

General practice audit of preoperative anaemia report 2019

Blood Matters program





General practice audit of preoperative anaemia report 2019

Blood Matters program

To receive this publication in an accessible format phone 03 9694 0102, using the National Relay Service 13 36 77 if required, or email bloodmatters@redcrossblood.org.au <bloodmatters@redcrossblood.org.au>.

Authorised and published by the Victorian Government, 1 Treasury Place, Melbourne.
© State of Victoria, Australia, Department of Health and Human Services August 2020.
ISBN 978-1-76096-108-4 (pdf/online/MS word)
Available at health.vic.gov.au <<https://www2.health.vic.gov.au/hospitals-and-health-services/patient-care/speciality-diagnostics-therapeutics/blood-matters>>
(2008778)

Contents

Acknowledgements	iv
Introduction	1
Background	2
Audit	3
Objective	3
Learning outcomes of audit activity and feedback	3
Method	3
Audit promotion and circulation	3
Results	4
Workshop	6
Discussion	7
References:	8
Appendices	
Appendix 1: Part 1: General practice audit of preoperative anaemia	9
Appendix 2: Part 2: General practice audit of preoperative anaemia	10
Appendix 3: Data collection tool – General practice audit of preoperative anaemia	12
Appendix 4: General practice audit of preoperative anaemia evaluation and QI	13
Appendix 5: Example of results summary provided to reporting GPs	14
Appendix 6: TransfusEd workshop for GPs	19

Acknowledgements

Blood Matters thanks Drs Kunadhasan, Von Wielligh, Esler and Minck for their support and contribution to the audit development and feedback.

We also thank the Victorian Primary Health Networks (PHNs) for their assistance with audit communication by including information in the local PHN newsletters and for running reminder notes, as well as the general practitioners who participated in the audit.

The Australian Red Cross Lifeblood Transfusion Policy and Education Unit made a substantial contribution in their effort to develop the TransfusEd workshop for GPs: 'Anaemia in primary care'.

Introduction

Anaemia is the most common blood disorder in the world, affecting almost a third of the population (Kassebaum 2016). The prevalence in Australia is between 10–20 per cent, increasing with age (Kassebaum 2014). Even mild anaemia is associated with increased risk of morbidity, hospitalisation and all-cause mortality (Riva et al. 2009). However, it is often overlooked and untreated. A US study found that only 15 per cent of those with anaemia received any treatment, the most common being a blood transfusion (Nissenson 2005), which is also associated with increased morbidity and mortality (Marik and Corwin 2008). Appropriate treatment of anaemia is associated with decreased hospital length of stay and costs (Nissenson 2005, Froessler et al. 2018).

International data consistently shows that approximately 30 per cent of patients scheduled for major elective surgery have preoperative anaemia. Australian data from more than 12,000 patients undergoing elective gastrointestinal, orthopaedic and gynaecology procedures found that 88 per cent were assessed for anaemia, with 4.4 per cent occurring in general practice. Management of this anaemia occurred in 22 per cent, and of these, 13.6 per cent in general practice. Iron studies were performed in 46 per cent of patients (none recorded in general practice), and of those identified with iron deficiency, 49 per cent were managed, 15.5 per cent of these in primary care (ACSQHC 2017).

Patient blood management (PBM) improves patient outcomes by ensuring the focus of the patient's medical and surgical management is optimising and conserving the patient's own blood, thus minimising unnecessary blood transfusion. The National Blood Authority (NBA) *PBM guidelines module 2: perioperative* (2012) reinforces the importance of appropriate preoperative anaemia assessment and management. PBM is now incorporated in the Australian Commission on Safety and Quality in Health Care (ACSQHC) National Safety and Quality Healthcare Standards.

General practitioners (GPs) have an integral role to play in recognising, investigating and treating anaemia and iron deficiency in the community, including for patients considered for major surgery where there is risk of substantial blood loss (Minck et al. 2013). Such patients need to be investigated for iron deficiency and to have iron stores replenished to replace haemoglobin lost during surgery. Approximately 30 per cent of patients referred for major elective surgery will have preoperative anaemia.

Minck et al. (2013) developed a guide outlining the ways in which GPs can contribute to patient blood management. This included promoting awareness, identification, investigation and management of patients with or at risk of anaemia, and assessing the adequacy of iron stores in patients undergoing planned procedures in which substantial blood loss is anticipated. The article included a template based on the NBA *PBM guidelines module 2*, clearly detailing the preoperative tests required to assist with the assessment and management of preoperative anaemia and suboptimal iron stores.

Background

Through the Blood Matters Advisory Committee, concern was expressed over the perceived lack of patient preparation in the community prior to surgery. The article published by Le Calvé et al. (2017) looks at GP attitudes to anaemia and transfusion. In the past, the Blood Matters program has found GPs a challenging group to engage directly. However, as we had support from clinicians with both GP and education experience, it was decided the program would undertake an audit due to the importance of the topic and this specific support.

A working group was formed, consisting of members from Blood Matters, a haematologist with a background as a practicing GP, an anaesthetist with a specific interest in PBM, and two GPs with experience in education. An audit was developed to determine current practice in assessing and optimising a patient's haemoglobin and iron stores prior to major surgery with significant anticipated blood loss.

To encourage participation in the audit, we applied for and received 40 Category 1 quality improvement (QI) points in the Royal Australian College of General Practitioners (RACGP) Quality Improvement and Continuing Professional Development (QI and CPD) 2017–2019 triennium. The audit consisted of two parts: demographics, and retrospective review of medical notes of patients referred for elective surgery.

In addition, the Blood Matters team worked with the Australian Red Cross Lifeblood (Lifeblood previously Blood Service) Transfusion Policy and Education (TPE) team to develop a workshop for GPs: 'Anaemia in primary care'.

