

Manual:	Clinical Policies and Procedures	Ref. No.:	S21.6
Section:	IV Therapy	Issue Date:	August 2004
Subject:	BLOOD AND BLOOD PRODUCT TRANSFUSION	Previous Issue Date:	January, 2003
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## PURPOSE AND SCOPE

To facilitate the safe administration of blood and blood products to patients at Melbourne Health.

## POLICY

- Transfusion checking procedures must be performed by two qualified staff (either 2 Division 1 Registered Nurses or 1 Division 1 Registered Nurse and 1 medical officer or 2 M.O.'s ) prior to transfusion of each unit of blood.
- A medical officer's clearly written order must be written on the intravenous order/Blood Product Prescription form prior to commencing transfusion for blood products and concurrent flushes.
- Transfusion, and the indication for it, shall be documented in the patient's progress notes. Transfusion being administered in special clinical settings (eg Operating Theatre, Emergency Department) may be documented on the specific records used by those areas.
- The two people checking the blood product must check the blood **DIRECTLY TO THE PATIENT AT THE BEDSIDE** to ensure the correct patient receives the correct blood product.
- In the event of a ( <16 years), or any patient weighing less than 40 kg, it is mandatory to administer blood through a pump with readings recorded for the transfusion.
- In general, all blood products not being used immediately should be returned to blood bank. Blood products, with the exception of platelets must only be stored in an approved blood refrigerator. Platelets shall be stored between 20-24 degrees C with continuous agitation.
- Blood Products transferred to MECRS must be transported in an approved container via taxi and delivered directly to reception (Building 17). Reception telephones Ward 3A staff who arrange for it to be picked up and stored in the blood fridge, signing the blood in and out as required. Ward 3A staff are responsible for notifying the appropriate ward.
- Blood products must be returned to the hospital blood bank if:
  - unit exceeds the expiry date.
  - cross-match has expired (only valid for 3 days/72 hours)
  - there are any discrepancies noted in the checking procedure.
  - transfusion reaction occurs.
  - blood is frozen.
  - blood appears haemolysed.
  - blood product is leaking.
  - unrefrigerated for more than 30 minutes prior to commencing transfusion.
  - there are any other uncertainties.
- No DRUGS may be added to or co-infused through a single line/lumen with blood products.
- Many patients requiring red cell or platelet transfusions require transfusion through leukodepletion filters and / or irradiated blood products or CMV Negative blood products. These requirements should be checked.
- Patients receiving blood products should be observed throughout the transfusion. Temperature, Pulse, Respirations and Blood Pressure (T,P,R,BP) **MUST** be recorded for all patients receiving FRESH blood products as follows:

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- prior to commencing transfusion
- 15 minutes post commencement of each unit of blood / blood component
- at completion off each transfusion episode

(See appendix for hospital policy regarding specific observations for Intragam P/ Albumin)

- Further observations are required if patient becomes unwell or shows signs of reaction.
- Intravenous giving sets should be changed at least after every 2<sup>nd</sup> unit of red blood cells transfused and at the completion of the transfusion.
- A minimum of 50 mls of sodium chloride 0.9% is to be given as a line flush prior to the line being changed. If a leukocyte filter has been used then remove filter prior to flush or if using an Add-a-line' then ensure flush is added below the leukocyte filter.
- Only in emergencies may a registered nurse use a pressure cuff to administer blood and then only under the direct supervision and instruction of a medical officer.
- Blood does not usually need to be warmed before transfusion. If indicated, blood should be warmed using a specific blood warmer. **UNDER NO CIRCUMSTANCES** should blood or blood products be warmed by immersion in hot water or placed in microwave ovens. Blood should only be transfused with a combined warmer/rapid infusion device under the direction of an ED physician, ICU specialist, Anaesthetist or Haematologist.
- For clarification of instruction regarding blood/ blood products contact the Haematology Registrar on call or the Transfusion Nurse on 0414 877 836.

#### Checking Procedure for the Administration of blood products:

	<ul style="list-style-type: none"> <li>• Identified and confirmed patient's name and DOB verbally if patient responsive</li> </ul>
	<ul style="list-style-type: none"> <li>• Identified patient's name, date of birth, &amp; UR on wristband, Blood Bank Issue form - INV / H &amp; blood product and all were correct.</li> </ul>
	<ul style="list-style-type: none"> <li>• Checked blood group on ARCBS label and on patient label on the product &amp; verified against Blood Bank Issue form – INV / H. and all were correct.</li> </ul>
	<ul style="list-style-type: none"> <li>• Checked donation number on both ARCBS label and patient label on the product and verified against Blood Bank Issue form – INV / H and all were correct</li> </ul>
	<ul style="list-style-type: none"> <li>• Expiry date of product checked and was within dates.</li> </ul>
	<ul style="list-style-type: none"> <li>• Checked patient was asked to report feeling unwell immediately to nursing staff</li> </ul>
<b>Pack integrity</b>	<ul style="list-style-type: none"> <li>• Check the integrity of the blood pack and the contents for the presence of foreign bodies, coagulation or discolouration. If any said irregularities exist DO NOT GIVE PRODUCT, return to Blood Bank.</li> </ul>
<b>Transfusion form</b>	<ul style="list-style-type: none"> <li>• The transfusion report form must be signed by both the staff checking the blood product only after the above procedure has been completed, all checks are satisfactory, and the transfusion has commenced.</li> </ul>

