TRANSFUSION OF BLOOD AND BLOOD COMPONENTS – CHW

POLICY AND PROCEDURE©

DOCUMENT SUMMARY/KEY POINTS

All clinical staff must be aware of the safe and appropriate use of blood components as well as the process for informed consent and the transfusion verification procedure as in accordance with NSW Health Policy Directive PD2012_016. The Hospital Transfusion Committee is responsible for the education and training of all staff as well as the monitoring and quality improvement of blood transfusion therapy at The Children's Hospital at Westmead.

- **Zero Tolerance:** If the request form or blood sample identification is incomplete or incorrect, the request for grouping or crossmatch will be refused by CHW Blood Bank staff. You will need to tell the parent about the issue, notify the RMO, recollect a sample/new form and send to Blood Bank. Incident will be logged as an IIMS.
- **Time Limit: 30 minute – 4 hour Rule:**
  There is an increased risk of bacterial contamination once blood products have been removed from the appropriate storage conditions
- **Red cells, FFP and cryoprecipitate** for transfusion must commence transfusion within **30 minutes** of removal from storage and must be complete within **4 hours** of the transfusion start time.
- **Platelet** transfusions should be commenced within **30 minutes** of removal from a platelet agitator because of the risk of the platelets clumping and becoming damaged. Once transfusion has commenced they should be infused within **1 hour**.
- **Assessment and Observations:** The frequency and documentation of vital signs must be adjusted to the patient's individual clinical circumstances. As a basic minimum requirement observations should be checked and recorded on the Standard Paediatric Observation Chart:
  - As a **baseline** before the start of the transfusion.
  - Within **15 minutes after the start** of the transfusion or with commencement of each new unit.
  - **Hourly** during the transfusion and
  - **At the end** of each blood component.

Approved by	SCHN Policy, Procedure & Guideline Committee	
Date effective	1st September 2014	**Review Period**: 3 years
Team Leader	Chair, Transfusion Committee	**Area/Dept:** Haematology

Date of Publishing: 13 August 2014 8:54 AM Date of Printing: 13 August 2014

- Patients should be closely **observed** for the first **15 -30 minutes** of the transfusion and should be instructed to report to staff if they experience any discomfort or unusual symptoms. If not able to visualise the patient it is recommended that the staff stay with the patient for the initial 15 minutes if possible.
- Currently no national paediatric guidelines exist on the use of blood and blood components in paediatrics.
- This policy has been written to comply in accordance with mandatory Department of Health Policy Directives.
- This policy provides guidelines for the safe and appropriate administration of blood and blood components following best practice guidelines published by the following professional organisations:
  - National Health and Medical Research Council
  - World Health Organisation
  - Australian Red Cross Blood Service
  - Australian and New Zealand Society of Blood Transfusion Inc.
  - Royal College of Nursing Australia
  - NSW Health
- This policy includes procedures for the prescribing, ordering, collection, administration and management of the patient, as well as the process for reporting adverse transfusion reactions.
- This policy applies to all staff involved in the transfusion process and all staff responsible for prescribing, administering, taking samples, transporting/storing and issuing of blood components including the following:
  - **Medical staff** , who assess patients, obtain consent, prescribe and order blood products
  - **All staff** involved in collecting blood samples from patients
  - **Laboratory staff** who receive the orders and prepare blood products for issue ensuring they are compatible.
  - **All staff** involved in the collection, transport, storage and handling of blood products.
  - **Nursing staff** who are involved with performing the correct patient identity check procedures prior to administering blood products and who observe and monitor patients before, during and after the transfusion.

CHANGE SUMMARY

- **Downtime procedure:** In the event of computer or printing issues the patient will be dispensed the product in a timely manner. The Blood Bank staff will give the person collecting the product the checking sheet in a handwritten format – as per Australian Standard.
- Added sections 3.4.6 and 7.5.

READ ACKNOWLEDGEMENT

- **All clinical staff** must be aware of the safe and appropriate use of blood components as well as the process for informed consent and the transfusion verification procedure.
- All clinical staff involved in the process of transfusing blood or blood products should read and acknowledge this document.
- Other hospital staff (e.g. Laboratory staff) involved in transfusing blood or blood products should read this document.