Audit

Objective

To assess primary healthcare uptake of iron deficiency screening and treatment for patients with planned elective major surgery.

Learning outcomes of audit activity and feedback

By the end of the audit activity, participants will be able to:

- screen for iron deficiency with/without anaemia in preoperative patients due to undergo major elective surgery
- evaluate and interpret full blood count (FBC), iron studies and C-reactive protein (CRP) to assess adequacy of iron stores in preoperative patients due to undergo major elective surgery
- manage preoperative iron deficiency and anaemia in alignment with the Preoperative haemoglobin assessment and optimisation template (as per *PBM guidelines module 2: perioperative*).

Method

The audit was in two parts:

- Part 1: Demographics and awareness of preoperative anaemia guidelines and patient information (Appendix 1)
- Part 2: Clinical audit of 10 patients in your practise who you have referred for elective major surgery for which substantial blood loss is anticipated (Appendix 2). A data collection tool was also provided (Appendix 3).

The audit was open from 1 April to 31 May 2019.

To obtain the RACGP 40 QI points, full audit participation and completion of the evaluation and QI form was required (Appendix 4).

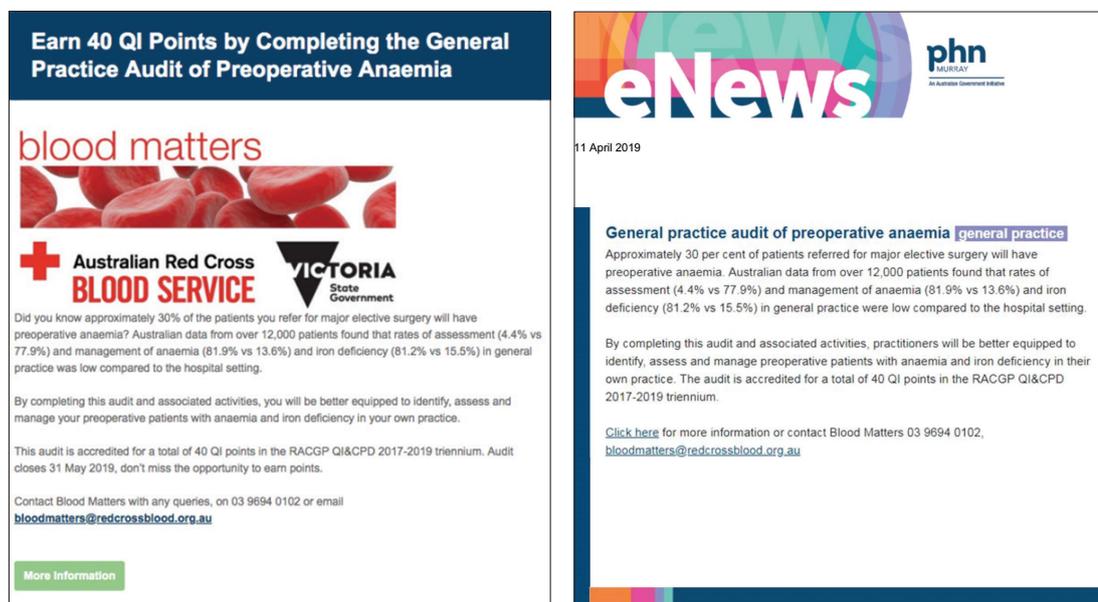
Inclusions

Adult patients older than 18 and less than 110 years of age, referred for elective surgery where substantial blood loss is anticipated.

Audit promotion and circulation

Promotion of the audit and the allocation of QI points was made through the GP Primary Health Network (PHN) across Victoria (n = 6). Each PHN was contacted to request publication of a short article in their respective newsletters. Figure 1 shows examples of the published articles. Five PHNs placed at least one article in their newsletter, with one not approving the content 'because the training does not relate to PHN-related activities'.

Figure 1: Audit promotion in Gippsland and Murray PHN



Potentially 4,168 Victorian GPs were reachable via the involved PHNs through the local newsletters.

Results

Two GPs completed the audit and the follow-up evaluation. A total of 20 patients were reported and the results are shown in the following tables.

While all reported patients had a full blood count taken, other tests as described in the NBA PBM guidelines and by Minck et al. (2013) were less thoroughly completed. Only one patient (5 per cent) received complete preoperative testing according to the NBA PBM preoperative haemoglobin assessment and optimisation template (Table 1).

Table 1: Preoperative tests reported

Test type ¹	Number n = 20 (%)
Full blood count	20 (100%)
Iron studies	7 (35%)
Renal function	18 (90%)
C-reactive protein	2 (10%)
Complete preoperative testing	1 (5%)

Four patients' test results (20 per cent) indicated anaemia, with two of these being diagnosed (50 per cent) (Table 2) and two not diagnosed.

¹ It should be noted that while guidelines and algorithms such as NBA PBM Module 2 template are valuable tools to guide best practice, they must be interpreted in light of an individual patient's clinical circumstances.

Table 2: Anaemia status

Anaemia status ²	Number n = 20 (%)
Patient not anaemic	16 (80%)
Patient anaemic and diagnosed	2 (10%)
Patient anaemic, but not diagnosed	2 (10%)
Percentage of anaemic patients and reported as diagnosed	2 of 4 (50%)

Table 3 highlights the iron status of those patients tested. Thirteen patients (65 per cent) had no ferritin reported.

Table 3: Iron status

Iron status ³	Number n = 20 (%)
Patient not iron deficient	4 (20%)
Patient iron deficient and diagnosed	2 (10%)
Patient iron deficient, but not diagnosed	1 (5%)
Unknown due to no ferritin reported	13 (65%)
Percentage of iron deficient patients and reported as diagnosed	2 of 3 (67%)

Two patients were diagnosed as iron deficient, and both were reported to be managed according to guidelines, although they did not receive patient information (Table 4).

