

Policy Applies to:

All Clinical staff at Mercy Hospital involved with the management, prescribing or administration of blood or blood products.

Related Standards:

- Refrigeration Guidelines, Requirements for the Storage of Blood and Blood Products (2017)
- EQulP Standard 1.5: The organisation provides safe care and services. *Criterion 1.5.5 The system to manage sample collection, blood, blood products and patient blood management ensures safe and appropriate practice*
- ANZSBT Guidelines
- NZBS Guidelines

Rationale:

Ensure that blood and blood products are prescribed, obtained, stored and administered in a safe and effective manner in line with the New Zealand Blood Service requirements.

Definitions:

Blood Transfusion- refers to the intravenous administration of blood components or blood products

Fractionated Blood Products -This is the term used for plasma derived fractionated blood products and equivalent recombinant products. They are manufactured in a highly regulated environment. Products are frequently upgraded with the incorporation of new safety or purification steps e.g. Albumex

Abbreviations;

NZBS - New Zealand Blood Service

Objectives:

- To ensure that the patient has understood the risks, benefits, and any alternatives, and has provided written consent prior to the procedure of transfusion of blood components and/or fractionated products.
- To ensure that blood is transported and stored in a manner that meets all safety requirements
- To ensure the right patient is identified using the correct procedure
- To ensure the right blood component / fractionated product is issued to the right patient
- To ensure documentation requirements are met.

Implementation:

- IV certification
- Clinical orientation

The Registered Nurse, the Credentialed Specialist, and Registered anaesthetic support staff are responsible for administering, observing, and documenting the transfusion of blood components/fractionated product.

All clinical staff involved with the transfusion of blood components/fractionated product must have validated skills and expertise to provide clinical care in a safe and appropriate manner. For Registered Nurses and Anaesthetic Technicians validation occurs through IV certification.

To ensure safety and best outcome, all Mercy Hospital staff authorised to administer blood components and blood products must follow the policy, process and guidelines related to blood components or products.

Mercy Hospital staff and Credentialed Specialists will use this policy and process in addition to the information available on SharePoint through the NZBS Clinical Data Resource website and the NZBS Clinical Compendium website to ensure currency of both practice and information.

Evaluation:

- Incident forms
- Daily Blood Fridge Temperature & Visual Check form (Nov 2015)
- Weekly review of temperature graph disk
- Monthly Blood Fridge Alarm Checks
- 6 monthly Internal audit of the completion of the *Mercy Blood Component /Product Issue and Administration Record form* (Previously referred to as the Green Form)
- 6 monthly Blood Refrigeration Audit
- Preventive Maintenance reports
- 2 yearly NZBS external audit

Associated Legislation

- The Medicines Act 1981, Medicines Regulations 1984

References

Refrigeration Guidelines, Requirements for the Storage of Blood and Blood Products
7th Edition, Oct. 2017

ANZSBT Guidelines

NZBS Guidelines

External Documents available on the NZBS Clinical Data Resource accessed via SharePoint [NZBS Clinical Data Resource](#)

- Mercy Blood Component/Product Issue and Administration form
- NZBS Request for Blood Bank Tests & Blood Component or Product

- NZBS Patient leaflets
- NZBS Acute Transfusion Reaction (ATR) Notification to Blood Bank
- NZBS Notification of suspected adverse reaction to a Fractionated Blood Product
- NZBS Despatch Notification Form - Return of blood to Blood bank
- NZBS Blood Packaging Training and Information Pack located in Red Folder by Blood Fridge.

