

Patient Blood Management

Resource Guide
October 2018

PATIENT BLOOD MANAGEMENT GUIDELINES

Patient Blood Management improves patient outcomes by improving the patient's medical and surgical management in ways that boost and conserve the patient's own blood. As a consequence of better management, patients usually require fewer transfusions of donated blood components thus avoiding transfusion-associated complications.

To support the adoption of Patient Blood Management across Australia, governments sponsored the National Blood Authority to coordinate input from clinical experts across the blood sector to develop a set of contemporary evidence-based PBM Guidelines, approved by the National Health and Medical Research Council (NHMRC). The PBM Guidelines consist of six modules that provide recommendations in relation to best PBM clinical practice.

The PBM Guidelines have been divided into six modules for the following patient populations:

Module 1 – Critical Bleeding/Massive Transfusion

Module 2 – Perioperative

Module 3 – Medical

Module 4 – Critical Care

Module 5 – Obstetrics and Maternity

Module 6 – Neonatal and Paediatrics

Hard copies and electronic copies of each published module are available free of charge from the NBA website. A pocket sized 'Quick Reference Guide' is also published in these two formats.

Following the completion of the suite of modules, the NBA has turned its attention to maintaining the currency of the PBM Guidelines and is seeking to implement a more sustainable guideline model that will enable more frequent updates.

Currently, a review of the existing research questions is being conducted across Modules 2-6. Module 1 is excluded from this process because the update of Module 1 commenced in 2016 and will progress separately until the finalisation of the systematic review process. At that time, the development of clinical guidance will be considered in the context of the other modules.

The NBA has approached all relevant clinical colleges and societies for their advice during this process.

In a parallel process, the NBA is investigating alternative methodologies to update clinical practice guidelines.

While the review is underway, the original modules remain available on the NBA's website to guide practice.

SUPPORTING MATERIALS

To support the implementation of the PBM Guidelines, the NBA will facilitate activities and development of materials at a national level to support implementation at a health provider level. The approach will be to draw on existing best practice to develop a range of reference tools and collaboration mechanisms to enable health providers to examine their own practice and choose from the suite of tools for local customisation, branding and adoption where appropriate.

The National Patient Blood Management Implementation Strategy 2017-2021 takes a patient-centred approach intended to optimise clinical outcomes and improve patient safety.

This Strategy draws on the experiences and outcomes of the National Patient Blood Management Guidelines Implementation Strategy 2013-2017 and the National Blood Sector Education and Training Strategy 2013-2016.

Since the launch of the PBM Guidelines and accompanying implementation strategy, as well as the National Blood and Blood Product Wastage Reduction Strategy 2013-17 Australia has seen a significant reduction in the use of red blood cells. The implementation of the Standard (a dedicated hospital accreditation standard for Blood and Blood Products and the revised Blood Management Standard) has also contributed to this decline in the use of red blood cells.

The core element of the strategy is to collaboratively facilitate activities and development of materials at a national level that support implementation at a health service organisation level. The four main elements covered in the 2013-17 strategy have been updated to six and now include:

- Guidelines
- Tools and resources
- Education and Training
- Promotion and Communication
- Data
- Research and Development

For more information go to the <http://www.blood.gov.au/implementing-pbm>

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SUPPORTING MATERIALS

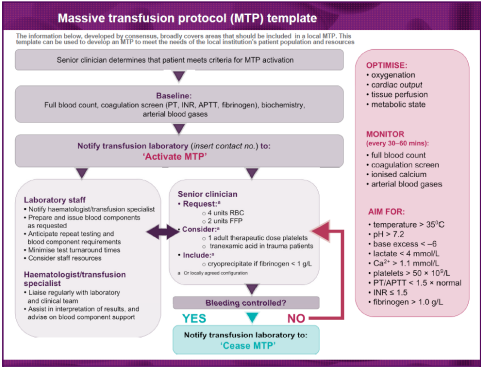
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PATIENT BLOOD MANAGEMENT MANAGEMENT GUIDELINES

MODULE 1: CRITICAL BLEEDING MASSIVE TRANSFUSION



Patient Blood Management
Guidelines: Module 1

**Critical
Bleeding
Massive
Transfusion**

This module provides two recommendations, 10 practice points to assist and guide health-care professionals in making clinical decisions when managing 'patients with critical bleeding requiring massive transfusion'. For this module, 'critical bleeding' has been defined as major haemorrhage that is life threatening and likely to result in the need for massive transfusion. In adults, 'massive transfusion' has been defined as a transfusion of half of one blood volume in 4 hours, or more than one blood volume in 24 hours.

