACT)** | 114 (2.0%) | 106 (2.0%) | 8 (2.3%) | |
| **New South Wales (NSW)** | 1,935 (33.8%) | 1,841 (34.2%) | 94 (27.5%) | |
| **Northern Territory (NT)** | 15 (0.3%) | 13 (0.2%) | 2 (0.6%) | |
| **Queensland (QLD)** | 1.051 (18.3%) | 972 (18.0%) | 79 (23.1%) | |
| **South Australia (SA)** | 380 (6.6%) | 356 (6.6%) | 24 (7.0%) | |
| **Tasmania (TAS)** | 115 (2.0%) | 104 (1.9%) | 11 (3.2%) | |
| **Victoria (VIC)** | 1,538 (26.8%) | 1,445 (26.8%) | 93 (27.2%) | |
| **Western Australia (WA)** | 582 (10.2%) | 551 (10.2%) | 31 (9.1%) | |
| **N/A** | 2 (0.03%) | 2 (0.04%) | 0 (0.0%) | |
| **Years of practicing, median (Q1 - Q3)** | 12.7 (6.3 - 29.3) | 12.8 (6.3 - 29.3) | 11.7 (6.7 - 26.3) | 0.43 |
| **Total Category 1 patient consultations at baseline median (Q1 - Q3)** | 4,982 (3,088 - 7,563) | 4,417 (2,866 - 7,006) | 5,021 (3,102 - 7,599) | 0.011 |
| **Total audited pathology combinations, median (Q1 - Q3)** | 2 (2 - 3) | 2 (2 - 3) | 3 (2 - 3) | 0.94 |
| **Overall baseline requesting rate, per 1000 consultations, median (Q1 - Q3)** | 52.6 (39.2-68.7) | 52.4 (39.1-68.7) | 54.1 (41.0-68.1) | 0.57 |
| **Overall requesting rate of displayed combinations, per 1,000 consultations, median (Q1 - Q3)** | 26.9 (16.4 - 40.5) | 26.8 (16.5 - 40.5) | 27.2 (14.5 - 40.5) | 0.43 |
| **Study group** | | | | <0.0001 |
| **Control** | 597 (10.4%) | 597 (10.4%) | 0 | |
| **P+CPD** | 621 (10.8%) | 575 (10.7%) | 46 (13.5%) | |
| **L only** | 657 (11.5%) | 612 (11.4%) | 45 (13.2%) | |
| **L+C** | 660 (11.5%) | 618 (11.5%) | 42 (12.3%) | |
| **P+C+CPD** | 668 (11.7%) | 628 (11.7%) | 40 (11.7%) | |
| **P only** | 611 (10.7%) | 559 (10.4%) | 52 (15.2%) | |
| **L+C+CPD** | 626 (10.9%) | 583 (10.8%) | 43 (12.6%) | |
| **P+C** | 662 (11.5%) | 620 (11.5%) | 42 (12.3%) | |
| **L+CPD** | 630 (11.0%) | 598 (11.1%) | 32 (9.4%) | |

P- Pamphlet; C- Cost information; L- Letter; CPD – Continuing Professional Development (CPD)-accredited education.