Table 4: Management of iron deficiency and patient information

Management	Number
Number of patients diagnosed with iron deficiency anaemia	2 (10%)
Percentage of iron deficiency anaemia only patients reported as managed according to guidelines	2 (100%)
Percentage of iron deficiency anaemia only patients reported as receiving written information	0 (0%)

On completion of the audit, a feedback report summarising overall results and alignment with the PBM Module 2 template, as well as links to Minck et al. (2013) article, were provided to each submitting GP. An example of the report is available in Appendix 5.

² It should be noted that while guidelines and algorithms such as NBA PBM Module 2 template are valuable tools to guide best practice, they must be interpreted in light of an individual patient's clinical circumstances.

³ It should be noted that guidelines and algorithms such as NBA PBM Module 2 template are valuable tools to guide best practice, however, it must be noted the importance of interpreting in the light of an individual patient's clinical circumstances.

GPs participating in the audit were also required to provide an evaluation of the activity (Table 5).

Table 5: Evaluation – feedback

	Not met	Partially met	Entirely met
Please rate the degree to which the audit’s learning outcomes were met			
<ul style="list-style-type: none"> Screen for iron deficiency with/without anaemia and in preoperative patients due to undergo major elective surgery 	1	1	
<ul style="list-style-type: none"> Evaluate and interpret FBC, iron studies and CRP to assess adequacy of iron stores in preoperative patients due to undergo major elective surgery 		1	1
<ul style="list-style-type: none"> Manage preoperative iron deficiency and anaemia in alignment with the ‘Preoperative haemoglobin assessment and optimisation template’ (as per <i>PBM guidelines module 2: perioperative</i>) 		1	1
Please rate the degree to which your personal learning needs were met		1	1
Please rate the degree to which this activity is relevant to your practice		1	1

One GP felt that they had become more aware of appropriate preoperative care for the patient and intends to communicate more with the surgeon involved.

Workshop

To round out the audit, we planned to run a workshop specifically for GPs on anaemia management in primary care. This workshop was planned for metropolitan Melbourne in October 2019, to be run by Lifeblood TPE unit (Appendix 6).

The TransfusEd workshop for GPs ‘Anaemia in primary care’ was promoted through Lifeblood communications and through Victorian PHN newsletters. The workshop had been accredited for 40 Category 1 points (activity 162212) and 12 Category 2 points (activity 162220) in the RACGP QI and CPD 2017–2019 triennium.

Unfortunately, the workshop was cancelled due to very low registrations.

Discussion

The very limited response from GPs indicates there is work to be done on improving the process in preparing patients for elective surgery by assessing and managing preoperative anaemia, where appropriate.

This was the first time Blood Matters had sought to work directly with GPs. The expertise of those with prior experience working as a GP and those currently active in GP education were involved to provide guidance to best implement the audit. Unfortunately, despite using GP communication channels and offering QI and CPD points, we were unable to engage the interest of GPs to participate in the audit or the workshop.

It is difficult to know at what point disengagement occurred. We are unable to determine the number of GPs who accessed and read the PHN newsletters, and if they did, whether the audit topic was perceived as low relevance to their practice.

The evaluation from the participating GPs was positive, and the audit increased their awareness of preoperative care, the importance of test follow up and communication with surgeons.

Between 2015 and 2017, the National Patient Blood Management Collaborative took place, and supported the development and trialling of strategies in clinical practice and health services to enhance PBM and the effective use of the NBA's *PBM guidelines*. It was expected that a collaboration between GPs and public and private hospitals would occur. Health services have reported on their achievements in engaging GPs (ACSQHC 2017), and it is somewhat unexpected that some of these GPs did not contribute to the audit to highlight their practice.

Due to the disappointing engagement, Blood Matters will work with the Blood Matters Advisory Committee and Lifeblood TPE unit to consider options of how to engage further with GPs.

References

Australian Commission of Safety and Quality in Health Care 2020, 'National Patient Blood Management Collaborative (the Collaborative)', <<https://www.safetyandquality.gov.au/national-priorities/pbm-collaborative/>>.

Australian Commission on Safety and Quality in Health Care 2017, *Resources for improved patient blood management*, ACSQHC, Sydney, <<https://www.safetyandquality.gov.au/sites/default/files/migrated/National-Patient-Blood-Management-Collaborative-NPBMC-Resource-Booklet-November-2017.pdf>>.

Froessler B, Rueger AM, Connolly MP 2018, 'Assessing the costs and benefits of perioperative iron deficiency anemia management with ferric carboxymaltose in Germany', *Risk Manag Healthc Policy*, vol. 11, pp. 77–82.

Kassebaum NJMD 2016, 'The global burden of anemia', *Hematology/Oncology Clinics of North America*, vol. 30, no. 2, pp. 247–308.

Kassebaum NJ, Jasrasaria R, Naghavi M, Wulf SK, Johns N, Lozano R, et al. 2014, 'A systematic analysis of global anemia burden from 1990 to 2010', *Blood*, vol. 123, no. 5, pp. 615–24.

Le Calvé S, Somme D, Prud'homme J and Corvol A 2017, 'Blood transfusion in elderly patients with chronic anemia: a qualitative analysis of the general practitioners' attitudes', *BMC Family Practice*, vol. 18, doi:10.1186/s12875-017-0647-8.

Marik PE, Corwin HL 2008, 'Efficacy of red blood cell transfusion in the critically ill: a systematic review of the literature', *Crit Care Med.*, vol. 36, no. 9, pp. 2667–74.

Minck S, Robinson K, Saxon B, Spigiel T, Thomson A 2013, 'Patient blood management – the GP's guide', *Aust Fam Physician*, vol. 42, pp. 291–7.