The Module includes a 'Massive Transfusion Protocol (MTP)' template which can be locally adapted, (and/or modified for obstetric patients) and also provides advice on activation and cessation.

>Overview

- ◆ An MTP should be developed and used by a multidisciplinary team to coordinate the management of patients with, or at risk of, critical bleeding including the dose, timing and blood component therapy for use in trauma patients with, or at risk of critical bleeding requiring massive transfusion (Recommendation 1).
- ◆ There is a lack of evidence to support the routine use of recombinant activated factor VII (rFVIIa) in trauma patients with critical bleeding (Recommendation 2).
- ◆ In patients with critical bleeding requiring massive transfusion, the use of RBC and other blood components may be life-saving. However, transfusion of increased volumes of RBC and other blood components may be independently associated with increased mortality and acute respiratory distress syndrome (ARDS) (Practice Point 6).

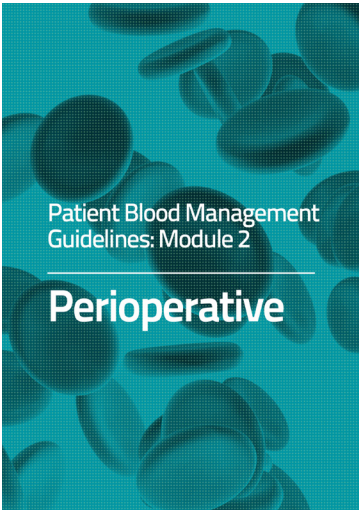
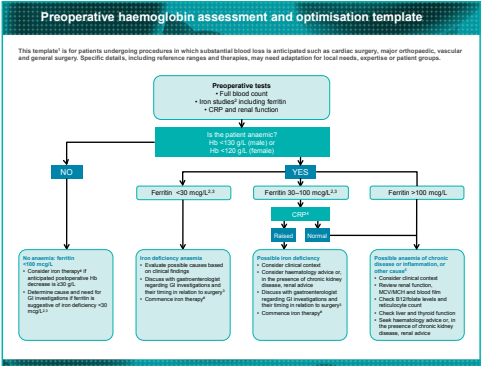
While the review of the PBM Guidelines is underway, the original modules remain available on the NBA's website to guide practice.

For more information visit www.blood.gov.au/pbm-module-1



PATIENT BLOOD MANAGEMENT GUIDELINES

MODULE 2: PERIOPERATIVE



Patient Blood Management
Guidelines: Module 2

Perioperative

This module provides 22 recommendations and 20 practice points to assist and guide health-care professionals in making clinical decisions when managing 'patients undergoing surgery or invasive procedures' including groups such as cardiac, non-cardiac and orthopaedic surgery.

The Module includes a 'Preoperative haemoglobin assessment and optimisation' template which is a tool that can be used prior to surgery to identify, diagnose and make treatment decisions for anaemia.

>Overview

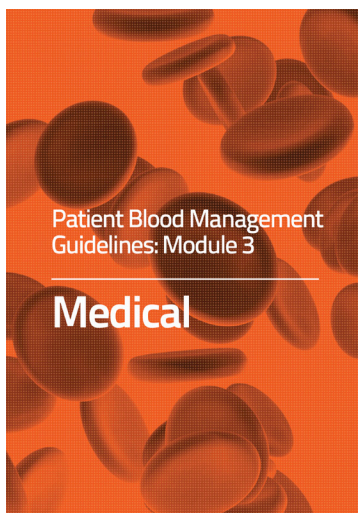
- ◆ Diagnosis and treatment of anaemia before surgery reduces risks and improves patient outcomes. A patients' own blood can be conserved through medical, pharmacological, anaesthetic and surgical strategies which can reduce the need for transfusion.
- ◆ Patients who are better prepared for surgery (such as with anaemia management and optimisation of coagulation status) have improved rates of recovery.
- ◆ Preoperative oral iron is recommended for patients with, or at risk of iron-deficiency anaemia (Recommendation 4).
- ◆ Health care services should establish a multidisciplinary, multimodal Patient Blood Management Program (Recommendation 1).

While the review of the PBM Guidelines is underway, the original modules remain available on the NBA's website to guide practice.



PATIENT BLOOD MANAGEMENT GUIDELINES

MODULE 3: MEDICAL



This module provides eight recommendations and 24 practice points to assist and guide health-care professionals in making clinical decisions when managing 'patients with acute or chronic medical conditions requiring haematological intervention' including groups such as acute coronary syndrome (ACS), heart failure, cancer, and upper gastrointestinal (GI) blood loss.

