Handout of Information

Single Unit Transfusion Guideline - Supporting Material

This information has been adapted from the Single Unit Transfusion Guideline developed by the National Blood Authority, Australia. It is intended for use by all clinicians responsible for prescribing blood transfusion to stable normovolaemic patients who are not actively bleeding and not in an operating theatre.

The Single Unit Transfusion Guideline, based on a restrictive transfusion threshold, is part of Patient Blood Management (PBM); an evidence-based patient centred strategy to improve safety by minimising blood transfusions.

In line with the Patient Blood Management Guidelines: “Where indicated, transfusion of a single unit of RBC, followed by clinical reassessment to determine the need for further transfusion, is appropriate. This reassessment will also guide the decision on whether to retest the Hb level”. Ensure haemoglobin levels are aligned with the Patient Blood Management Guidelines.

If the patient is symptomatic, and Hb is consistent with the Patient Blood Management Guidelines, then transfuse 1 unit, and reassess patient for clinical symptoms of anaemia before transfusing further units. It may take more than 24 hours for patients to report an improvement in symptoms after a transfusion.

Minimise risks of transfusion by restricting the number of units where possible, as evidence suggests transfusion risks are dose dependant. While blood is very safe from known infectious agents, other risks including transfusion related circulatory overload (TACO), transfusion related acute lung injury (TRALI) and immune modulation are more common than previously thought.

Practice evidence based transfusion, by assessing the patient and symptoms, together with haemoglobin, rather than transfusion based on habit, or tradition.

If one unit of blood adequately improved the symptoms, then no further transfusion should occur.

Modern health systems need to change transfusion practice for the following reasons:

- Current practice does not always align with current evidence based recommendations.
- The Patient Blood Management Guidelines (Module 2 - Perioperative; Module 3 - Medical and Module 4 - Critical Care) support restrictive transfusion and a single unit strategy.
- The National Safety and Quality Health Service Standards (Standard 7: Blood and Blood Products) require blood and blood product policies and procedures to be consistent with national evidence based guidelines for pre-transfusion practices, prescribing and clinical use of blood and blood products. The single-unit guideline complies with sections 7.1.1, 7.1.3, 7.2.2 and 7.4.1. 
- Single unit transfusions are safe in stable, normovolaemic patients who are not actively bleeding or in an operating theatre and reduce transfusion associated morbidity and mortality.
• If one unit has achieved the stated outcome for the transfusion, for example improvement in haemoglobin or symptoms, further units will only increase the risks without adding benefit.

• Transfusion is a live tissue transplant. Risks associated with transfusion are dose dependent.\textsuperscript{12,13}

• A two unit transfusion increases the risk of nosocomial infection and other long term morbidities.\textsuperscript{12,13}

• Transfusion Associated Circulatory Overload (TACO) is among the high risks, estimated at 1 in 100 per unit transfused.\textsuperscript{2–4,}

• Historically, two unit red blood cell transfusions were normal practice. Single unit transfusions remain only a small proportion of all transfusion.

• In addition to exposing patients to increased risk without commensurate benefit to patient outcome, red blood cell transfusion also poses on-going challenges in balancing supply and demand due to the increasing age of the population: demand for blood will increase but the available donor pool will decrease. Although blood is extremely safe from the currently known infectious agents, the potential threat from as yet unknown, or re-emerging pathogens deserves cautious consideration.\textsuperscript{5}

• Patient Blood Management has been shown to be more effective than “appropriateness” in pre-empting the need for blood components, reducing over-all use and improving patient outcomes.

• Emerging evidence reveals that transfusion is an independent risk factor for adverse outcomes including increased morbidity, mortality and hospital length of stay.\textsuperscript{6}

• There is a lack of evidence for the benefit of transfusion in the non-bleeding patient.\textsuperscript{6}

• The Single Unit Transfusion Guideline and restrictive transfusion will align with Health Service’s Strategic Plans, Organisational Values, Vision and Mission statements.

**Implementation and Resources:**

With approval from Hospital Executive management, health services should involve Quality and/or Clinical Governance staff to recruit clinical champions or staff to assist promotion, education and implementation of the single-unit transfusion guideline.

Staff will need to be identified to provide education and promotion. Transfusion nurse specialists, hospital educators or equivalent may already be available.

Identify an appropriate current patient safety committee or create a Transfusion Governance Committee / Patient Blood Management Committee to promote and provide a conduit for patient blood management through local meetings, policy and procedures. This committee can co-ordinate data collection and analysis, report outcomes, address problems or issues arising and centralise feedback.

Extensive education of medical, nursing and laboratory staff will be required, through broad-based forums such as Grand Rounds, as well as specialty group/ divisional meetings, seminars, and education days. The local website or intranet, local internal magazines (printed and electronic), training manuals and regular communication tools should be utilised. Posters and handouts and may also be used. The National Blood Authority provides tools; printed and electronic education material for display and presentations. The catch-phrase "Be SINGLE minded" is suggested.
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Patient information should be made available in all patient accessible areas; pre-operative and other clinics, outpatient and emergency areas, treatment rooms and public access websites.

Empower nursing and laboratory staff to monitor prescription and requests for blood, by providing support from senior champions / haematologists. Access to the guideline, suggested questions to pose if challenging a request, and access to educational material to support challenges will assist with guiding compliance to the guideline.

Changes to programs may be required where computerised physician order entry of transfusion requests is utilised.

**Monitoring and Reporting Data:**
Data collection can include simple measures such as a log of requests submitted that do not fall within the guideline criteria, and manual audits of transfusion episodes in patient medical records.

Electronic data may be available, such as the number of units ordered daily from the Blood Service, (BloodNet statistics) or if available from the IT system, the number of units transfused, the number of patients transfused, and the number of units transfused per patient. Comparing time periods pre and post-implementation of the guideline should be informative.

Results may be reported through the Transfusion Governance Committee / Patient Blood Management Committee, quality committees, to clinical governance and executive meetings, and to each medical specialty / division where transfusion is practised. Feedback to Laboratory and nursing groups is encouraged.

Data can be benchmarked within departments, local hospital groups, across area health networks, and nationally / internationally if desired.
References:


Bibliography: *List provided on separate page, to use with handout, or only on request.

- Carson JL et al. (2012). Transfusion thresholds and other strategies for guiding allogeneic red blood cell transfusion – Cochrane Review. Cochrane Database of Systematic Reviews 2012: Issue4
- The British Committee for Standards in Haematology (BCSH) (2012). Guidelines on the Administration of Blood Components. Addendum to Administration of Blood Components,
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- St Michael’s Hospital, Toronto Canada. Website, “Newsroom, Our Stories”. “St Michael’s to create centre for Patient blood management.” 2012, September 13. [www.stmichaelshospital.com/media](http://www.stmichaelshospital.com/media)