Nissenson AR, Wade S, Goodnough T, Knight K, Dubois RW 2005, 'Economic burden of anemia in an insured population', *J Manag Care Pharm.*, vol. 11, no. 7, pp. 565–74.

Riva E, Tettamanti M, Mosconi P, Apolone G, Gandini F, Nobili A, et al. 2009, 'Association of mild anemia with hospitalization and mortality in the elderly: the Health and Anemia population-based study', *Haematologica*, vol. 94, no. 1, pp. 22–8.

Appendix 1: Part 1: General practice audit of preoperative anaemia

Download the *audit document* <https://www2.health.vic.gov.au/hospitals-and-health-services/patient-care/speciality-diagnostics-therapeutics/blood-matters/~/.link.aspx?_id=E2BB7BBE5CD44961AB89F8F1D94E0D97&_z=z>.

Part 1: General practice audit of preoperative anaemia

Demographics and awareness of preoperative anaemia guidelines and patient information.

This audit has been accredited for 40 category 1 QI points in the RACGP QI&CPD 2017-2019 triennium. In order to qualify for points, GPs will be required to complete Parts 1 and 2 of the audit and the Evaluation and QI activity.

<i>First name:</i> *
<i>Surname:</i> *
<i>Email address:</i> *
<i>RACGP number:</i> *
<i>Postcode of primary place of practice:</i> *
<i>Qualifications of GP completing audit:</i> *
Please choose only one of the following: <ul style="list-style-type: none">- GP in-training- Fellow ACRRM/RACGP- Non-vocationally registered GP- Other
<i>Are you aware of any of the following guidelines in relation to preoperative anaemia screening and management?</i> *
Please choose all that apply: <ul style="list-style-type: none">- National Blood Authority Patient Blood Management Guidelines: Module 2 Perioperative- National Blood Authority Iron product choice and dose calculation guide for adults- NPS MedicineWise Fit for Surgery - Elective surgery patient blood management decision aid- General practice anaemia management pathways- HealthPathways - Iron deficiency anaemia- None of the above- Other: (specify)
<i>Are you aware of any of the following patient information material/handouts on anaemia, +/-iron deficiency?</i> *
Please choose all that apply: <ul style="list-style-type: none">- Australian Red Cross Blood Service patient information (for example, Iron deficiency anaemia patient information)- NPS MedicineWise – patient fact sheets (Managing my iron & Fit for surgery)- Gastroenterological Society of Australia and Digestive Health Foundation – Information about iron deficiency- John Murtagh Patient Education - iron supplement handout- None of the above- Other:

Thank you for completing this survey.

blood matters

Appendix 2: Part 2: General practice audit of preoperative anaemia

Download the *audit document* <https://www2.health.vic.gov.au/hospitals-and-health-services/patient-care/speciality-diagnostics-therapeutics/blood-matters/~link.aspx?_id=E2BB7BBE5CD44961AB89F8F1D94E0D97&_z=z>.

Part 2: General practice audit of preoperative anaemia

Clinical audit of ten (10) patients in your practice who you have referred for elective major surgery for which substantial blood loss is anticipated. (*blood volume loss great enough to induce anaemia that would require therapy.)

This audit has been accredited for 40 category 1 QI points in the RACGP QI&CPD 2017-2019 triennium. In order to qualify for points, GPs will be required to complete Parts 1 and 2 of the audit and the Evaluation and QI activity.

<i>RACGP number (required for QI&CPD point allocation): *</i>
<i>Patient audit number (audit number 1 - 10):</i>
<i>Age of patient: *</i>
<i>Gender of patient: *</i> Please choose only one of the following: - Female - Male
<i>Type of elective major surgery planned: *</i> Please choose only one of the following: - Orthopaedic - Vascular - Gynaecology - Gastro-enterology/abdominal - Cardiac - Other, specify
<i>What blood tests were taken within two months prior to/or at time of specialist referral: *</i> Please choose all that apply: - Full blood count (including haemoglobin) (provide result below) - Iron studies (including ferritin) (provide result below) - Urea and creatinine - C-reactive protein (provide result below) - None
<i>Provide haemoglobin result (g/L): *</i> <i>Provide ferritin result (mcg/L): *</i> <i>Provide CRP results (mg/L): *</i>

*Was the patient diagnosed with anaemia? **

Only answer this question if the following conditions are met:

----- Scenario 1 ----- Answer was 'Female' and Hb was less than '120'
----- or Scenario 2 ----- Answer was 'Male' and Hb was less than '130'

Please choose **only one** of the following:

- Yes
- No

*If diagnosed anaemic, was the cause of anaemia: **

Please choose **only one** of the following:

- Known
- Investigated/under investigation
- Not investigated

*Was the patient diagnosed with iron deficiency/inadequate iron stores? **

Only answer this question if the following conditions are met:

Answer was less than '100' at Provide ferritin result (mcg/L):

Please choose **only one** of the following:

- Yes
- Not excluded
- No
- Not documented

*If diagnosed iron deficient, was the cause of iron deficiency: **

Please choose **only one** of the following:

- Known
- Investigated/under investigation
- Not investigated

*If diagnosed anaemic and/or iron deficient, was the patient referred to/discussed with: **

Please choose **all** that apply:

- Gastro-enterologist
- Haematologist
- Gynaecologist
- Renal physician
- None of the above
- Other:

*Were gastro-intestinal investigations completed? **

Only answer this question if the following conditions are met:

(If diagnosed anaemic and/or iron deficient AND patient referred/discussed with gastro-enterologist)

Please choose **only one** of the following:

- Yes
- No

*If diagnosed with iron deficiency, was oral iron therapy commenced? **

Please choose **only one** of the following:

- Yes
- No

*What oral iron product was recommended? **

Please choose **all** that apply

- FERRO-LIQUID
- FEFOL® Iron and folate supplement
- Ferro-f-tab
- Ferro-tab
- FERRO-GRADUMET
- FERRO-GRAD C
- FGF
- Maltofer
- Maltofer Syrup
- Nothing specific
- Other:

*Was a dose recommended to the patient? **

Only answer this question if the following conditions are met:
(If diagnosed with iron deficiency AND oral iron therapy commenced)

Please choose **only one** of the following:

- Yes
- No

*Was duration of oral iron therapy recommended to the patient? **

Only answer this question if the following conditions are met:
(If diagnosed with iron deficiency AND oral iron therapy commenced)

Please choose **only one** of the following:

- Yes
- No

*Was oral therapy tolerated? **

Only answer this question if the following conditions are met:
(If diagnosed with iron deficiency AND oral iron therapy commenced)

Please choose **only one** of the following:

- Yes
- No
- Unknown

*Was the response to oral therapy assessed? **

Only answer this question if the following conditions are met:
(If diagnosed with iron deficiency AND oral iron therapy commenced)

Please choose **only one** of the following:

- Yes
- No
- Unknown

*Was IV iron therapy administered? **

Only answer this question if the following conditions are met:
(If diagnosed with iron deficiency)

Please choose **only one** of the following:

- Yes
- No

*Where was the IV iron therapy administered? **

Only answer this question if the following conditions are met:
(If IV iron therapy was administered)

Please choose **only one** of the following:

- In this practice
- In another primary care setting
- Referred to specialist
- Referred to hospital
- Other; (specify)

*IV iron indicated for this patient due to: **

Only answer this question if the following conditions are met:
(If IV iron therapy was administered)

Please choose **all that apply**:

- short time to non-deferrable surgery associated with substantial blood loss
- rapid iron repletion clinically important to prevent decompensation
- demonstrated intolerance to oral iron (despite modification of dose and frequency) or lack of efficacy to therapeutic doses
- demonstrated noncompliance with oral iron
- Other: (specify)

*Was the response to IV therapy assessed? **

Only answer this question if the following conditions are met:
(If IV iron therapy was administered)

Please choose **only one** of the following:

- Yes
- No
- Unknown

*Was dietary advice/information given to the patient? **

Only answer this question if the following conditions are met:
(The patient diagnosed with iron deficiency/inadequate iron stores)

Please choose **only one** of the following:

- Yes
- No

What other actions were taken to identify cause, manage, and/or correct deficiency? (add comment)

Only answer this question if the following conditions are met:
(The patient diagnosed with iron deficiency/inadequate iron stores)

*Were any patient information material/handouts given (anaemia/iron deficiency/iron therapy)? **

Only answer this question if the following conditions are met:
----- Scenario 1 ----- (The patient diagnosed with iron deficiency/inadequate iron stores)
----- or Scenario 2 ----- (The patient diagnosed with anaemia)

Please choose **only one** of the following:

- Yes
- No

Thank you for your response

Appendix 3: Data collection tool – General practice audit of preoperative anaemia

Download the *data collection tool* <<https://www2.health.vic.gov.au/hospitals-and-health-services/patient-care/speciality-diagnostics-therapeutics/blood-matters/transfusion-audits>>.

AUDIT number	1	2	3	4	5
Age of patient: (between 18 and 110)					
Gender of patient: (male or female)					
Elective surgery planned:					
- Orthopaedic					
- Gastro-enterology/abdominal					
- Vascular					
- Cardiac					
- Gynaecology					
- Other, specify					
Blood tests taken: (within 2 months of referral)					
- FBC (including hb)					
- Fe studies (incl ferritin)					
- Urea and creatinine					
- C-reactive protein					
- None – END AUDIT					
Provide haemoglobin result: (g/L)					
Provide ferritin result: (mcg/L)					
Provide CRP results: (mg/L)					
<i>If male and Hb less than 130 g/L OR If female and Hb less than 120 g/L, then Was the patient diagnosed with anaemia? (Y / N)</i>					
If yes, was the cause:					
- Known					
- Investigated/Under investigation					
- Not investigated					
<i>If ferritin result less than 100 mcg/L, then Was the patient diagnosed with iron deficiency/inadequate iron stores?</i>					
- Yes					
- No					
- Not documented					
- Not excluded					
If yes or not excluded, was the cause:					
- Known					
- Investigated/Under investigation					
- Not investigated					
<i>If patient not diagnosed with anaemia AND If patient not iron deficient END AUDIT</i>					



Appendix 4: General practice audit of preoperative anaemia evaluation and QI

GP audit of preoperative anaemia – evaluation and QI

Please rate the degree to which the audit's learning outcomes were met	Not met	Partially met	Entirely met
1. Screen for iron deficiency with/without anaemia and in preoperative patients due to undergo major elective surgery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Evaluate and interpret FBC, iron studies and CRP to assess adequacy of iron stores in preoperative patients due to undergo major elective surgery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Manage preoperative iron deficiency and anaemia in alignment with the Preoperative haemoglobin assessment and optimisation template (as per Patient Blood Management Guidelines Module 2 Preoperative)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Please rate the degree to which your personal learning were needs met	Not met <input type="checkbox"/>	Partially met <input type="checkbox"/>	Entirely met <input type="checkbox"/>
Please rate the degree to which this activity is relevant to your practice	Not relevant <input type="checkbox"/>	Partially relevant <input type="checkbox"/>	Entirely relevant <input type="checkbox"/>

What changes did you implement in your practice as a result of this activity?

How do you monitor these changes?

What evaluation process do you use to monitor these changes?

Thank you for your feedback.