>Overview

- ◆ Anaemia is an independent risk factor for poorer patient outcomes. In medical patients, many factors can cause anaemia; where appropriate, reversible causes should be identified and treated.
- ◆ In patients with iron deficiency anaemia, iron therapy is required to replenish iron stores regardless of whether a transfusion is indicated (Practice Point 4).
- ◆ RBC transfusion should not be dictated by haemoglobin (Hb) concentration alone, but should also be based on assessment of the patient's clinical status (Practice Point 1).
- ◆ Where indicated, transfusion of a single unit of RBC, followed by clinical reassessment to determine the need for further transfusion, is appropriate (Practice Point 2).

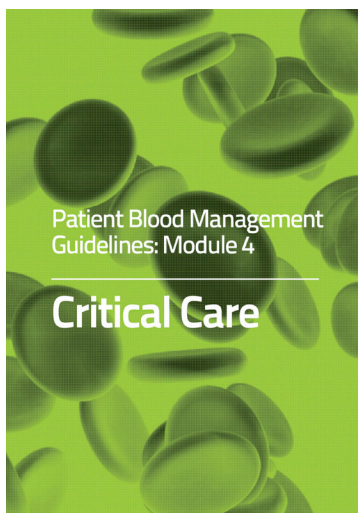
While the review of the PBM Guidelines is underway, the original modules remain available on the NBA's website to guide practice.

For more information visit www.blood.gov.au/pbm-module-3



PATIENT BLOOD MANAGEMENT GUIDELINES

MODULE 4: CRITICAL CARE



This module provides four recommendations and 15 practice points to assist and guide health-care professionals in making clinical decisions when managing 'patients requiring critical care' including groups such as acute coronary syndrome (ACS) cancer, renal, heart failure and the elderly.

>Overview

- ◆ A precautionary approach to the use of red cells using a restrictive transfusion strategy is preferred (Recommendation 1) because liberal transfusion may carry increased risk without delivering equivalent levels of improvements in patient outcomes.
- ◆ ESAs should not be routinely used in critically ill anaemic patients (Recommendation 2).
- ◆ In acutely bleeding critically ill trauma patients, TXA should be administered within three hours of injury, (Recommendation 3) and considered in patients with upper gastrointestinal (GI) bleeding (Recommendation 4).

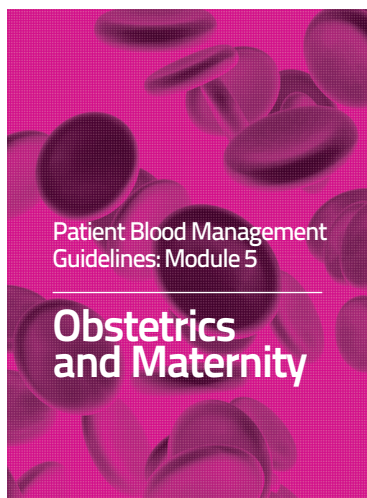
While the review of the PBM Guidelines is underway, the original modules remain available on the NBA's website to guide practice.

For more information visit www.blood.gov.au/pbm-module-4



PATIENT BLOOD MANAGEMENT GUIDELINES

MODULE 5: OBSTETRICS AND MATERNITY



This module provides four recommendations and 33 practice points to assist and guide health-care professionals in making clinical decisions when managing pregnant and postpartum women. For this module, maternity patients are defined as women who are pregnant or postpartum (within 6 weeks of the end of pregnancy), whereas the term pregnant women relates to the antenatal period.

>Overview

- ◆ In maternity patients who are not actively bleeding, RBC transfusion should not be dictated by a Hb concentration alone, but should also be based on assessment of the patient's clinical status (e.g. the risk of further haemorrhage). Most maternity patients are otherwise healthy and can generally tolerate moderate degrees of anaemia while medical therapies take effect (Practice Point 4).
- ◆ The administration of iron to pregnant women with iron deficiency anaemia is recommended; IV iron is preferred when rapid restoration of Hb and iron stores is required (Recommendation 2).
- ◆ In maternity patients, cell salvage should be considered if anticipated blood volume loss is likely to result in transfusion (Practice Point 23).
- ◆ It is strongly advised that maternity services develop an MTP that includes access to RBC and the dose, timing and ratio of blood component therapy, for use in maternity patients with critical bleeding requiring massive transfusion (Expert Opinion Point 8).