Internal Documents

- Consent Policy
- Medication Management Policy
- Incident Policy
- Emergency Plan (see appendices Emergency transport & Alarm Bells, Plant and Equipment Alarm Station (PEAS))
- Adverse Reaction to Medication Policy (see Anaphylaxis flow diagram)Work Manual;
- Mercy Hospital IV Manual – November 2018
- NZBS Blood bank Hours
- Blood Fridge Maintenance guidelines
- Taxis
- **Audit tool**
- Blood Component - Product Issue and Administration Record Audit Tool [F:\Mercy_Shared\Audits\Clinical_Audits\Clinical_Audit_Tools_and_Checklists\Tools\Blood_Component - Product Issue and Administration Record Audit Tool.docx](F:\Mercy_Shared\Audits\Clinical_Audits\Clinical_Audit_Tools_and_Checklists\Tools\Blood_Component_-_Product_Issue_and_Administration_Record_Audit_Tool.docx)

Associated forms

Mercy Informed Consent form

Medication chart

Fluid Balance chart

Patient Observation chart

Anaesthetic record

IV certificate practical checklist

Mercy Hospital Blood Component/Product Issue and Administration (Green Form 2018)

Daily Blood Fridge Temperature and Visual Check Form (Nov 2016)

Audits

Blood Refrigerator Audit (Clinical Audit tools /checklist/tools PACU)

Mercy Hospital Blood Component/Product Issue and Administration Record Audit (Clinical Audit tools /checklist/tools PACU)

Blood Refrigeration RBC Disposing Audit (Clinical audit tools and checklists PACU audit tools - Blood fridge)

References on line

NZBS Clinical Data Resource- Sharepoint - [NZBS Clinical Data Resource](#)

NZBS Clinical Compendium- Sharepoint - [NZBS Clinical Compendium](#)

Appendices

1. Mercy Blood Component/Product Issue and Administration form (Green Form)
2. NZBS Request for Blood Bank Tests & Blood Component or Product Form
3. NZBS Acute Transfusion Reaction (ATR) Notification to Blood Bank
4. NZBS Notification of Suspected Adverse Reaction to a Fractionated Blood Product
5. Blood Component/Product Type and Administration form (Green form April 2018)
6. Daily Blood Fridge Temperature and Visual Check form(Nov 2016)
7. Blood Conservation
8. Return of Blood to Blood Bank Checklist (May 2017)
9. Despatch Notification Form
10. Blood Component List (November 2016)

Process

Introduction

Outlined in this process document is the management of Red Blood Cells, the most common product that is administered at Mercy Hospital. Although there are many similarities in the management of other blood products particularly with consent, bedside checking and monitoring, for specific instructions on other blood products please use the **NZBS Clinical Data Resource** located on SharePoint. The **NZBS Clinical Compendium** also located on SharePoint provides additional information on NZBS protocols and guidelines

In order to minimise patient risk associated with the receipt of blood and blood components careful attention must be paid to;

1. **Correct patient identification/pre transfusion testing - strict adherence to patient identification during blood sampling and clerical checks pre transfusion**
2. **Pre administration storage**
3. **Issuing from storage**
4. **Bedside checking**
5. **Administration and documentation**
6. **Monitoring**

1. Correct patient identification/ Pre transfusion testing

As Mercy hospital is a private elective surgical hospital, a group & screen or cross match for blood is generally done prior to admission to Mercy by the admitting Credentialed Specialist. Similarly consent for receiving blood is also generally undertaken prior to admission. This does not lessen our responsibilities for ensuring safe ordering, storage and administration of blood and blood products.

Transfusion of ABO-incompatible red cell components may result in acute and severe haemolysis and shock. In a conscious patient a few mls may cause symptoms within 1-2mins.

Before a blood component (and some blood products – ref: *Blood Components List App:11*) can be issued the patient's ABO & RhD blood group needs to be determined and the presence of any red cell antibodies needs to be known (group and screen).

Where Mercy staff are undertaking to provide a specimen for group and screen (G&S) or cross match (XM) a fully and accurately completed *NZBS Request for Blood Bank Tests & Blood Component or Product (App:2)* must accompany the pre-transfusion specimen when forwarding to Blood Bank for processing.