TABLE OF CONTENTS

Glossary of Terms

Term	Definition
ABO	A term used to describe the principal types of blood groups.
ARCBS	Australian Red Cross Blood Service
ANZSBT	Australian & New Zealand Society of Blood Transfusion Inc
Blood Component	Any product derived from human whole blood or plasma donations. Including red cells, platelets, plasma, cryoprecipitate, coagulation factors, albumin, and immunoglobulins.
Blood Product	See Blood Component
BMT	Bone Marrow Transplant
Buffy Coat	The granulocyte and platelet layer that forms between red cells and plasma when a pack of whole blood is centrifuged. Red Cells supplied at CHW are Buffy Coat reduced
CHW	Children's Hospital at Westmead
CMV	Cytomegalovirus
CRYO	Cryoprecipitate
FFP	Fresh Frozen Plasma
G&H	Group and Hold
HLA	Human Leucocyte Antigen
Irradiated	Blood products are gamma irradiated to prevent TA-GVHD in susceptible recipients of blood transfusions.
IV	Intravenous
Leucodepletion	A type of filtering of blood components that is performed at the time of collection.
MRN	Medical Record Number
PBSC	Peripheral Blood Stem Cell
RCNA	Royal College of Nursing Australia
Rh D (Rhesus D)	The D antigen of the Rh Blood Group System
TA-GVHD	Transfusion Associated Graft Versus Host Disease
TRALI	Transfusion Related Lung Injury

1 Introduction

The aim of the Transfusion of Blood and Blood Components Policy and Procedure is for the provision of guidance on the appropriate storage and collection of blood products, the safe administration and successful management of transfusion patients. Blood transfusion is an important component of health care today, however it does carry the risk of adverse reactions and transfusion transmitted infections.

The safety and effectiveness of a transfusion depends upon the appropriate use of blood and blood components.

This policy has been developed to reflect current national and international practice to promote safety and minimize the risks to patients associated with blood transfusion.

1.1 Why Transfuse?

The decision to transfuse a patient should be based on clinical assessment of the patient and his/her individual needs.

- Blood transfusion or blood component therapy should only be given when the expected benefits outweigh the risks.
- Clinical and laboratory indications for blood transfusion should be clearly documented in the patient's medical record.

2 Consent

All Medical Officers must be aware of NSW Health Policy Directives - Management of Fresh Blood Components PD2012_016 and Consent to medical treatment-Patient Information PD2005_406 and CHW policy 'Consent to Medical Treatment: Patient Information' to be able to consent appropriately for Blood and Blood Components. Consent in this instance encompasses the administration of a blood transfusion or the administration of blood products/components. These include red cells, white cells, platelets, albumin products, fresh frozen plasma, Anti-D Immunoglobulin, coagulation factors, autologous transfusions and any biologically derived products such as thrombin products[1].

Informed consent is a documented dialogue between the prescriber for the transfusion and the patient/parent or guardian and this includes:

- Reason/s for the proposed blood transfusion
- Nature and risks/benefits of the blood transfusion
- Other blood management strategies (3 pillars of Blood Management Strategies: optimisation of blood volume and red cell mass, minimisation of blood loss, optimisation of the patient's tolerance of anaemia)
- Opportunity to ask questions
- Use of patient fact sheet (Patient/ Carer fact sheet) and
- Interpreter for patients non fluent in English.[2]

Consent must be documented in writing in the patient's clinical record or on a generic or transfusion specific consent form for any patient receiving a blood transfusion or the administration of a blood component.[2]

- In the event of refusal of treatment, refer to the NSW Health policy directive Consent to medical treatment-Patient Information PD2005_406. Any refusal of Blood and or blood components consent must be clearly documented in the patient's clinical record including any Blood and Blood Components of which are able to be administered and those which are not acceptable.
- **Jehovah's Witnesses**:

  For many Jehovah Witnesses *some or all* of blood transfusion and/or blood components are forbidden. Individual wishes *must not* be assumed and consent must be confirmed in a confidential and thorough manner and documented clearly in the patient's medical records.