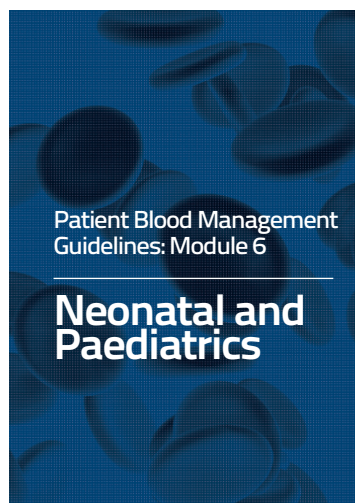
While the review of the PBM Guidelines is underway, the original modules remain available on the NBA's website to guide practice.

For more information visit www.blood.gov.au/pbm-module-5



PATIENT BLOOD MANAGEMENT GUIDELINES

MODULE 6: NEONATAL AND PAEDIATRICS



This Module provides 12 recommendations, 40 practice points and 38 expert opinion points to assist and guide health-care professionals in making clinical decisions when treating neonatal and paediatric patients, including pre-term and newborn babies, infants, children and adolescents.

The Module includes six appendixes intending to guide clinical practice, including a haemoglobin assessment and optimisation template (Appendix H) and the Critical Bleeding Protocol template (Appendix K). These appendixes are designed to be adapted locally to suit the patient population and health-care setting.

>Overview

- ◆ Transfusion should not be a default decision. Specific patient circumstances, preferences, and the full range of available therapies should be considered, balancing the evidence for efficacy and improved clinical outcome against the potential risks.
- ◆ In paediatric patients, including those who are critically ill, a restrictive transfusion strategy is suggested (Recommendation 1).
- ◆ In surgical paediatric patients with or at risk of iron deficiency anaemia, preoperative iron therapy is recommended. (Recommendation 5).
- ◆ In preterm infants with low birth weight (<2500 g), the routine use of ESAs is not advised. (Recommendation 3).
- ◆ Guidance on the use of antifibrinolytics in specific surgical settings is provided in Recommendations 9, 10 and 11.
- ◆ The expert Clinical/Consumer Reference Group suggests the use of a critical bleeding protocol in neonatal and paediatric patients with critical bleeding requiring massive transfusion (Practice Point 12). An adaptable protocol template is provided within the module at Appendix K.

While the review of the PBM Guidelines is underway, the original modules remain available on the NBA's website to guide practice.



SUPPORTING MATERIALS

PATIENT BLOOD MANAGEMENT GUIDELINES: COMPANIONS



The PBM Guidelines: Companions are a series of short information sheets on PBM topics relating to pharmaceutical, perioperative, medical and transfusion practices and management approaches referred to in the PBM guideline. The PBM Guidelines: Companions will help health care professionals to gain an appreciation of the various approaches that can be used to better manage an individual patient's circulating blood.

>Overview ♦ The companions

- » provide supporting information aimed at improving knowledge and understanding of the guidelines and how they can be used to achieve better patient care and outcomes. If transfusion is clinically indicated, details of risks and benefits to support this process are also outlined in this document.
- » are set out with a PBM strategy or technique as a separate topic, generally one to two pages short. Each topic starts with key messages, followed by clinical implications, then the detailed information and links to resources.
- » include a great summary of the PBM modules recommendations and practice points.
- » are available as separated chapters to download.

For more information visit

www.blood.gov.au/patient-blood-management-guidelines-companions



SUPPORTING MATERIALS

SINGLE UNIT TRANSFUSION GUIDE SUMMARY

WILL BE REVIEWED IN 2019

Single Unit Blood Transfusion

Only **ONE unit of blood** should be ordered if the inpatient does not have clinically significant bleeding

Each unit transfused is an independent clinical decision

Second unit can be requested after patient has been assessed and remains symptomatic

Indications for a second unit:

- Active blood loss
- Ongoing symptoms of anaemia

For more information on patient blood management visit www.blood.gov.au/pbm-guidelines to access the latest guidelines.



The National Blood Authority (NBA) has developed a guide to single unit transfusion based on the national Patient Blood Management Guidelines. The guide describes reasons why single unit transfusion is beneficial to patients and includes resources to assist with its implementation.

>Overview

- ◆ The single unit transfusion guide and accompanying resources have been designed with the intention that they can easily be adapted to accommodate the local policies and practice of individual hospitals. They are available as generic baseline material to download, alter, and adapt as applicable to their local requirements.
- ◆ Implementation of a single unit transfusion guideline by health providers is encouraged as a patient quality improvement measure, but is not mandatory.
- ◆ The aim of this initiative is to assist local champions to implement a single unit transfusion guideline in their hospital setting.