As the majority of transfusion errors are clerical in nature, specimens for group and screen (G&S) or cross match (XM) must be clearly hand labelled at the bedside (pre-printed labels are not accepted) with the patient's:

- Christian and surname (do not include middle names);
- Date of birth;
- National Health Index (NHI);
- Date/time of collection;
- Signature or initials of collector

For the EDTA 6 ml tube the details must be written directly onto the tube.

The *NZBS Request for Blood Bank Tests & Blood Component or Product form (App:2)* **must** be completed with;

- (patient sticky label) or fully completed patient identifying details
 - first name
 - surname
 - gender
 - NHI/hospital number and/or date of birth (both are preferable)
- Name and signature of requesting practitioner (doctor or nurse)
- Date and time of collection
- Signed and dated declaration that blood was labelled at the bedside and labelled by the person drawing the blood. This is part of the *NZBS Request for Blood Bank Tests & Blood Component or Product form*
- Blood components/products and/or tests required

Should also include:

- Relevant patient history, details or code (codes on back of form), plus tick box completed
- **Note** that an inadequate patient history may result in the sample expiring sooner than necessary and a lower priority when testing
- Patient's location
- Date of surgical procedure (if applicable)

A group and screen sample is only valid for 72 hours unless the following information is provided:

- Confirmation that the patient has not been transfused in the last three months
- Confirmation that the patient has not been pregnant in the last three months

If the patient has not been pregnant or transfused in the last three months, the sample is valid for 7 days. Extended validity (up to 21 days) is available for elective surgery if a date of surgery is provided.

All details on the *NZBS Request for Blood Bank Tests & Blood Component or Product* form and specimen must match exactly, before Blood Bank can process the specimen. The details supplied on the request form and specimen, are the details that will subsequently appear on the unit swing label.

The EDTA Tube (6ml pink top) accompanied by the *NZBS Request for Blood Bank Tests & Blood Component or Product* form is then forwarded to NZBS Blood Bank, Dunedin Hospital. The venepuncturists take the sample with them (if they do the sample) otherwise the sample is sent by taxi.

2. Mercy Hospital Blood Fridge

To ensure compliance with Blood refrigeration requirements PACU staff undertake;

- A daily visual check of the blood fridge temperature recording and view any blood product cross match & expiry date and time

Maintenance:

NZBS Refrigeration Guidelines, 7th Edition October 2017 (online) page 15.

Blood Fridge Maintenance Guidelines – (clinical services work manual/blood fridge maintenance guidelines).

3. Consent and Prescription

Consent

Prior to administering a blood component (red cells, platelet concentrates, fresh frozen plasma, and cryoprecipitate) or blood products (albumin, immunoglobulin, coagulation factors) the Registered Nurse, AT, or Credentialed Specialist needs to ensure that consent has been recorded on the Mercy Consent form.

If consent is not recorded on the consent form, consent to the administration of blood must be sought from the patient. In addition the patient should be offered written (NZBS patient leaflet) and /or verbal information as part of the consenting process.

Consent (with the exception of an emergency) must be obtained prior to ordering any blood components/fractionated products from Blood Bank. Where administration of blood components and products are refused by an adult for any reason, this decision must be respected, recorded in the clinical record, ensuring that those making the decision fully understand the implications this may have on the clinical outcome (for additional information please access the Consent Policy on SharePoint)

For further information about care for patients who decline blood transfusion refer: *Blood Conservation (App: 8)*

Prescription

Blood component and fractionated products are classified as prescription medicines. A prescription for a blood component / fractionated product must be written by the credentialed specialist on a Mercy Medication and IV Prescription Chart or the Mercy Anaesthetic Record.