Appendix 5: Example of results summary provided to reporting GPs

Blood Matters (2019 audit): General practice audit of preoperative anaemia

Below is a summary of audited patients and their anaemia and iron deficiency status (based on reported perioperative test results), diagnosed status and reported management

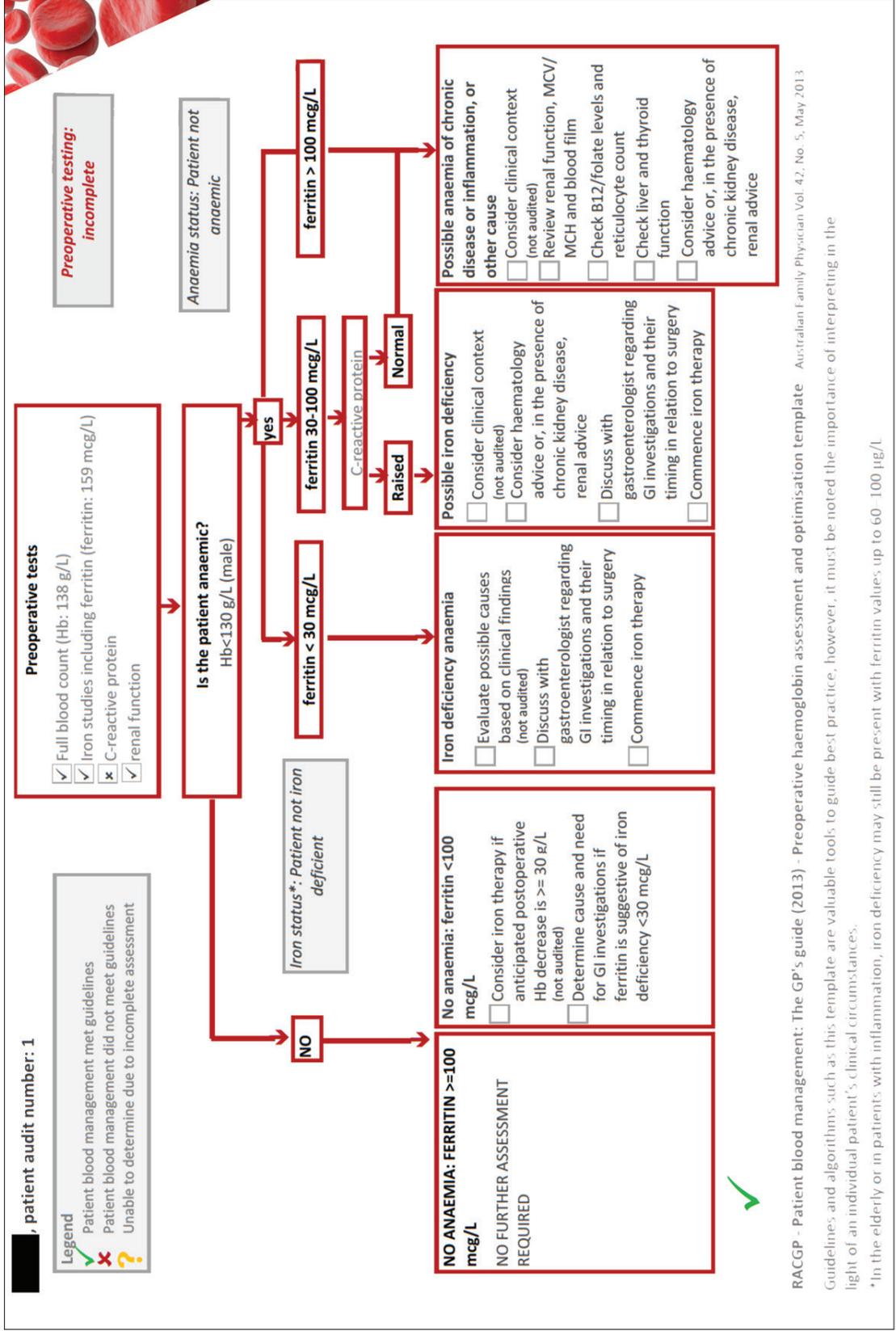
RACGP number	<input type="text" value="██████████"/>
Number of patient audits submitted	<input type="text" value="10"/>
Preoperative tests reported:	
Full blood count	<input type="text" value="10, 100%"/>
Iron studies	<input type="text" value="5, 50%"/>
Renal function	<input type="text" value="9, 90%"/>
C-reactive protein	<input type="text" value="1, 10%"/>
<i>Complete preoperative testing: (individual patient reported on all four tests)</i>	<input type="text" value="1, 10%"/>
Anaemia status:	
Patient not anaemic	<input type="text" value="8, 80%"/>
Patient anaemic and diagnosed	<input type="text" value="2, 20%"/>
Patient anaemic, but not diagnosed	<input type="text" value="0, 0%"/>
<i>Percentage of anaemic patients and reported as diagnosed</i>	<input type="text" value="100%"/>
Iron status:	
Patient not iron deficient	<input type="text" value="3, 30%"/>
Patient iron deficient and diagnosed	<input type="text" value="2, 20%"/>
Patient iron deficient, but not diagnosed	<input type="text" value="0, 0%"/>
Unknown due to no ferritin reported	<input type="text" value="5, 50%"/>
<i>Percentage of iron deficient patients and reported as diagnosed</i>	<input type="text" value="100%"/>
Management:	
Number of patients diagnosed as anaemic only	<input type="text" value="0"/>
<i>Percentage of anaemic only patients reported as managed according to guidelines</i>	<input type="text" value="na"/>
<i>Percentage of anaemic only patients reported as receiving written information</i>	<input type="text" value="na"/>
Number of patients diagnosed as iron deficient only	<input type="text" value="0"/>
<i>Percentage of iron deficient only patients reported as managed according to guidelines</i>	<input type="text" value="na"/>
<i>Percentage of iron deficient only patients reported as receiving written information</i>	<input type="text" value="na"/>
Number of patients diagnosed as iron deficient anaemia	<input type="text" value="2"/>
<i>Percentage of iron deficient anaemia only patients reported as managed according to guidelines</i>	<input type="text" value="100%"/>
<i>Percentage of iron deficient anaemia only patients reported as receiving written information</i>	<input type="text" value="0%"/>