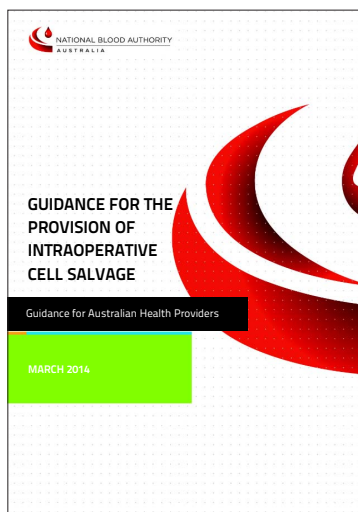
For more information visit www.blood.gov.au/single-unit-transfusion



SUPPORTING MATERIALS

GUIDANCE FOR THE PROVISION OF INTRAOPERATIVE CELL SALVAGE

WILL BE REVIEWED IN 2019



Guidance for the Provision of Intraoperative Cell Salvage is intended to inform health-care practitioners, health educators, health service managers and policy makers about Intraoperative Cell Salvage (ICS) use for patients undergoing surgery or invasive procedures, particularly those in which blood loss is anticipated. It is aimed at supporting hospitals to develop and implement an intraoperative cell salvage program.

> Overview

- ◆ The Guidance aims to improve clinical practice and patient outcomes through alignment with the Patient Blood Management (PBM) Guidelines.
- ◆ The intraoperative collection and re-infusion of the patient's own red blood cells provides an important contribution to reducing the demand for allogeneic blood. However, it is only one aspect of a strategic approach to safe and appropriate transfusion practice.
- ◆ The guidance document and accompanying resources in the appendixes, such as patient education materials, business case study and education competency workbook have been designed with the intention that they can easily be adapted to accommodate the local policies and practice of individual hospitals. They are available as generic baseline material to download, alter, and adapt as applicable to their local requirements.

For more information visit www.blood.gov.au/ics



SUPPORTING MATERIALS

SMALL VOLUME TUBES AT FLINDERS MEDICAL CENTRE, SA CASE STUDY



This case study illustrates efforts undertaken by clinical staff at Flinders Medical Centre to reduce patient blood loss and iatrogenic anaemia by implementing the use of small volume blood collection tubes (SVT) in the intensive care unit.

> Overview

- ◆ The study was implemented within the ICU at FMC as the long-stay patients in ICU were the most at risk of iatrogenic hospital acquired anaemia.
- ◆ Pre-implementation modelling and subsequent data analysis showed an overall reduction of approximately 40% of blood collected for pathology testing using the SVTs.
- ◆ The implementation of SVTs at FMC has led to a variety of successes including:
- ◆ Improved patient outcomes
 - » Reduced blood loss due to sampling
 - » Reduced risk of iatrogenic anaemia
 - » Reduced risk of red blood cell transfusion
- ◆ Reduction in discard volume
- ◆ Decreased cost (associated with red blood cell transfusion)
- ◆ A trend toward reduction in length of stay in ICU
- ◆ No additional costs and reliable and accurate results

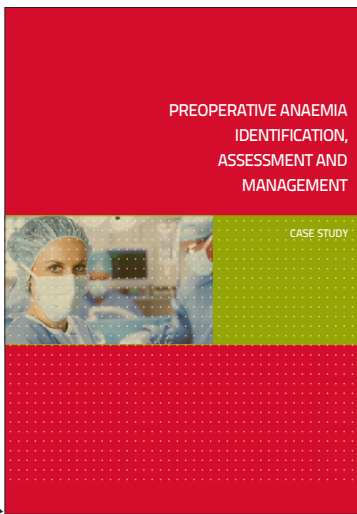
For more information visit

<https://www.blood.gov.au/small-volume-tubes-flinders-medical-centre-sa>



SUPPORTING MATERIALS

PREOPERATIVE ANAEMIA CASE STUDY



The preoperative anaemia identification, assessment and management case study is intended to inform healthcare practitioners, health educators, health service managers and policy makers about preoperative anaemia screening. This resource provides a wealth of ideas and links to help hospitals use clinical practice improvement methods to implement an anaemia screening clinic based on evidence-based recommendations in the Patient Blood Management Guidelines: Module 2 – Perioperative.