**Table S12. Baseline comparison between included and excluded GPs based on whether still active or not**

| | Total included in the primary analysis | Included in the sensitivity analysis (still active) | Excluded from the sensitivity analysis (not active) | p.value |
|---|---|---|---|---|
| | N=5,732 | N=5,507 | N=225 | |
| **GP age (years)** | | | | <0.0001 |
| **Under 40** | 779 (13.6%) | 704 (12.8%) | 75 (33.3%) | |
| **40 - 49** | 1,728 (30.1%) | 1,677 (30.5%) | 51 (22.7%) | |
| **50 - 59** | 1,686 (29.4%) | 1,640 (29.8%) | 46 (20.4%) | |
| **60 - 69** | 1,159 (20.2%) | 1,132 (20.6%) | 27 (12.0%) | |
| **70 and over** | 380 (6.6%) | 354 (6.4%) | 26 (11.6%) | |
| **Gender (self-reported)** | | | | 0.014 |
| **Female** | 3,761 (65.6%) | 3,593 (65.2%) | 168 (74.7%) | |
| **Male** | 1,969 (34.4%) | 1,912 (34.7%) | 57 (25.3%) | |
| **Unknown** | 2 (0.03%) | 2 (0.04%) | 0 (0.0%) | |
| **Geographical region** | | | | |
| **Metropolitan** | 4,779 (83.4%) | 4,594 (83.4%) | 185 (82.2%) | 0.87 |
| **State** | | | | 0.034 |
| **Australian Capital Territory (ACT)** | 114 (2.0%) | 113 (2.1%) | 1 (0.4%) | |
| **New South Wales (NSW)** | 1,935 (33.8%) | 1,868 (33.9%) | 67 (29.8%) | |
| **Northern Territory (NT)** | 15 (0.3%) | 13 (0.2%) | 2 (0.9%) | |
| **Queensland (QLD)** | 1,051 (18.3%) | 997 (18.1%) | 54 (24.0%) | |
| **South Australia (SA)** | 380 (6.6%) | 359 (6.5%) | 21 (9.3%) | |
| **Tasmania (TAS)** | 115 (2.0%) | 109 (2.0%) | 6 (2.7%) | |
| **Victoria (VIC)** | 1,538 (26.8%) | 1,488 (27.0%) | 50 (22.2%) | |
| **Western Australia (WA)** | 582 (10.2%) | 558 (10.1%) | 24 (10.7%) | |
| **N/A** | 2 (0.03%) | 2 (0.04%) | 0 (0.0%) | |
| **Years of practicing, median (Q1-Q3)** | 12.7 (6.3-29.3) | 12.8 (6.4-29.3) | 9.2 (4.7-30.2) | 0.032 |
| **Total Category 1 patient consultations at baseline median (Q1-Q3)** | 4,982 (3,088-7,563) | 5,137 (3,226-7,663) | 1,623 (1,003-2,784) | <0.0001 |
| **Total audited pathology combinations, median (Q1 - Q3)** | 2 (2-3) | 2 (2-3) | 3 (2-3) | 0.51 |
| **Overall baseline requesting rate, per 1000 consultations, median (Q1-Q3)** | 52.6 (39.2-68.7) | 52.6 (39.3-68.6) | 51.1 (35.0-69.2) | 0.35 |
| **Study group** | | | | 0.52 |
| **Control** | 597 (10.4%) | 570 (10.4%) | 27 (12.0%) | |
| **P+CPD** | 621 (10.8%) | 589 (10.7%) | 32 (14.2%) | |
| **L only** | 657 (11.5%) | 627 (11.4%) | 30 (13.3%) | |
| **L+C** | 660 (11.5%) | 634 (11.5%) | 26 (11.6%) | |
| **P+C+CPD** | 668 (11.7%) | 643 (11.7%) | 25 (11.1%) | |
| **P only** | 611 (10.7%) | 589 (10.7%) | 22 (9.8%) | |
| **L+C+CPD** | 626 (10.9%) | 602 (10.9%) | 24 (10.7%) | |
| **P+C** | 662 (11.5%) | 640 (11.6%) | 22 (9.8%) | |
| **L+CPD** | 630 (11.0%) | 613 (11.1%) | 17 (7.6%) | |

P- Pamphlet; C- Cost information; L- Letter; CPD – Continuing Professional Development (CPD)-accredited education.