  The following should be clearly documented in the patient's clinical notes as to whether:

  - The patient refuses the use of blood components throughout surgery and/or treatment
  - List the specific blood components which are NOT acceptable, ensuring the blood components that are acceptable are also clearly listed
  - The patient is aware that the procedure may entail a higher risk in the event of bleeding complications and as there are no alternatives to transfusion, may result in death[2].
- **Refusal of consent in an Emergency Situation**:
  - Where a parent or guardian refuses consent to administer blood products in the emergency treatment of a child (less than 16 years of age) prevailing local, state, territory or national legislation or guidelines should apply[2]. As per Consent to medical treatment-Patient Information PD2005_406.: "Pursuant to section 174 of the *Children and Young Persons (Care and Protection) Act 1998*, a medical practitioner may carry out medical treatment on a child (a person aged under 16 years) or young person (a person aged 16 or 17) without the consent of the child or young person or a parent of the child or young person, if the medical practitioner is of the opinion that it is necessary, as a matter of urgency, to carry out the treatment on the child or young person in order to save his or her life or to prevent serious damage to his or her health. This means that emergency medical treatment, and emergency first aid treatment (including any procedure, operation or examination) may be provided without the consent of the minor or a parent or guardian".

2.1 Who is responsible for obtaining consent?

It is the responsibility of the prescribing medical officer to obtain valid consent. Nursing staff within CHW do not have an authority to obtain blood transfusion consent.

- Written consent must be obtained and documented on a consent form (M3a **OR** for Turner Day Stay only use COOR 17) in non-emergency cases, as per Section 2 of the Consent policy.

2.2 Frequency of Consent

- **Emergency situations:** where blood transfusion is required to save a child or infant's life, emergency treatment may be provided without the consent of the patient or parent/guardian.[2]

- **Acute patients:** patients who are receiving a single transfusion associated with surgery or some other medical condition should provide consent prior to this episode of transfusion. This consent will remain valid for the remainder of the admission.
- **Chronic Patients:** For long-term transfusion patients (e.g. Oncology/Haematology patients) a single consent form is valid for 12 months and **must** be amended if their treatment changes. The long term consents must be scanned and form part of the patients' electronic medical record and an alert placed on the electronic patients' medical record.

  If a patient has already has a valid consent but requires a new or different treatment, or if a new risk associated with the current treatment has been identified, new consent MUST be obtained.

3 Prescription and Ordering

The prescription and ordering of blood and blood components at The Children's Hospital at Westmead is the responsibility of a Medical Officer.

The prescriber is responsible for:

- ensuring that the blood transfusion or blood component is clinically appropriate
- the expected benefits outweigh the potential hazards
- informed patient consent has been obtained and documented within the patient's clinical record and
- clinical staff caring for the child are aware that the blood product has been prescribed.

Blood Bank has been notified with an order placed and special requirements are clearly documented[2].

3.1 Prescribing

The **prescription** constitutes the legal instruction to administer the blood product and will be retained as part of a patient's medical record.

- Blood and blood components must be prescribed on the Intravenous Fluid Chart.
- For small volume products given by intravenous 'push' or intramuscularly, these may be charted on the Medication Chart (e.g. Factor Concentrates, Anti-D).
- For patients in the Operating Theatre the prescription is to be recorded on the anaesthetic record.
- All prescriptions must be legible and contain the following details:
  - Surname and Given Name in full
  - Date of Birth
  - Gender
  - Hospital Medical Record Number (MRN)
  - The type of blood or blood component to be administered

- Date, timing and urgency of transfusion
- Any special requirements; e.g. phenotyped, CMV negative or irradiated. Any special requirements must be notified to the Blood Bank laboratory so these can be confirmed as appropriate by the Haematologist/Staff Specialist and entered into the Pathology Information System. Any special requirements must be clearly documented each transfusion
- The quantity in units or volume recorded in millilitres (mL)
- The route of administration
- The duration and rate of the transfusion
  - **Exception** for regularly transfused patients on Turner Day Stay Ward whereby the rate of transfusion of red cells is determined by 2 Blood Transfusion accredited Registered Nurses using the following calculation
    - Weight in kg x 5mL = mL/hour (to a maximum rate of 250mL/hour)
- Any special instructions e.g. use of blood warmer or if pre-medications are required[2].

For any enquiries on prescription of Blood and Blood Components, please contact the Haematologist on-call.

3.1.1 Neonatal Exchange Transfusions

For prescription, ordering and procedural instructions on Neonatal Exchange transfusion please see the page 7 of the CHW Jaundice- Neonatal Care Policy

3.2 Pre-transfusion Testing

3.2.1 Group & Screen – see also section 4.2 for sample collection

- A group & screen is required for compatibility testing prior to the transfusion of blood and blood components.
- Each sample is tested to determine the ABO and Rh D (Rhesus D) grouping of the recipient and is confirmed with previous records of transfusion where available (not relevant for first received Blood Bank sample).
- A red cell antibody screen is performed to detect any red cell antibodies in the recipient.
  - Patients who have red cell antibodies require further laboratory investigations and complete serological crossmatching, this may take up to several hours to process.