> Overview

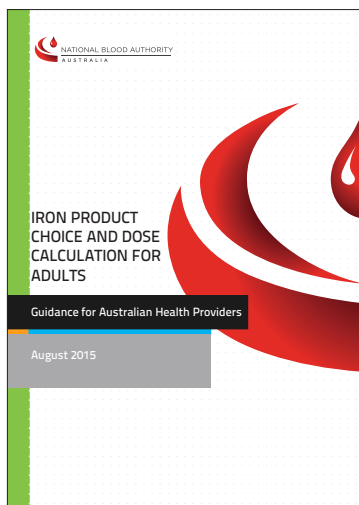
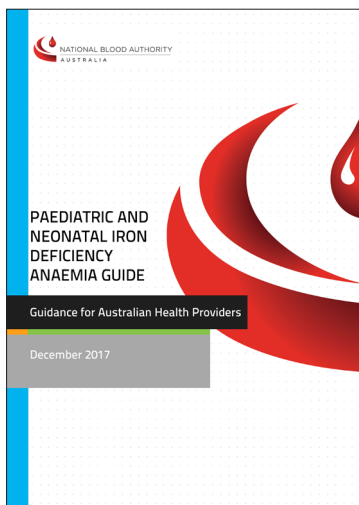
- ◆ The case study of preoperative iron deficiency anaemia is presented to demonstrate how a hospital has implemented anaemia management strategies outlined in the National Patient Blood Management Guidelines: Module 2 – Perioperative.
- ◆ The pathway illustrated was developed by the hospital using clinical practice improvement methodology (CPI). Use of CPI methodology is recommended for successful implementation to suit local processes and available resources and expertise.
- ◆ Whilst the case study illustrates a number of potential strategies, implementation of preoperative anaemia management may vary significantly across hospitals, between patient groups and with the urgency of the surgery.

For more information visit
www.blood.gov.au/preoperative-anaemia-identification-assessment-and-management-case-study



SUPPORTING MATERIALS

IRON DEFICIENCY ANAEMIA TREATMENT GUIDES



The Iron deficiency anaemia treatment guides have been developed to assist clinicians determine the appropriate formulation and dosage of iron replacement therapy for both adult and paediatric populations.

> Overview

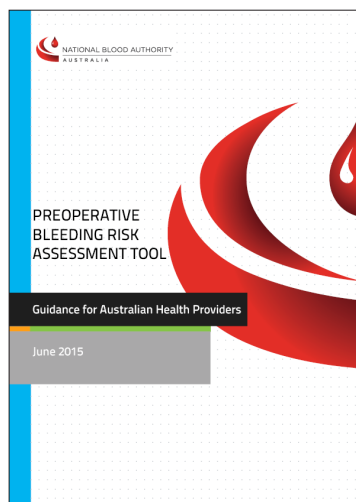
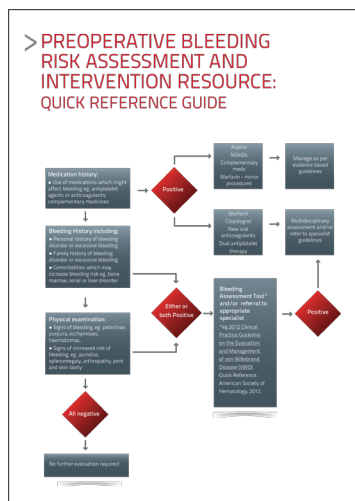
- ◆ These guides give practical advice on the choice and route of administration for replacement iron products and how to calculate the correct dose.
- ◆ The appendixes contain tables comparing, oral preparations, Intravenous iron preparations and further information resources for treatment of iron deficiency anaemia (IDA) in Australia.
- ◆ A Paediatric and Neonatal Iron deficiency anaemia guide is now available. This guide has been developed to assist clinicians determine the appropriate formulation and dosage for addressing Paediatric and Neonatal Iron Deficiency Anaemia (IDA). The information contained in this guide has been sourced from Patient Blood Management Guidelines: Module 6 Neonatal and Paediatrics – Background question 5 and Appendix I.



For more information visit
www.blood.gov.au/iron-product-choice-and-dose-calculation-guide-adults

SUPPORTING MATERIALS

PREOPERATIVE BLEEDING RISK ASSESSMENT AND INTERVENTION RESOURCE



Preoperative bleeding risk assessment and intervention resource is intended to assist healthcare professionals in assessing and managing the risk of bleeding in a preoperative patient. Assessment of bleeding risk is a key component of patient blood management strategies to minimise blood loss. Patients may be at increased risk of bleeding for a number of reasons, including hereditary or acquired bleeding disorders, medical conditions such as liver disease, and medications including complementary medicines.

