

# Blood product administration

## Safety Transfusion safety

- Starts with a properly labeled pre transfusion specimen
- Make sure the right patient gets the right blood (always adhere to the bedside pretransfusion check on the back of the Blood Transfusion record)
- Start blood products within 30 minutes of issue and complete within 4 hours
- The blood transfusion record is a legal document and must be filed in the medical record on completion of the transfusion
- Blood products should only be stored in approved refrigerators NOT ON THE WARD
- Calculate the transfusion volume as stipulated in the formulas in Common Blood Products table

## Immediate management of suspected transfusion reaction

### Recognise

- Fever
- Chills
- Urticaria (hives)
- Hypotension/hypertension
- Pain (alone IV site, chest or back)
- Acute respiratory distress/stridor/wheeze
- Dark urine
- Bleeding oozing (DIC)

### React

Stop transfusion (leave IV line in place) then:

- Provide emergency patient care
- Arrange immediate medical review
- Keep IV line open with N/Saline (flush IV cannula or attach side arm)
- Repeat pre-transfusion check

### Report

- Telephone RCH blood bank ext 5829
- Complete transfusion reaction form, document reaction in patient notes

## Care of transfused patients

- Monitor your patient for adverse effects of transfusion, observe closely during the first 15 minutes
- Record vital signs (T, P, RR, BP and O2 saturations also document condition of the site being used to transfuse):
  - before starting
  - 15 minutes after commencement
  - hourly
  - at completion
  - 4/24 hourly for 24 hours if inpatient

## Blood filters & giving sets

	Standard McGaw in-line blood filter (170–260µm)	Smart site infusion set Alaris SE pump	Baxter neonatal giving set (contains inline 170–260 µm filter)	Tuta blood/solution administration pump set (contains inline 170–260 µm filter)
Filter type/ giving set				
Purpose	To filter out large clots and aggregates, all fresh products including cells salvaged	Must have the McGaw in line filter added	It enables the pack to remain in-line during transfusion – this provides safe identification of the product and the pack can be returned to blood bank should a transfusion reaction occur	To administer fresh blood products rapidly, in an emergency situation
Clinical indication	To be used for all transfusions of FFP, cryoprecipitate, & leucocyte depleted red cells & platelets	For use in transfusion of any blood products	To administer blood in small volumes via a syringe	Emergency/rapid transfusion
Filters how many packs?	Change when flow rate compromised or at least 12 hourly.	Change when flow rate compromised or at least 12 hourly	Change when flow rate compromised or at least 12 hourly	Change when flow rate compromised or at least 12 hourly
Can be flushed with N/saline?	Yes	Yes	Yes	Yes

## Common blood products

Blood product	Formula for calculating volume to transfuse	Pack sizes	Irradiation required	Rate	Maximum infusion/hang time
Red cell products	$\text{Packed cells (mLs)} = \text{wt(kg)} \times \text{Hb rise required (g/L)} \times 0.4$ $\text{Hb rise required} = \frac{\text{MIS prescribed}}{\text{wt(kg)} \times 0.4}$	250–300 mL packs 50–60 mL pedipacks	Yes for selected patient groups*	Start at no more than 5mL/kg/min for the first 15 minutes unless an emergency	4 hours
Pump blood* cell salvage		Variable	No		4 hours
Platelets	See separate platelet information poster				
FFP***	10–20 mL/kg	300 mLs 50 mL pedipack	No	Start at no more than 5mL/kg/min can be increased to 10–20mL/kg/min if tolerated	4 hours
Cryo***	5–10 mL/kg	30–40 mL	No	Start at no more than 5mL/kg/min can be increased to 10–20mL/kg/min if tolerated	4 hours

\*See section on irradiation below \*\*Post cardiac bypass \*\*\*Please note blood bank require 30 minutes to defrost FFP and cryo prior to collection

## Compatible fluids and medications

No medications or solutions should be added to or infused through the same tubing as blood products except for 0.9% Sodium Chloride, ABO compatible plasma or 4% Albumin.

- It has been shown to be safe to co-administer morphine (1mg/mL), pethidine (10mg/mL) and ketamine (1mg/mL) if diluted in 0.9% Sodium Chloride with red cells. In these situations, the blood product should be administered via the closest to the patient (distal lumen).
- If other medications are required during a blood transfusion the transfusion must be stopped and the line flushed with 0.9% Sodium Chloride before and after administration of the medication. The blood transfusion can then recommence.
- Fluids containing glucose are not compatible with red blood cells, they cause clumping of the red blood cells.
- Crystalloid or colloid solutions that contain calcium should never be administered concurrently with any blood product.

Calcium reverses the anticoagulant citrate causing red blood cells to clot.

## Irradiation

### What does it do?

- Impairs donor lymphocyte's ability to divide (does not remove/destroy them)

### Which products?

- cellular products (platelets, red cells, granulocytes)

### Why do it?

- Prevents Transfusion-Associated Graft Versus Host Disease (TA-GVHD)

### When?

- Ring blood bank to request irradiation of unit prior to collection (allow at least 5 minutes)

### Which patients?

- All PICU & NNU patients
- All immunocompromised patients
- All Children's Cancer Centre patients

## Compatible ABO groups

- Group identical blood products should be given. However in circumstances where this is not possible, a non-identical but compatible group may be issued
- Rh Negative patients should always receive Rh Negative blood products
- Rh Positive patients can receive either Rh Negative or Rh Positive blood products

Recipient ABO blood group	ABO group of compatible Red cells					ABO group of compatible FFP/cryoprecipitate				
	Group	O	B	A	AB	Group	O	B	A	AB
AB		★	★	★	★					★
A		★		★					★	★
B		★	★					★		★
O		★					★	★	★	★

### What about platelets

- See Platelet Product Administration Poster

## Neonatal testing ASBT (Australian Society of Blood Transfusion) protocol

### What is it?

A protocol that allows issue of red cell products to suitable infants without repeated crossmatching

### Which patients?

- Under 4 months of age
- Ongoing need for blood

### Sample requirements

- Crossmatch meets lab criteria (blood bank will inform requesting clinician if not eligible):
  - Sample size: red top EDTA tube >1.5mls in 2.7 tube

### How to request ASBT?

- Request "ASBT protocol" with first crossmatch
- Indicate if any previous transfusion
- Ordering Blood – once on ASBT repeated crossmatch not required, order blood by telephoning hospital blood bank (ext 5829)