3.2.2 Crossmatch– see also section 4.2 for sample collection

- A **crossmatch** is the final test which confirms the compatibility between the donor blood and the recipient blood.
- For each unit of blood requested for crossmatch, a 1mL sample in an EDTA tube (pink top tube) must be supplied.
- Each crossmatched unit of blood will be held for 24 hours only after the stated time required.

3.2.3 Sample Validity

- Any sample provided for a patient who has been transfused or is/has been pregnant within the last 3 months expires 72 hours after the date and time of collection.
- Any sample provided for a patient who has NOT been transfused or pregnant within the last 3 months expires after 7 days from the original date and time of collection.
- Where Blood Bank personnel have been notified, any sample collected in advance of elective surgery, and where the patient's history clearly excludes a transfusion history or pregnancy, the sample can remain valid for 1 month from the time of collection provided it has been separated into serum/plasma and frozen at or below -20°C.

3.3 Date and time of sample expiry can be found in PowerChart results or by phoning the Blood BankOrdering

The **ordering** of blood or blood components involves the process of communicating to the CHW Blood Bank to prepare and issue a product for administration.

A Transfusion Request Form must be used to place orders for tests and blood products required for blood transfusion.

ALL details requested on the blood transfusion request form must be completed accurately and legibly. If blood is needed urgently, Blood Bank should be notified by telephone.

The person ordering the blood must be identifiable and provide the following information on the transfusion request form:

- Date of request
- Date and time when the product is needed
- Complete patient ID details (Surname, Given Name, Date of Birth, gender, MRN)
- Patients Weight
- Patients Ward/Location
- Diagnosis & Indication for the transfusion
- Indicate the number of units/volume requested
- Indicate any special requirements e.g. CMV negative or irradiated products
- State the urgency of the request
- Indicate if a Group, Hold & Screen or Crossmatch is needed
- Name and Signature of the person requesting the blood must be legible

In emergency situations where blood is required immediately, urgent samples will be crossmatched as a priority over non-urgent samples.

3.3.1 Ordering of Blood - Red Cells

When ordering red cells the following is required:

- Each transfusion episode requires an accurately completed 'Blood Transfusion Request Form' (Red M19A Form) or electronically placed crossmatch order.
- All requested sections on the 'Blood Transfusion Request Form' must be completed otherwise the sample may not be processed for testing. This includes the collector and witness declaration.
- An **accurate** and **hand written** labelled blood sample for grouping is required.
- For each unit of red cells ordered a 1ml sample in a Crossmatch tube must be provided to enable adequate grouping and crossmatching. Ensure gentle rotation of the tube once filled, DO NOT shake the specimen.
- Refer to section 4 Pre-transfusion Sample Collection for further information regarding the pre-transfusion sample.
- Transfusion volume: 0.4 x wt (kg) x (desired – actual) Hb (g/L)
- As a general rule, transfusion volumes should be individualised for the patient, and haemoglobin should not be increased by more than 50 g/L in any one transfusion.

For any further enquiries on Transfusion volumes, please contact the Haematologist on-call

3.3.2 Ordering Platelets

When ordering platelets the following is required:

- Telephone requests can be made when ordering platelets if the patients' blood group and Rh (D) status is known and documented in the Blood Bank computer system.
- The name of the person making the telephone request and the name of the requesting clinician is required.
- The following patient information should be provided to Blood Bank
  - Given & surname in full
  - Date of Birth
  - MRN
  - Quantity/volume required
  - Reason for the request
  - Date and time required
  - Location/ward

When making a request to order platelets, please be absolutely sure that the product will be used prior to making the request.

3.3.3 Ordering Fresh Frozen Plasma & Cryoprecipitate

When ordering FFP or Cryoprecipitate the following is required:

- Telephone requests can be made when ordering FFP or cryoprecipitate if the patients' blood group and Rh (D) status is known and documented in the Blood Bank computer system.
- The name of the person making the telephone request and the name of the requesting clinician is required.
- The following patient information should be provided to Blood Bank
  - Given & surname in full
  - Date of Birth
  - MRN
  - Quantity/volume required
  - Reason for the request
  - Date and time required
  - Location/ward
- Please Note: that each unit of FFP requires **20 minutes** thawing time and cryoprecipitate requires at least **10 minutes** for thawing.