>Overview

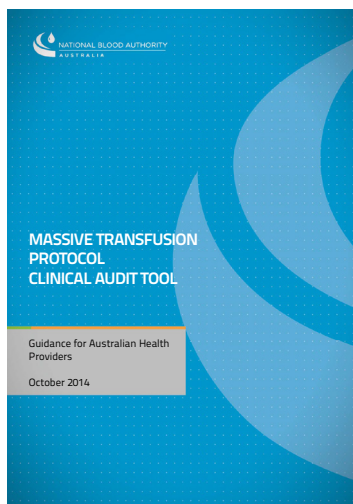
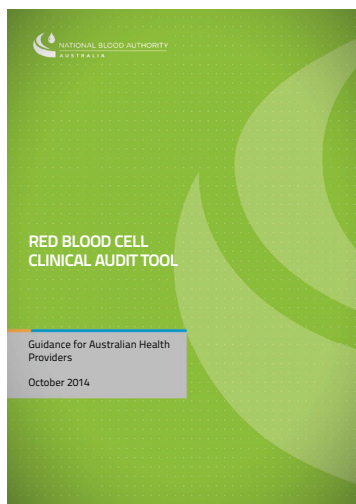
- ◆ The evaluation of bleeding symptoms is a well-recognised challenge for both patients and physicians because the reporting and interpretation of bleeding symptoms is subjective. Mild bleeding events are commonly reported by patients both with and without inherited bleeding disorders. As a result, bleeding assessment tools (BATs) have been developed and studied in a variety of clinical settings in an attempt to standardise and quantify bleeding symptoms.
- ◆ The preoperative bleeding risk assessment and intervention resource contains:
 - » a flowchart for assessing preoperative bleeding risk
 - » advice on medication assessment
 - » application of available bleeding assessment tools
 - » links to additional resources.

For more information visit
www.blood.gov.au/preoperative-bleeding-risk-assessment-and-intervention-resource



SUPPORTING MATERIALS

CLINICAL AUDIT TOOLS



The Massive Transfusion Protocol Clinical Audit tool and Red Blood Cell Clinical Audit tool are standards-based audits that can assist in identifying gaps and measuring current practice against best available evidence, in a continuous quality cycle. The purpose of the audit tools is to improve patient outcomes by collecting data to develop a knowledge base of current activities. The audit tools have been designed to be user-friendly documents which focus on key quality elements of transfusion safety, whilst eliminating the need for collection of copious amounts of data that may serve of little value to improving patient outcomes.

> Overview

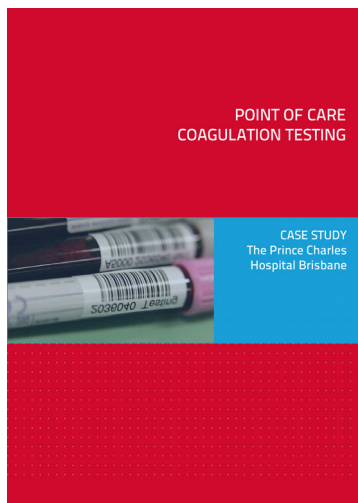
- ◆ The Audit methods cover
 - » Patient Selection
 - » Data collection
 - » Data analysis
 - » Recommendations/actions
 - » Evaluation
 - » Feedback
- ◆ It is intended that the RBC / MTP Audit tools can be easily adapted to accommodate the local policies and practice of individual hospitals. They are available as generic baseline material to download, alter and adapt as applicable to local requirements.
- ◆ The Audit Tool has two parts:
 1. The Audit Tool
 2. The Audit Tool Database.
- ◆ Download both files and save them in the same location before conducting audits. Please be advised that the tool has been developed using Microsoft® Excel 2010 and the macros may not work if other versions of this software are used.

For more information visit www.blood.gov.au/implementing-pbm



SUPPORTING MATERIALS

POINT OF CARE COAGULATION TESTING CASE STUDY



This case study illustrates an example of a hospital that has implemented a Bleeding Management Treatment Protocol supported by Point of Care Coagulation Testing (POCCT) to detect, manage and monitor critical bleeding in cardiac surgery patients. It demonstrates the systems and tools used to assist with implementation within the cardiac surgery population based on available evidence, developing local expertise and resources.

> Overview

- ◆ Improved patient outcomes were the core objective of implementing bleeding management supported by POCCT as part of The Prince Charles Hospital's wider PBM program. Patient Blood Management improves patient outcomes by improving the patient's medical and surgical management in ways that boost and conserve the patient's own blood. Using a structured bleeding management protocol supported by POCCT demonstrated fewer patients required transfusions of donated blood components thus avoiding transfusion associated complications.

"We really must change transfusion medicine practice, there is no other alternative and there is a sense of urgency. This change will be from a product focus to a patient focus, and this is what we are referring to as patient blood management."

PROFESSOR JAMES ISBISTER

For more information visit www.blood.gov.au/patient-blood-management



SUPPORTING MATERIALS

NATIONAL BLOOD AUTHORITY YOU TUBE CHANNEL



The National Blood Authority YouTube channel is an online space to view informative videos such as educational tools and NBA events .