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### Potential Transfusion Reactions

Symptoms	Possible Type Of Reaction	Action
1. Chills, unexpected fever (> 38 or > 1.5° from baseline) nausea / vomiting, headache.	For 1 or 2 of these 4 listed symptoms Febrile Non-Haemolytic Transfusion Reaction	<i>Slow transfusion.</i> <b>Observe patient more frequently for signs</b> of increasing or decreasing symptoms. Stop infusion and report to medical officer if concerned.
2. Chills, unexpected fever (>38 or > 1.5 from baseline) nausea/vomiting, headache.	For 3 or 4 out of these 4 listed symptoms Septic/ Bacterial contamination	<b>Stop</b> transfusion, maintain IV access, vital signs Seek <u>urgent</u> medical advice, MO may advise continuation of product after visual / physical examination of patient Return product bag to Blood Bank for culture. <b>Document in medical history,</b>
3. Localised hives, rash, flushing, wheeze, hypotension	Allergic	<b>Stop</b> transfusion, maintain IV access, vital signs seek medical advice. Document in medical history.
4. Chills, fever, back pain, ooze from IV site, pain at insertion site, hypotension, haemoglobinuria, patient has feeling of impending doom	Anaphylactic ABO incompatibility / Haemolytic reaction	<b>Immediate action</b> <b>Stop</b> transfusion, maintain IV access, vital signs, seek medical advice <b>URGENTLY</b> Return blood bag to Blood Bank with specimens Collected from patient & this form Notify Haematology registrar Document in medical history.
5. Dyspnoea, productive cough, pink frothy sputum, hypertension, headache.	Fluid Overload Transfusion Related Acute Lung Injury [TRALI]	Sit patient upright, administer oxygen therapy, Seek medical advice, monitor vital signs, <b>Stop</b> transfusion Maintain IV line with n/saline Document in medical history

For all transfusion reactions (except fluid overload) complete a Transfusion Reaction form with details of the reaction observed and of blood given. Send to the Hospital Blood Bank as soon as possible with:

- all packs of blood (used, partly used and not used) for culture
- 10 ml of patient's blood in a plain Clear top tube ( no Gel )and 7.5 ml of blood in a Mauve EDTA tube
- freshly collected sample of urine
- new request slip for cross matching if more blood is urgently required for the patient
- if patient is consistently febrile, perform blood cultures

### KEY PERFORMANCE INDICATORS

The KPI is formulated by the MH Blood Transfusion Committee in conjunction with the MH Clinical Risk Management Committee. The Transfusion related KPI is :

' The Rate of Significant Transfusion Error be < 5 per 100 transfusion request episodes.'

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Significant Transfusion Error = Serious cross-match sample/request form patient identification errors and the number of requests lacking a stated clinical indication for the test/transfusion.

#### **FURTHER INFORMATION**

NH&MRC Transfusion Guidelines 2001

British Committee for Standards in Haematology, Blood Transfusion Task Force 1999, 'The administration of blood and blood components and the management of transfused patients' *Transfusion Medicine*, 9, 227-238.

Blood Transfusion Nurse

Consultant Haematologist

Blood Transfusion Committee

Transfusion Medicine Registrar

"Blood and its products" - A practical guide to handling and usage" published by the Australian Red Cross Blood Service and widely available throughout the Hospital.

#### **Approver**

Director Hospital Blood Bank/Transfusion Medicine Specialist Haematologist

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### Appendix 1: Blood Product Administration