When making a request to order the above products, please be absolutely sure that the product will be used prior to making the request.

3.3.4 Ordering Albumin & Coagulation Factors

- Blood Bank keeps a constant supply of Albumin 4% and 20% and coagulation factors as imprest stock.
- When ordering Albumin 20% or coagulation factors, a telephone request can be made to Blood Bank who can advise on stock availability.

3.3.5 Ordering Intravenous Immunoglobulin

For all patients who require IV immunoglobulin the following is required:

- For the initial first dose, the Medical Officer requesting must contact an ARCBS Medical Officer directly by phoning 92342444 to place an order and provide complete patient identification details for IV immunoglobulin. The ARCBS officer will determine whether the patient can receive Intragam P or an alternative product (Kiovig® and Octagam®). If offered an alternative product, the preference at CHW is **OCTAGAM**.
- If the ARCBS deems the patient ineligible for IVIG, Flebogamma may be used if granted approval by the CHW Drug Committee. This product is available from pharmacy.

- For any ARCBS eligible subsequent transfusion of immunoglobulins, orders can be placed directly with the CHW Blood Bank whilst the patient has current approval with the ARCBS.
- If there is any change in the IVIG dose the medical officer must contact ARCBS Medical Officer before supply will be sent.
- Please see the Immunoglobulin CHW policy http://chw.schn.health.nsw.gov.au/o/documents/policies/guidelines/2008-8024.pdf.

3.3.6 Ordering of Non Stock Blood Component Items

When ordering non-stock items (e.g. specialised immunoglobulin- zoster, CMV) the following is required

- A telephone request is to be made to the CHW Blood Bank.
- The name of the person making the telephone request and the name of the requesting clinician is required.
- The following patient information should be provided to Blood Bank
  - Given & surname in full
  - Date of Birth
  - MRN
  - The product requested
  - Quantity/volume required
  - Date and time required
  - Location/ward.

For any enquiries related to the ordering of blood products; the CHW Blood Bank can be contacted by phone on EXT 52284.

After hours enquiries contact page 6832.

3.4 Special Blood Requirement Guidelines

The reverse side of the printed transfusion request form provides guidelines for those patients who have special requirements. The Blood Bank Department Intranet page special guidelines for blood transfusion contains the information regarding special requirements. Alternatively, this link is embedded within the electronic crossmatch form ordering process.

3.4.1 Irradiated Components

The irradiation of red cells and platelets is effective in the prevention of Transfusion Associated Graft versus Host Disease in susceptible patients. All platelet products received from ARCBS are pre-irradiated.

Irradiation of red cells is performed on site and Blood Bank should be notified of this requirement when calling to notify of imminent pick up of the red cells. Irradiated red cells should be ordered for the following patients:

1. Premature/very low birth weight infants (<1500g)

2. Exchange transfusion or 'top-up' transfusion post receiving an Intrauterine Transfusion
3. Diagnosed with or suspected of having a congenital immunodeficiency disorder (e.g. Velocardiofacial Syndrome, Di George Syndrome, Athymic patients)
4. Patients diagnosed with Leukaemia, Lymphoma or solid organ malignancies
5. Recipients of (or candidates for) Bone Marrow/PBSC Transplant
6. Patients receiving Immunosuppressive therapy (e.g. Aplastic Anaemia, post liver/renal transplant)
7. In patients requiring HLA matched single donor platelets (if not in the above category)
8. Neonates with Necrotizing Enterocolitis if they do not fit in the above categories
9. Patients receiving a directed donation (from a first or second degree relative)

3.4.2 CMV Negative – Cytomegalovirus Antibody Negative

The use of CMV negative blood components are available for patients who are considered at high risk of acquiring transmitted CMV infection.

Patients considered at high risk of CMV infection are:

1. Neonates/ Infants weighing <1500 grams or who are immunosuppressed
2. Recipients of neonatal exchange transfusion
3. CMV negative recipients of PBSC/BMT or solid organ transplant
4. CMV negative recipients receiving highly immunosuppressive chemotherapy
5. Other severely immunosuppressed patients

If CMV negative units are not available, leukocyte depleted units are considered 'CMV safe' and may be administered after discussion with the patients Consultant Medical Officer.

3.4.3 Leucodepleted – white blood cell-poor products

Leucodepletion of red cells and platelets removes ≥ 99% of leucocytes which assists in reducing febrile non-haemolytic transfusion reactions as well as reduce the risk of CMV transmission during transfusion.