>Overview

The NBA YouTube channel includes the following videos:

- ◆ Blood, Still Saving Lives - Highlights the benefits and risks of red blood cell transfusion
- ◆ Small Volume tubes at Flinders Medical Centre,SA
- ◆ Launch of My ABDR - Launch of the patient interface, MyABDR into the Australian Bleeding Disorders Registry
- ◆ National Blood Symposium - September 2013
- ◆ Blood Inventory Management Case Studies
BloodMove | Hunter Area Pathology Service | Pathology Queensland | SAN Pathology
- ◆ Australian Patient Blood Management Guidelines Launch - Launch of PBM Guidelines Modules 1-3
- ◆ Iron Deficiency: Treatment in General Practice - A series of eight videos on iron deficiency treatment in primary care

If you have any suggestions for content please contact support@blood.gov.au

To subscribe to the National Blood Authority YouTube channel visit
<http://www.youtube.com/user/bloodauthorityau>



SUPPORTING MATERIALS



FIT FOR SURGERY FIT FOR LIFE

About 1 in 10 people in Australia have low iron levels also called iron deficiency

3 in 10 people having elective surgery have low iron or anaemia - this puts you at a much higher risk of transfusion

CAUSES OF ANAEMIA

Chronic disease

Blood loss

Dietary deficiency (iron, B12)

Gastrointestinal problems

You need iron to make haemoglobin. Haemoglobin carries oxygen from your lungs to your body

If left untreated low iron levels and anaemia can:

- delay your surgery
- increase your chance of needing a blood transfusion
- increase your chance of complications
- slow down your recovery after surgery

Having anaemia before you go in for surgery puts you at a higher risk of needing a blood transfusion.

Blood is a precious commodity and should not be used lightly. A blood transfusion is an organ transplant and comes with inherent risks.

RESOURCES AVAILABLE INCLUDE

More information and to download resources visit: www.blood.gov.au

Anaemia management in primary care contributes to better patient outcomes.

> Overview Anaemia Management

- ◆ NPS MedicineWise and the National Blood Authority have collaborated to develop a set of tools and resources to support health professionals. The tools being developed are designed to support General Practitioners in the management of anaemia in primary care. These tools include practical advice for patients on anaemia treatment including the risks and alternative therapies to blood transfusion, as well as advice and decision tools for GPs regarding the preparation of patients for surgery where blood loss is anticipated, and anaemia has been identified as a modifiable risk factor.
- ◆ The tools include:
 - ◆ My Iron Plan
 - ◆ Patient information leaflets
 - ◆ Managing my iron
 - ◆ Fit for surgery
 - ◆ Blood Transfusions
 - ◆ GP decision aid
 - ◆ Fit for surgery: fit for life
 - ◆ Patient referral letter



EDUCATION AND TRAINING

BloodSafe
E LEARNING AUSTRALIA



BloodSafe eLearning Australia provides online education and training resources for health professionals in Australia. The program provides knowledge of patient blood management and clinical transfusion practice that can be applied in the clinical setting to improve patient outcomes.

BloodSafe eLearning Australia receives joint national funding provided by the National Blood Authority, on behalf of all Australian Governments, to enable free access by all users.

> Overview

The program is used by more than 1500 hospitals, universities and other organisations, and has more than 500,000 registered learners who have completed more than one million courses.

All courses are based on published guidelines, evidence-based practice and expert opinion, and provide up to date information for health professionals. Courses and resources available include:

- ◆ Transfusion Practice: Clinical Transfusion Practice; Clinical Transfusion Practice Refresher; Collecting Blood Specimens; Transporting Blood.
- ◆ PBM General: Introduction to Patient Blood Management; Iron-Deficiency Anaemia; Viscoelastic Coagulation Testing.
- ◆ PBM Acute Care and Surgical: Critical Bleeding; Critical Care; Perioperative.
- ◆ PBM Medical and Specialties: PBM for Medical Patients; Cancer; Cardiac; Chronic Kidney Disease; Chronic Transfusion; Gastrointestinal.
- ◆ PBM Obstetrics and Maternity: Obstetric Haematology; Obstetric Blood Management; Postpartum Haemorrhage.
- ◆ PBM Paediatrics and Neonatal: PBM for Neonates and Paediatrics; Haematology/ Oncology; Neonatal Preterm; FNAIT; Surgical; Major Haemorrhage; Iron Deficiency Anaemia.
- ◆ Other resources: IDA mobile app; IV iron tools; video resources; promotional tools.

For more information visit www.bloodsafelearning.org.au





NATIONAL BLOOD AUTHORITY
AUSTRALIA