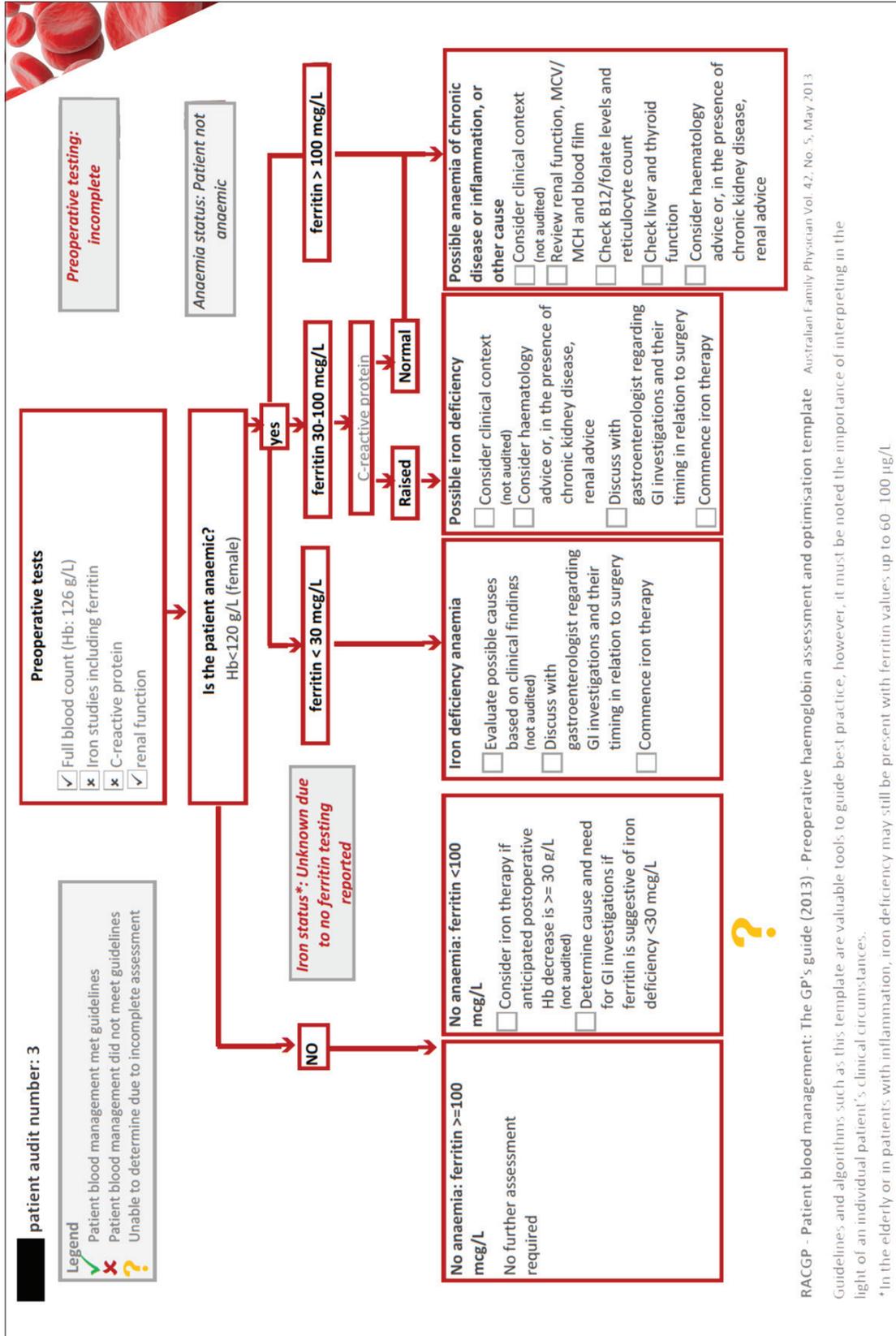
blood matters

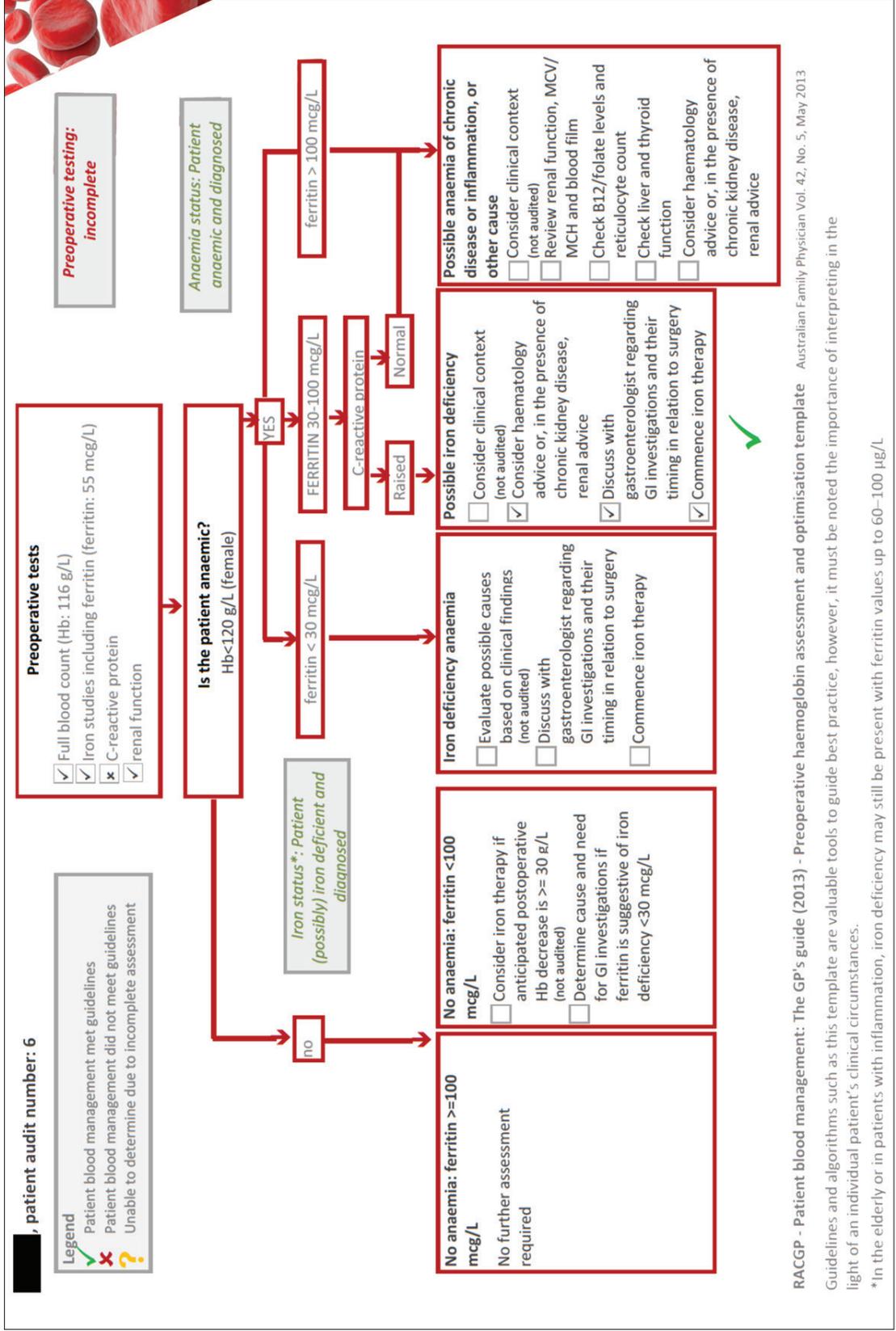












Appendix 6: TransfusEd workshop for GPs

TRANSFUSED Workshop for GPs

ANAEMIA IN PRIMARY CARE

Details

8.30 am to 4.30 pm, Saturday 12 October 2019

Jasper Hotel

489 Elizabeth Street, Melbourne VIC

Cost: \$150.00

Catering provided.

Registration

Register online at:

learn.transfusion.com.au > Events >
TransfusEd Workshop for GPs

Registrations close Monday 30 September.
Places are limited.

CPD points

This activity (162212) has been accredited for 40 Category 1 points in the RACGP QI&CPD 2017–2019 Triennium.

This activity (162220) has been accredited for 12 Category 2 points in the RACGP QI&CPD 2017–2019 Triennium.

Overview

This workshop aims to provide general practitioners and practice nurses with an update on anaemia and iron deficiency in primary care.

Participants will be provided with tools to enable them to:

- identify patients with iron deficiency and anaemia and determine underlying pathology
- interpret laboratory investigations to diagnose iron deficiency and anaemia
- apply the principles of prescribing and administering iron therapy in practice with a focus on patient blood management, and
- incorporate the use of practical tools such as algorithms for anaemia and patient handouts to guide treatment for iron deficiency and anaemia.

The workshop will be interactive with case studies, expert input, clinical tools and more.

Further information

Transfusion Learning

(08) 8112 1303

transfusionlearning@redcrossblood.org.au

 @transfusEd  /transfus_ed  transfusion.com.au/subscribe

To find out more visit transfusion.com.au