The prescription must specify;

- The blood component / fractionated product to be administered including any special requirements e.g. irradiation.
- Route to be administered.
- Quantity to be given (e.g. units, mL, grams)
- Duration of the transfusion (hours or parts of a hour) e.g. over 2 hours, not 2QH
- Special instructions e.g. premedication or diuretic
- Each item signed and dated (not one signature and brackets)

4. Obtaining Red Cells from the New Zealand Blood Service (NZBS):

Cross matched red cells are requested using the *Mercy Blood Component/Product Issue and Administration form (App: 1)*

When you require the cross matched red cells:

- Fax the *Mercy Blood Component/Product Issue and Administration form* to the NZBS Blood Bank, Dunedin Hospital. Noting the type of blood product required and the number of units. (Fax number is pre-set on McAuley ward and Theatre fax machines)
- In addition, phone Blood Bank to **verbally confirm** your request
- Notify Reception that you are waiting for blood to be delivered

Please Note: after being faxed to Blood Bank, the *Mercy Blood Component/Product Issue and Administration form* is no longer required and is to be disposed of in the secure bin.

- NZBS will deliver the blood product to Mercy hospital with a faxed copy of the *Mercy Blood Component/Product Issue and Administration form*.
- Reception staff either call McAuley to let them know the product has arrived or ensure that PACU staff are aware blood product has arrived.

5. Storage of Blood Products

- Where a blood product is stored in the Mercy Hospital Blood Fridge nursing staff must ensure that individual units are signed into the *Mercy Hospital Blood Product Form (App:5)*
- Details must include:
 - Date, Time,
 - Nurse Signature,
 - Patients full name and NHI,
 - Type of blood product and each unit number.
- The units must have been transported correctly according to the *NZBS Red Blood Cell packing profile* that will accompany the blood product.
- Confirmation of appropriateness of packing is faxed back to the NZBS on the *NZBS Despatch Notification Form (App:10)*
- The *Mercy Blood Component/Product Issue and Administration form* is kept in the blood fridge attached to a unit of blood product or in patients' notes if previous unit already transfused. If a discrepancy exists on any of the documentation or on the information attached to the blood product, notify

Theatre or PACU Coordinator, NZBS Personnel, Surgeon and Anaesthetist and appropriate action will be taken.

NB: Ballasts are to be placed in the blood fridge immediately on arrival, in a plastic bag with the date and time attached

- When retrieving blood from the blood fridge a date, time, signature / destination is required to be written on the *Mercy Hospital Blood Product Form (App:5)* held on the clipboard attached to the Blood fridge. This is to ensure that there is a robust audit trail for all blood products.
- Red cells can be stored in the Mercy blood fridge for up to 72 hours. After 72 hours a new cross match must be completed. (Platelets, FFP and Cryoprecipitate cannot be stored in any Fridge including the Mercy Blood Fridge).
- **Never** store blood components in the standard ward refrigerator.
- All Blood components (except Platelets) should be infused within four hours of receipt from Blood Bank.

If returning blood to Blood Bank, Dunedin Hospital (see appendix 9) – *Return of Blood to Blood Bank Checklist (App: 9)*

- Complete the *Mercy Hospital Blood Product Form* on the clipboard on the side of the blood fridge to record which individual units are being returned
- Complete *NZBS Despatch Notification Form (App:10)– Return of Blood to Blood Bank Checklist (App:9)* for products being returned to Blood Bank. Fax this form to the NZBS
- All blood must be returned following the *NZBS Blood Packaging Training and Information Pack* located in Red Folder by Blood Fridge.
- Complete taxi chit and phone for taxi. Take items for NZ Blood Service to Main Reception for pick up.

6. Pre Transfusion Checks and Documentation

Once blood obtained, prior to commencing the transfusion you must complete the **Pre Transfusion Checks** as outlined below and **tick off on the *Mercy Blood Component/Product Issue and Administration form (App:1)***.

- Consent:** sighted Patients consent form
 - Prescription:** signed and relevant written information provided
 - Patent venous access and standard blood infusion set with filter in situ**
 - Baseline observations:** documented
- Mercy Hospital Medicines management policy requires **two registered health professionals**, to complete the checks for blood products at the patient's bedside. The second person needs to perform the checks independently. There must be no discrepancies
 - Check that all pre transfusion checks completed and recorded

Bedside check: Ask, verify, bag to tag and visual check

- Take to the bedside:
 - The medication chart (prescription),
 - *Mercy Blood Component/Product Issue and Administration form (App:1)*
 - The issued cells with a swing label attached.

