



TRANSFUSION MEDICINE PROTOCOLS

**Equipment and Administration Guidelines
 for Blood Products**

This document should be read in conjunction with the [Disclaimer](#)

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Standard precautions

Standard precautions must be used when administering/disposing of blood products (including gloves and eye protection). Refer to Infection Control Policy, Aseptic technique for administering intravenous infusions.

Premedication

Any premedication prescribed for the patient should be administered at a suitable time before the infusion commences to allow for effectiveness.

Venous access

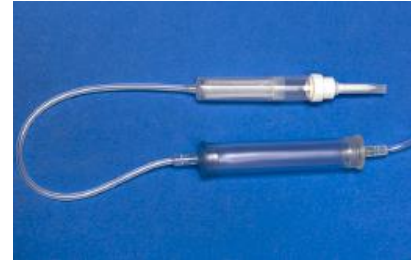
Peripheral intravenous access should be sufficient to maintain an adequate rate for the transfusion without risk of haemolysis. 18-20 Gauge is recommended for adults and 22-24 Gauge or larger is recommended for paediatric patients.

Blood administration sets

Fresh Blood components (red cells, platelets, fresh frozen plasma and cryoprecipitate) MUST be transfused using an 170-200 micron filter, to remove small clots and debris.



Blood Administration Set (B Line)



Blood Administration Set (Gravity)

- When blood components are being administered by syringe to neonates, the blood must be drawn into the syringe via an approved blood filter (170-200 micron).
- Platelets must be transfused through a dedicated fresh (unused) blood administration set, as red cell debris may trap the platelets.
- Albumex and Intravenous Immunoglobulins can be administered through a standard IV line or a filtered blood 'giving set' (170-200 micron).
- Blood Transfusion sets must not be 'piggy backed' into other lines.
- Flushing blood lines with a small amount of 0.9% Sodium Chloride solution between red cell packs is not evidence based and may be unnecessary (however it may be required to maintain IV access if the next red cell pack is not readily available).
- The administration set can generally be used for 2-4 packs of red cells providing the flow rate remains adequate. In an emergency or theatre setting a maximum of 8-10 packs may be infused provided flow is adequate and the line is changed every 12 hours.
- Change blood administration set at least every 12 hours if continuing to transfuse, OR with new IV fluids, platelets or on completion of transfusion whichever comes first.

Leucocyte depletion filters

All red cells and platelets issued by the Australian Red Cross Blood Service are leucocyte depleted. Therefore additional bedside leucocyte depletion filters are NOT required.

Pumps

Red cells, platelets, fresh frozen and cryoprecipitate may be administered by Gravity or Plum A+ Pump using a blood administration set (with 170-200 micron filter). The approved tender electronic infusion pumps have been verified as safe to use for this purpose according to the manufacturer's instructions. The pressure setting must never exceed 300mm/Hg.

The checking procedure prior to spiking and handing the blood must include a check of the device and settings as well as patient identity and blood product checks.

⚠ WARNING Stem Cell and Granulocyte preparations are exceptions to this rule and MUST be infused via gravity.

Syringe drivers

For neonates and infants, paediatric giving sets or filters for administration by syringe may be used provided they incorporate a 170-200 micron filter.

The use of syringe drivers presents problems of sterility and storage. When blood is removed from a primary pack the risk of mislabelling and patient identification is increased. As an alternative, the use of T-taps allows continuous attachment of the syringe to the primary pack. Syringe configurations should ensure that blood components pass through a 170-200 micron blood filter. They should be single use only and have luer-lock connections. The syringe MUST have a label attached having identical donor/patient information as the original pack from which the product was drawn and showing the date and time of preparation and expiry date and time.

External pressure devices

External pressure devices make it possible to administer blood very quickly. These should only be used in an emergency situation and with a large gauge venous access needle. It should exert pressure evenly over the entire bag and must never exceed 300 mmHg of pressure.

Blood warming devices

The routine warming of blood is NOT necessary.

A blood warmer is indicated for:

- Large volume rapid transfusions or >50 mL/kg/hour in adults or >15 mL/kg/hour in children.
- Exchange transfusions.
- Patients with clinically significant cold agglutinins.
- The requirement to use a blood warmer must be indicated in the clinician's prescription.

When blood warming is clinically indicated, a specifically designed commercial device must be used with a visible thermometer and audible alarm that ensures that the blood is not warmed above 41°C. Blood warmers must be monitored and

validated and undergo regular 12 monthly maintenance. They are extremely dangerous if they malfunction. If the temperature exceeds 41°C, discontinue the infusion and inform Transfusion Medicine Unit immediately. The operating temperature of the blood warmer must be recorded in the patient's medical record.