3.4.4 Triple Washed Red Cells –TWPC

Triple washed red cells are ordered only after consultation with a haematologist. They may be indicated for patients who have had previous severe allergic reactions to other red cell products.

3.4.5 Phenotyped – red cells matched for blood groups additional to ABO and Rh (D)

Consultation with a Haematologist is required for the request of phenotyped red cells. Phenotyped red cells are ordered for all patients who:

- Are known to have red cell antibodies (eg anti Kell, anti-Jka)
- Are scheduled to receive long–term regular blood transfusion therapy (eg; Homozygous Beta Thalassemia, Aplastic Anaemia)

3.4.6 HLA Matched Platelets

HLA matched platelets are used by patients who have developed a HLA antibody. If a patient has HLA antibodies, the Blood Service needs to provide HLA matched platelets. HLA matched platelets can only be ordered once there has been a demonstrated antibody. This testing is performed by ARCBS. Please consult haematology if you require this testing done if you are unfamiliar with the process.

3.5 Directed Donations

A directed donation is an allogeneic donation collected for a specified patient, from a selected donor known to the patient. The request usually occurs within family relationships, in particular for parents to children. All directed donations will be managed in accordance with ARCBS policy and must be arranged in consultation with a Haematologist. The following link can provide more information on directed donations:
http://www.transfusion.com.au/blood_basics/collection/directed_donation/requirements

4 Pre-transfusion Sample Collection

It is a mandatory requirement by the NSW Department of Health that all patients who may receive blood or blood components must be accurately identified at both the time of sample collection and transfusion.

Refer to NSW Health Policy Directives:

- **Patient Identification: Correct Patient, Site and Procedure:** http://www.health.nsw.gov.au/policies/pd/2007/PD2007_079.html and
- **Blood: Fresh Components – Management:** http://www.health.nsw.gov.au/policies/pd/2012/pdf/PD2012_016.pdf

If the request form or blood sample identification is **incomplete** or **incorrect**, the request for grouping or crossmatch will be **refused** by CHW Blood Bank staff. You will need to tell the parent about the issue, notify the RMO, recollect a sample/new form and send to Blood Bank. Incident will be logged as an IIMS.

Get it Right…First time!!

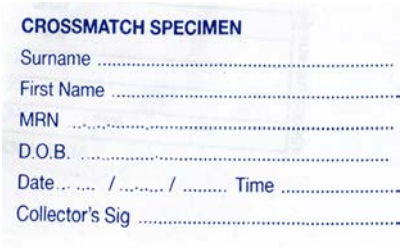
4.1 Request Forms

- The Blood Transfusion Request Form must be completed accurately and state clearly the patient's diagnosis and the clinical indication for transfusion.
- The test required to be performed should be clearly indicated using the corresponding tick box. Refer to Section 3 for Pre-transfusion Testing requirements.
- Any previous transfusion history should be clearly documented by ticking 'yes' or 'no' on the form.
- The product required and the number of units required should be clearly stated and the date and time required should be indicated.
- Any urgent request should be phoned through to the Blood Bank and the degree of urgency should be stated.

- Special requirements such as 'CMV negative' or 'irradiated' should be indicated under the heading special requirements.
- The prescribing medical officer must print & sign their name as well as provide a contact number on the form.

4.2 Sample Collection Procedure & Patient Identity Check

- Samples collected for testing may be collected by a medical officer, a registered nurse or a pathology collection staff member.
- The sample must be verified by a second person in accordance with NSW Health policy directives Correct Patient, Correct Procedure and Correct Site and Blood - Management of Fresh Blood Components, to correctly verify the patient identity. The second person may be any clinical member of staff, the patient if they are of the age of consent, or the parent/guardian.
- Wherever possible the patient should be asked to verbally state their name and DOB and the information given should be checked against the request form. If the patient is unconscious at the time of collection, the patient's ID wristband can be used to check their name and DOB.
- The blood sample must be labelled immediately after it has been added to the pink top tube and **before** leaving the patient.
- For each unit requested, 1mL of blood is required in a Crossmatch pink top specimen tube



NB: all sections of the label on the pink top specimen tube **MUST be accurately completed**

- The sample tube must be **handwritten and labelled** with the following information:
  - Given Name & Surname
  - MRN
  - Date of Birth
  - Date & time of collection
  - Signature of the collector on the tube
- Sample tubes **must not** be pre-labelled or labelled with printed labels. **Tubes labelled with printed labels will be rejected by Blood Bank, and a new sample will have to be collected**.
- All samples must be accompanied by a completed Blood Transfusion Request Form and both the collector and the second person verifying the sample are required to print and sign within the sample collection box.