**Table S13. Overall request rate for the main comparison and according to each intervention factor for female gender**

| | Intervention (n=3,377) | Control[c] (n=384) | Main model[a] |
|---|---|---|---|
| | Median (Q1 - Q3) | Median (Q1 - Q3) | Adjusted rate difference (95% CI), p.value |
| **Overall** | | | |
| **Baseline** | 27.7 (16.6-41.2) | 26.2 (17.5-41.8) | |
| **0-6 months** | 18.8 (9.2-33.3) | 27.7 (16.8-40.9) | -8.3 (-9.5 to -7.1), <0.0001 |
| **>6 to 12 months** | 23.0 (10.9-39.5) | 31.9 (19.3-49.4) | -7.7 (-9.0 to -6.3), <0.0001 |
| **0-12 months** | 20.9 (10.6-35.7) | 29.2 (18.0-44.3) | -8.3 (-9.6 to -7.0), <0.0001 |
| | **Intervention[d]** | **Control[e]** | **Main model[a]** |
| | **Median (Q1 - Q3)** | **Median (Q1 - Q3)** | **Adjusted rate difference (98.3% CI), p-value** |
| **CPD-accredited education** | **Yes (n=1,667)** | **No (n=1,710)** | |
| **Baseline** | 27.7 (16.3-42.1) | 27.6 (16.9-40.8) | |
| **0-6 months** | 18.3 (8.8-34.0) | 19.5 (9.7-32.7) | -0.2 (-1.2, 0.7), 0.55 |
| **>6 to 12 months** | 22.3 (10.8-39.9) | 23.6 (11.1-38.8) | -0.2 (-1.3, 0.8), 0.63 |
| **0-12 months** | 20.3 (10.2-36.0) | 21.5 (10.9-35.4) | -0.4 (-1.4, 0.6), 0.36 |
| **Cost information** | **Yes (n=1,737)** | **No (n=1,640)** | |
| **Baseline** | 27.6 (16.4-41.0) | 27.7 (16.7-41.4) | |
| **0-6 months** | 18.7 (9.4-33.7) | 19.1 (8.9-32.9) | 0.4 (-0.5, 1.3), 0.30 |
| **>6 to 12 months** | 22.8 (10.8-39.9) | 23.2 (11.0-38.8) | -0.8 (-1.8, 0.2), 0.069 |
| **0-12 months** | 20.7 (10.5-36.1) | 21.1 (10.7-35.0) | -0.9 (-1.1, 0.9), 0.83 |
| **Feedback format** | **Pamphlet (n=1,696)** | **Letter (n=1,681)** | |
| **Baseline** | 27.9 (17.0-40.9) | 27.5 (16.4-41.4) | |
| **0-6 months** | 18.9 (9.1-33.0) | 18.8 (9.2-33.7) | 0.2 (-0.8, 1.1), 0.69 |
| **>6 to 12 months** | 23.1 (11.0-38.9) | 22.8 (10.8-39.8) | 0.6 (-0.5, 1.6), 0.19 |
| **0-12 months** | 21.1 (10.6-35.1) | 20.9 (10.6-36.2) | 0.2 (-0.8, 1.1.2), 0.66 |

a Estimates were adjusted for the baseline rate of displayed pathology requests of each GP as well as remoteness and years of practice.

[c] Includes combinations that would have been included if randomised into the intervention group.

d Includes those who received intervention based on specific factor.

e Includes those randomised in the intervention arm who did not receive the specific intervention.