Blood Product	Filter/ Line Required	Adjuvant Interventions To Be Considered	Adverse Reactions	Management Of Adverse Reactions.
<b>Packed red cells</b>	<p>Blood/ solution infusion set with in-line filter, for gravity feed, e.g. Baxter FNC1118 or Braun Sangofix ES.</p> <p>IMED line - Alaris 2477 with in-line filter</p> <p>If required, add a leukocyte filter (PALL RC2VE) for:</p> <ol style="list-style-type: none"> <li>History of severe blood reactions</li> <li>Organ, marrow or PBSC transplant patients</li> <li>Cytomegalovirus (CMV) negative patient if product is CMV positive</li> </ol>	<p>Frusemide may be ordered between / post transfusion of units</p> <p>Irradiated blood products to prevent TA- GVHD</p>	<p>Circulatory overload</p> <p>Haemolytic transfusion reactions</p> <p>Febrile reactions</p> <p>Allergic reactions</p> <p>Transfusion Related Acute Lung Injury (TRALI)</p> <p>Bacterial/septic reactions</p>	<p>Contact RMO for patient review &amp; fluid assessment – Frusemide</p> <p>Refer to blood transfusion reaction protocol below / page 4</p>
<b>Platelets</b>	<p>Blood/ solution infusion set with in-line filter e.g. Baxter FNC1118 or Braun Sangofix ES.</p> <p>No added Leukocyte filter required as Victorian platelets are filtered at ARCBS. Check label on product.</p> <p>If platelets from interstate and leukocyte filter also required, use Immugard III leukodepleting filter for platelets.</p>	<p>1g paracetamol 1 hour pre transfusion for history of mild reactions</p> <p>IV Hydrocortisone 100mg given ½ -1 hour pre transfusion if history of moderate-severe reactions</p> <p>Antihistamines- IV Phenergan 12.5- 25 mg pre transfusion</p> <p>Irradiated blood products to prevent TA- GVHD</p>	<p>Chills, Rigor, fever &amp; allergic reactions</p> <p>Rigor, fever, bacterial/septic reactions</p>	<p>Stop infusion and notify RMO</p> <p>Apply heat packs/ blankets</p> <p>If rigor persists administer IVPethidine 25mg stat .</p> <p>Urticaria- phenergan 12.5mg IV</p> <p>Bronchospasm- B agonist</p> <p>Anaphylaxis- adrenaline</p>

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Blood Product	Filter/ Line Required	Adjuvant Interventions To Be Considered	Adverse Reactions	Management Of Adverse Reactions.
<b>Fresh Frozen Plasma</b>	Blood/ solution infusion set with in-line filter e.g. Baxter FNC1125, FNC 1118 or Braun Sangofix ES.  IMED line - Alaris 2477 with in-line filter		Urticaria, rash, fever, rigor, allergic reaction	Stop infusion and notify RMO  May need phenergan and/or Hydrocortisone
<b>Albumex</b>	Blood/ solution infusion set with in-line filter e.g. Baxter FNC 1118, 1125 or Braun Sangofix ES.  IMED line - Alaris 2477 with in-line filter	Furosemide may be given to achieve desired diuresis post infusion	Rapid infusions of albumin may cause side effects including flushing, urticaria, chills, fever, headache & circulatory overload	Slow or stop infusion  Notify RMO fluid assessment may be required.
<b>Cryoprecipitate</b>	Blood/ solution infusion set with in-line filter e.g. Baxter FNC 1118, 1125 or Braun Sangofix ES.	Cryoprecipitate is to be infused As per FFP ! Not reconstituted !!!	Chills, fever, headache, flushing tingling	
<b>Intragam P</b>	Blood/ solution infusion set with in-line filter e.g. Baxter FNC1118 or Braun Sangofix ES.  IMED line - Alaris 2477 with in-line filter	Perform U&E to check renal function pre transfusion  Prehydration if patient is at risk of renal complications  Administer through a large high flowing vein  Ensure emergency supply of adrenaline, hydrocortisone, phenergan & airway are at the bed side	Anaphylaxis  Hypotension  Aseptic Meningitis Syndrome  Renal Failure  Bronchospasm  Abdo. Pain, headache, nausea, skin rash, phlebitis	<b>Infusion rate</b> <b>1ml/min for 15 mins then increase to 4ml/ min</b>  <b>1/4 hourly cardiovascular &amp; respiratory for the first hour and then hourly</b>  Cease or slow infusion if symptoms occur –most symptoms are directly related to the rate of infusion

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<p><b>Granulocytes</b></p> <p><b>Bonemarrow</b></p> <p><b>Peripheral blood stem cells</b></p> <p><b>Donor Lymphocytes</b></p>	<p>Filterless line (Baldwin- Platelet &amp; Leucocyte set)</p>	<p>ABO incompatible transfusions pre-med – IV hydrocortisone 100mg ½- 1 hour prior to infusion</p> <p>Cryopreserved cells to be thawed at 37o C by BMT senior medical officer.</p> <p>If volume of cryopreserved cells &gt; 150 mls pre med with IV Phenergan 25- 50 mg prior to infusion.</p>	<p>Chest tightness, chills, fever, rash, chest pain, dyspnoea, nausea, palpitations, abdominal discomfort, facial flushing, hypotension.</p>	<p>Most symptoms are related to the rate of infusion or the amount of Cryopreservative agent infused- treat symptoms</p> <p>Respiratory support</p> <p>Management of anaphylaxis</p> <p><b>During &amp; after the infusion of cells a urine output of 3L/ 24hr must be maintained- hydration may be required.</b></p>
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