Complete the **Blood Issue and Administration Record** documentation as outlined in the bedside check process below on the NZBS copy of the *Mercy Blood Component/Product Issue and Administration form (App:1)*.

- **Ask** the patient their identity (their full name and date of birth). Do not tell him or her.
- **Verify** that the patient details on the patient's wristband, the *Mercy Blood Component/Product Issue and Administration form*, the prescription, the swing label and the patient's response all match exactly.
- **Visual check** - assess the bag and contents for abnormalities.
- Check Unit/Batch numbers on Bag & Swing label are identical
- Check Blood Group on Bag & Swing label are identical

- Check expiry on Bag/Bottle
- Check “DO NOT USE AFTER” date on Swing Label
- Check Consent
- Check Prescribed
- When the checks are completed, both checkers sign the *Mercy Blood Component/Product Issue and Administration form* and record the date and time the infusion commenced. In addition when the unit is completed also record the time on the *Mercy Blood Component/Product Issue and Administration form*.

7. Administration

Transfusions at night (after 2200 hours) are undesirable and not recommended unless urgent.

30 Minute Rule: Transfusion of red cells should begin as soon as possible following the removal from the blood fridge. Return the red cells to the Mercy blood fridge if the transfusion cannot be started within 30 minutes of removal of the blood from the blood fridge. **Do not store red cells anywhere else.**

When administering **platelets and red cells**, administer the platelets first. If this is not possible, change the infusion set after administering the red cells and before commencing the platelet transfusion.

- All blood components or products require a dedicated line. The recommended cannula size is 18-20G for adults (smaller gauges can be used but they restrict the flow rate) and 22-24G for children.
- No medications are to be given into the unit of blood or the IV system as they may cause red cell haemolysis or adversely affect platelets or plasma proteins.
- Blood / Solution set includes a 200 micron filter and must be used for administration of all blood components - Red blood cells, Plasma, Platelets, Cryoprecipitate and Granulocytes. The filter will remove any aggregated material and fibrin clots. All blood components in New Zealand are leucodepleted at source by NZBS. The use of bedside leucodepletion filters is not necessary.
- Infusion sets / blood filters should be changed 12hrly. 2-4 units can be administered via one infusion set. Where the rate is rapid, e.g. theatre, 8-10 units may be administered via the set;
- The Blood/Solution Set must be replaced at the end of the transfusion, before any further IV therapy is undertaken.

- For manufactured blood products (presented in bottles), syringes or a standard IV infusion set may be used. Note that glass bottles also need to be vented with a filter needle(see NZBS Clinical Data Resource)
- Prime the infusion set with Normal Saline or the blood component. Priming with blood must only occur after 2 health professionals (one of whom must be registered) complete the two person check at the bedside
- Never prime or flush using Dextrose Saline (causes haemolysis) or Lactated Ringers (causes clotting) or gel solutions (causes clotting).
- Remember to document any normal saline used to prime or flush on the fluid balance chart.

Warming

Use only if clinically indicated.

A blood warmer may be indicated for:

- Large volume rapid transfusions of >50 mL/kg/hour in adults or >15 mL/kg/hour in children
 - Exchange transfusions (unlikely at Mercy)
 - Patients with clinically significant cold agglutinins
- Blood and components must not be warmed above 41°C. The temperature of the warmer must be monitored and recorded on the observation chart.
- We have one warmer a Ranger Blood/Fluid warming device that is kept in the Theatre 6 Anaesthetic room
- **Never** improvise by placing a blood pack into hot water or a microwave.