**Table S14. Overall request rate for the main comparison and according to each intervention factor for male gender**

| | Intervention (n=1,757) | Control (n=212) | Main model[a] |
|---|---|---|---|
| | Median (Q1 - Q3) | Median (Q1 - Q3) | Adjusted rate difference (95% CI), p.val |
| **Overall** | | | |
| **Baseline** | 25.5 (15.8-38.3) | 27.4 (16.2-40.6) | |
| **0-6 months** | 15.3 (6.5-28.8) | 27.2 (15.0-45.0) | -12.2 (-13.7 to -10.8), <0.0001 |
| **>6 to 12 months** | 19.6 (8.2-34.6) | 29.1 (17.6-46.4) | -11.3 (-13.0 to -9.7), <0.0001 |
| **0-12 months** | 17.4 (7.7-31.4) | 28.5 (16.8-46.7) | -11.8 (-13.3 to -10.3), <0.0001 |
| | **Intervention[d]** | **Control[e]** | **Main model[a]** |
| | **Median (Q1 - Q3)** | **Median (Q1 - Q3)** | **Adjusted rate difference (98.3% CI), p-value** |
| **CPD-accredited education** | **Yes (n=877)** | **No (n=880)** | |
| **Baseline** | 25.2 (15.2-38.3) | 25.7 (16.6-38.6) | |
| **0-6 months** | 15.8 (6.5-29.4) | 14.6 (6.6-28.4) | 0.1 (-0.9, 1.2), 0.74 |
| **>6 to 12 months** | 19.3 (7.9-34.5) | 20.0 (8.6-34.9) | -0.2 (-1.4, 1.0), 0.74 |
| **0-12 months** | 17.3 (7.7-31.3) | 17.5 (7.8-31.6) | -0.2 (-1.3, 0.9), 0.68 |
| **Cost information** | **Yes (n=879)** | **No (n=878)** | |
| **Baseline** | 25.5 (15.9-38.8) | 25.5 (15.4-38.1) | |
| **0-6 months** | 15.1 (6.5-28.3) | 15.4 (6.6-29.3) | -0.2 (-1.2, 0.8), 0.62 |
| **>6 to 12 months** | 20.0 (7.9-35.6) | 19,3 (8.5-34.2) | -0.4 (-1.6, 0.8), 0.43 |
| **0-12 months** | 17.2 (7.5-32.5) | 17.5 (7.9-30.9) | -0.3 (-1.4, 0.8), 0.48 |
| **Feedback format** | **Pamphlet (n=865)** | **Letter (n=892)** | |
| **Baseline** | 25.6 (16.4-39.2) | 25.4 (15.3-37.5) | |
| **0-6 months** | 16.8 (6.8-31.2) | 14.1 (6.4-26.7) | 1.4 (0.4, 2.4), 0.0009 |
| **>6 to 12 months** | 20.9 (8.8-36.3) | 18.2 (7.8-33.1) | 1.4 (0.2, 2.6), 0.0053 |
| **0-12 months** | 18.9 (8.1-33.7) | 16.5 (7.3-29.4) | 1.4 (0.3, 2.5), 0.00027 |

a Estimates were adjusted for the baseline rate of displayed pathology requests of each GP as well as remoteness and years of practice.
[c] Includes combinations that would have been included if randomised into the intervention group.
d Includes those who received intervention based on specific factor.
e Includes those randomised in the intervention arm who did not receive the specific intervention.

**Table S15. Inter-cluster correlation (ICC) coefficients with corresponding 95% CIs for the main outcome**

| | ICC (95% CI) |
|---|---|
| **Overall (all test combined)** | |
| 0-6 months | 0.05 (0.02-0.10) |
| >6 to 12 months | 0.03 (0.01-0.10) |
| 0-12 months | 0.05 (0.02-0.10) |
| **Main outcome by factor** | |
| **CPD-accredited education** | |
| 0-6 months | 0.05 (0.03-0.10) |
| >6 to 12 months | 0.04 (0.01-0.10) |
| 0-12 months | 0.05 (0.02-0.10) |
| **Cost information** | |
| 0-6 months | 0.05 (003-0.10) |
| >6 to 12 months | 0.04 (0.01-0.10) |
| 0-12 months | 0.05 (0.02-0.10) |
| **Feedback** | |
| 0-6 months | 0.05 (0.03-0.10) |
| >6 to 12 months | 0.04 (0.01-0.10) |
| 0-12 months | 0.05 (0.02-0.10) |
| **Main comparison at 0-6 months for each pathology combination** | |
| TSH (66716) and Vitamin D (66833) | 0 |
| TSH (66716) and Vitamin D (66833) and Vitamin B12 (66838/66839) | 0.11 (0.02-0.43) |
| Iron studies (66596) and Vitamin D (66833) | 0.03 (0.002-0.39) |
| Iron studies (66596) and Vitamin B12 (66838/66839) | 0.02 (0.00-0.60) |
| Iron studies (66596) and TFT (66719) | 0.06 (0.01-0.29) |
| Iron studies (66596), Vitamin D (66833) and Vitamin B12 (66838/66839) | 0.148 (0.08-0.26) |
| Iron studies (66596), TSH (66716) and Vitamin D (66833) | 0.09 (0.03-0.25) |
| Iron studies (66596), Thyroid Function Tests (TFT) (66719) and Vitamin B12 (66838/66839) | 0.02 (0.00-0.85) |
| Iron studies (66596), TFT (66719) and Vitamin D (66833) | 0.11 (0.04-0.29) |
| Iron studies (66596), Thyroid Stimulating Hormone (TSH) (66716) and Vitamin B12 (66838/66839) | 0.14 (0.04-0.37) |