

1. PATIENT BLOOD MANAGEMENT

Patient Blood Management (PBM) is the timely application of evidence-based medical and surgical concepts designed to maintain haemoglobin concentration, optimise haemostasis and minimise blood loss in an effort to improve patient outcomes.¹

Key messages

- PBM focuses on effective management and conservation of a patient's own blood rather than being reliant on donor blood.²
- Strategies and techniques can be beneficial for all patient groups and clinical scenarios as outlined in the six modules (Obstetrics and Paediatric/ Neonates yet to be released).
- PBM is based on three principles commonly referred to as the three pillars:
 - ♦ optimising the patient's own blood elements including red cell mass
 - ♦ minimising the patient's blood loss and bleeding
 - ♦ optimising the tolerance of anaemia.³
- Use of PBM strategies and techniques has been associated with improved patient outcomes, patient satisfaction and healthcare costs savings.⁴

Clinical implications

- PBM incorporates proactive treatment regimens which are tailored to suit individual patients integrating a multidisciplinary team approach.
- PBM requires early identification and intervention for patients at high risk for transfusion.
- Techniques may involve the use of pharmaceutical agents and medical devices which reduce the need for allogeneic blood transfusion.

Background

PBM is a key area of focus for both the Australian and international healthcare sector. Significant work is being undertaken to further refine and review the appropriateness and indications for transfusion. Locally the National Blood Authority has funded and managed the development of six patient focused evidence-based, PBM Guidelines:

- Critical Bleeding Massive Transfusion
- Perioperative
- Medical
- Critical Care
- Obstetrics and Maternity
- Paediatric/Neonatal

An increasing focus on PBM has been driven by a number of factors:

- the risks associated with blood transfusion - with increasing evidence of higher risk of morbidity and mortality and increased length of stay;
- rising costs, both direct and indirect, associated with provision and transfusion of allogeneic blood;
- challenges of maintaining an adequate blood supply in the face of increased demand due to an ageing population.⁴

The “three pillars” concept arose from the results of the Austrian Benchmark Study of blood use in adult patients undergoing elective surgery, which showed that >90% of transfusions in this group of patients were attributable to 3 main predictors.⁵ Table 1 highlights the relationship between the predictors of red blood cell transfusion and the three pillars of patient blood management.²

Table 1 Relationship between the predictors of red blood cell transfusion and the three pillars of patient blood management²

Predictors for red blood cell transfusions	Pillars of PBM
Prevalence of preoperative anaemia	Optimisation of blood volume and red cell mass
Perioperative blood loss	Minimisation of blood loss
Failure to adopt a more restrictive threshold for transfusion	Optimisation of the patient’s tolerance of anaemia

Whilst originally based on a surgical population, this concept is relevant to all patient groups and clinical scenarios, with the ultimate goal of improving patient outcomes. Considering the promising benefits of PBM strategies for patients and the healthcare system, it is hoped that PBM is increasingly viewed and adopted as a standard of care for all patients who may be at risk of being transfused at any time during their care.⁶

References

1. Society for the Advancement of Blood Management. [Professional definition Patient Blood Management.](#)
2. Minck S, Robinson K, Saxon B, Spigiel T, Thomson A. [Patient Blood Management the GP’s guide.](#) Australian Family Physician Volume 42, No.5, May 2013 Pages 291-297
3. National Blood Authority. [Patient Blood Management Guidelines: Module 2 Perioperative.](#) Australia, 2012.
4. Thomson A, Farmer S, Hofmann A, Isbister J, Shander A. [Patient Blood Management - a new paradigm for transfusion medicine?](#) ISBT Science Series 2009;4:423-435.
5. Gombotz H, Rehak R, Shander A, Hofmann A. [Blood use in elective surgery: the Austrian benchmark study.](#) Transfusion 2007;47:1468-1480.
6. Shander, A, Javidroozi, M, Perelman, S, Puzio, T and Lobel G. [From Bloodless Surgery to Patient Blood Management.](#) Mount Sinai Journal of Medicine 2012;79:56-65.

Additional resources

- National Blood Authority. [Patient Blood Management Guidelines and Quick Reference Guides.](#)