Pumps

- Pumps should be used to deliver blood products when:
 - Controlled flow rates are required for specific patients, e.g. paediatric patients, or those at risk of fluid overload.
 - Infusion of blood products via gravity is unreliable e.g. via PICC or small gauge cannula.
 - Ensure pumps are blood compatible. Never use pumps with granulocyte/buffy coat infusions

Pressure Bags

An external pressure bag may be used during emergency situations only and when a large gauge venous access cannula is in situ. Pressure must be exerted evenly over the unit and never exceed 200mm Hg. The pressure device must have a gauge to measure the pressure and be monitored at all times during its use.

Commencing the infusion

Ensure the baseline observations BP/TPR (temperature, pulse, respiration & blood pressure) are recorded up to 60 minutes prior to the infusion on the observation chart. If the patient is febrile before transfusion you must discuss with the medical staff before commencing the transfusion.

Maintain Strict Asepsis (wear gloves)

Gently agitate the blood bag;

Attach the red cell bag to the Blood /Solution Set

Record start time on the *Medication chart* and the *Mercy Blood Component / Product Issue and Administration Form*

Set the transfusion rate as prescribed; in the routine setting, transfuse each unit slowly (up to 50mL) for the first 15 minutes and observe the patient for any adverse reaction.

Stay with the patient for the first 15 minutes of the transfusion then repeat the TPR/BP. **The first 15 minutes carry the greatest risk of an acute adverse reaction;**

Ensure the call bell is within reach.

Completing the infusion

Note the completion time on the observation chart, the *Mercy Blood Component/Product Issue and Administration form* and the *fluid balance chart*.

Affix the red cell compatibility sticker (swing label) to the *Mercy Blood Component/Product Issue and Administration form*.

Disconnect the empty blood bag and discard into the appropriate waste stream.

1. In the event there has been a Transfusion related Adverse Reaction the blood bag and IV tubing must be placed within a sealed biohazard bag and left in the box provided opposite the blood fridge in the Theatre suite. McAuley staff will leave in dirty utility room in a sealed biohazard bag. The orderly will take the unit down to the theatre suite and place in the box opposite the blood fridge. The unit must be returned to Blood Bank along with a completed *NZBS Acute Transfusion Reaction (ATR) Notification to Blood Bank* and patient's blood sample in pink top tube (refer to adverse reactions in this policy). Document the transfusion in the patient's clinical record.

8. Monitoring

Baseline observations recorded. If the patient is febrile before transfusion you must discuss with the medical staff before commencing the transfusion.

TPR & BP at 15mins then, ½ hourly TPR and hourly BP until the transfusion is completed.

Increase the frequency of the BP recording ½ hourly if there are any concerns over the patient's status or any other parameters are abnormal.

Remain in the room or in immediate proximity for the first 15 minutes of the commencement of each unit. Let the patient know to call a nurse if they start to feel itchy, develop a rash, shivery, and have any breathing difficulty or if they feel their heart is racing.

For each unit: Repeat TPR and BP at 15 minutes. Thereafter monitor TPR every 30 minutes and BP hourly. Increase BP monitoring if condition changes. Visually assess through-out the infusion

After each unit: record pulse, blood pressure, respiration rate and temperature and visual observation of the patient's appearance and condition up to 60 minutes post infusion.

If the transfusion rate is slow, reposition the limb where the IV is sited, investigate other variables including gravity, non-patent cannula, clogged filter and closed clamps.

Check the IV site before, during and after the transfusion. Document the VIP Score on the Observation Chart.

1. **Adverse Reactions** (please utilise the information on the reverse side of the NZBS Acute Transfusion Reaction (ATR) Notification to Blood Bank

(App:3)

For blood and NZBS notification of suspected adverse reaction to a fractionated blood product ref: *NZBS Notification of a Suspected Adverse Reaction to a Fractionated Blood Product (App: 4)*

***Note** Refer to NZBS Clinical data Resource on SharePoint (Learning and Development) for information about types and management of transfusion reactions.

Obtaining Blood Products in Adverse Weather

Delivery of blood from Dunedin Hospital will be required if theatre is running. Liaise with the Theatre Coordinator as to what is required and use the 4WD for pick up.

ICU or out of hours requirements

Generally managed via Taxi pick up