WARNING Blood products **MUST NOT** be warmed by any other method. Blood warmers are available in Theatres, ASCU, Special Care Nursery and MFM.

Medication and blood products

WARNING Medication must **NOT** be added to the blood pack or blood administration set prior to, or during the transfusion. Medications may interact with the anticoagulant, additive solutions, or the blood component contained in the bag. A break in integrity of the infusion line may also increase the risk of bacterial contamination of the component.

If medication needs to be given:

- Use another lumen of a multi-lumen central venous access device if available.
- Or if medications administered intermittently:
- Stop the transfusion.
- Flush the line with normal saline using the injection port closest to the patient. Ensure the line is clamped above the injection port.
- Administer the medication.
- Flush the line again with normal saline, unclamp the line.
- Restart the transfusion.
- Ensure that this manoeuvre does not result in the transfusion exceeding four hours.
- The line should not be physically disconnected and reconnected mid transfusion.

The following medication exceptions have been shown not to adversely affect red cells:

- Co administration of morphine, pethidine or ketamine diluted ONLY in 0.9% Sodium Chloride for patient controlled analgesia or continuous side arm infusion, incorporating a non-reflux valve.

Intravenous fluids and blood products

Compatible intravenous fluids

- 0.9% Sodium Chloride.
- Albumin 4%.
- Plasma protein fractions or ABO compatible plasma.
- The current formulation of GELOFUSIONE® (available in Australia).

Incompatible intravenous fluids

- Electrolyte and colloid solutions containing any calcium e.g. Haemaccel, Hartman's solution or Lactated Ringer's solution. These solutions must not be administered with blood components collected in an anticoagulant containing citrate as they may cause clotting in the infusion line.
- 5% glucose in water or hypotonic sodium solutions may cause red cells to haemolyse.

Completing the transfusion

- If there is any suspicion of a transfusion reaction the Transfusion Medicine Unit must be informed of the clinical details and the product must be returned. Refer to [Transfusion Reactions and Adverse Events Management and Reporting](#).
- Empty blood component bags/bottles should be discarded according to the hospital policy for disposing of clinical waste. There is no requirement to return used bags to the Transfusion Medicine Unit unless a suspected transfusion reaction has occurred, or in a massive transfusion situation where additional testing on the blood component bags may be required.
- Ensure documentation is complete.

Documentation

The following must be documented in the medical record:

- Indication for blood product transfusion.
- Consent for blood product.
- Blood product prescription.
- The bag sticker should be placed on the Transfusion Medicine Record sheet MR735 and the start and stop times and checking signatures should be completed in the relevant boxes.
- Patient's observations, general condition during the transfusion and adverse effects and their management.
- Volume administered.
- Any equipment used (e.g. pumps/blood warming devices including operating temperatures). Outcome of the transfusion in terms of desired effect.

References

- Australian & New Zealand Society of Blood Transfusion (ANZSBT) & Royal College of Nursing Australia (RCNA) Guidelines for the Administration of Blood Products 2nd Edition, December 2011
<http://www.anzsbt.org.au/publications/index.cfm#societyg>
- ANZSBT Guidelines for Pretransfusion Testing, 4th Edition, ANZSBT, 2007
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- British Committee for Standards in Haematology, Blood Transfusion Task Force. The Administration of blood and blood components and the management of transfused patients. Transfusion Medicine; 1999. 9: 227-238.
- Blood Transfusion: crucial steps in maintaining safe practice. BNJ; 2000. 9(3): 135-138. Bradbury, M Cruickshank, J.
- Australian Red Cross Blood Service – Blood products and transfusion practice for health professionals. <http://www.transfusion.com.au/>
- Flippin' Blood BloodSafe SA / ARCBS Second Edition June 2012
<http://resources.transfusion.com.au/cdm/ref/collection/p16691coll1/id/20>





Related policies

- National Safety and Quality Health Service Standards, October 2012. [Standard 7: Blood and Blood Products](#)

Related WNHS policies, procedures and guidelines

- [WNHS Transfusion Medicine Blood Product Prescription Consent and Refusal](#)
- [Women & Newborn Health Service Patient Identification Policy](#)
- [WNHS Checking Procedure Pre Administration of Blood Products](#)
- [WNHS Transfusion Reactions and Adverse Events Management and Reporting](#)
- [WNHS Pre Transfusion Testing Adults and Neonates](#)
- [Neonatology Clinical Care Guidelines](#)
- [Obstetrics and Gynaecology Clinical Guidelines](#)

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