TRANSFUSED Workshop for GPs

ANAEMIA IN PRIMARY CARE

TIME	SESSION
8.30 am	Registration
8.45 am	Welcome and introduction Dr Sandy Minck, Medical Officer, Australian Red Cross Blood Service and Medical Education Lead, True Relationships and Reproductive Health
9.00 am	Infants and children: Nutritional iron deficiency and coeliac disease Dr Chris Barnes, Paediatric Haematologist, The Royal Children's Hospital, Melbourne
10.00 am	Premenopausal females: Heavy menstrual bleeding, antenatal iron deficiency and iron deficiency anaemia Dr Sandy Minck, Medical Officer, Australian Red Cross Blood Service and Medical Education Lead, True Relationships and Reproductive Health
11.00 am	MORNING TEA
11.30 am	Males and post-menopausal females: Iron deficiency, iron deficiency anaemia and the gastrointestinal system; and preoperative anaemia Dr Jeyanthi Kunadhasan, Anaesthetist, Ballarat Health Services
12.30 pm	Quiz and summary Dr Sandy Minck, Medical Officer, Australian Red Cross Blood Service and Medical Education Lead, True Relationships and Reproductive Health
1.00 pm	LUNCH
1.45 pm	Elderly and chronic conditions: Interpreting iron studies in chronic illness and the impact of iron deficiency in chronic heart failure Dr Lisa Clarke, Haematologist, Australian Red Cross Blood Service
2.45 pm	Intravenous iron: Requirements, barriers, solutions, protocols and procedures to setting up an IV iron clinic Dr Michael Jones, General Practitioner, Ballarat Group Practice at The Arch
3.45 pm	Quiz and summary Dr Lisa Clarke, Haematologist, Australian Red Cross Blood Service
4.15 pm	Close

 @transfusEd
  /transfus_ed
  transfusion.com.au/subscribe

To find out more visit transfusion.com.au