4.3 Maternal Samples

- Maternal samples should be collected for **any** patient under the age of 1 month requiring blood grouping or crossmatching
- The procedure for collecting maternal samples should be followed in accordance with section 4.2 and the sample must be labelled with the mother's identification details.
- Maternal samples should be requested using the Blood Transfusion Request Form and the patient ID details on the form and sample must be those of the mother.
- At the top of the form it should indicate who the maternal sample is for e.g. "Alana Smith, Mother of John Smith".
- A Group, Screen & Hold should be requested.
- Maternal samples sent from external hospitals will be accepted if there is a completely labelled blood sample tube and an external hospital request form. DO NOT transfer the details of the order form onto a CHW Blood Transfusion Request Form.

4.4 Unlabelled or Mislabelled Samples/Request Forms

- The Blood Bank has a **zero tolerance policy** linking to the National Standard in relation to errors in patient identification on the sample or request form.
- **Zero tolerance means that**:
  - ***Samples*** must be **hand-labelled** with:
    - **i.** Patients given name and surname
    - **ii.** Medical record number and date of birth (both MUST be correct)
    - **iii.** Date and time of collection
    - **iv.** Signature of collector
  - ***Request forms*** must have:
    - **i.** Name and signature of requestor
    - **ii.** Surname and given name of patient
    - **iii.** MRN and date of birth
    - **iv.** Signed and witnessed collector declaration
- Addressograph labels are acceptable on the request form ONLY
- **The details on the request form and the tube must be identical** as per ANZSBT and RCNA guidelines.
- If the patient has a name change a new form and sample will be required.
- In the event of an unknown patient arriving in ED/PICU, the tube and request form will be accepted with "Unknown (Fe)male" and MRN as the patient identifiers.
- If there are any errors in the patient identification **on the sample or the form,** the **sample will be discarded** and the collector will be notified to recollect the sample.

- Samples labelled with printed labels will be discarded and the collector will be notified to recollect the sample.
- If a sample meets the zero tolerance criteria, this will be logged as an IIMS and information tracked by the Transfusion Review Committee. This information will be used to identify areas for education and follow up.

5 Storage and Transportation

The proper storage and transportation of blood and blood components is critical for safe transfusion. If stored incorrectly, blood carries the risk of bacterial contamination.

Safe practice requires all blood and blood components (except platelet concentrates) to be maintained between 2 and 6°C until immediately prior to administration.

- Blood and blood components must only be stored in monitored refrigerators.
- At CHW Blood monitored refrigerators are only in Blood Bank and the in the Operating Theatre Suite.
- The monitored refrigerator in the Kid's Factor Zone (on level 1) may be used for storage of small amounts of factor concentrate only.

Blood and Blood Components **MUST NOT** be stored in ward refrigerators.

5.1 Collecting and Transporting Blood Products

It is vital to confirm that the right blood component is collected for the right patient to avoid "wrong blood to patient" episodes

- BEFORE collection, both patient and staff must be adequately prepared to commence the transfusion without delay.
- Any person collecting blood MUST have complete patient identification details.
- Acceptable forms of patient identification include:
  - A "Blood Bank Collection Slip"
  - The prescription (IV fluid balance chart or medication chart)
  - The Transfusion request form when collecting second units of blood ONLY in the event of "Downtime"
- A medical or nursing staff member is responsible for completing the "Blood Bank Collection Slip".
- If medical or nursing staff request that ancillary staff pick blood up from the Blood Bank, they MUST ensure that ancillary staff are given the appropriate documentation and storage carrier prior to collection of the product.
- The "Blood Bank Collection Slip" is available for print via the following link Blood Bank Collection Slip.

- An appropriate storage carrier should be used for the safe transportation of blood products between the CHW Blood Bank and the ward/theatre areas. Each ward/area should have a designated storage carrier for this purpose. This carrier **must not** be unduly agitated and carefully transported to the designated patient area.
- Ice/Cold packs MUST NOT be used in the carrier when transporting blood.
- The person collecting the product must supply the Blood Bank staff with their Hospital Staff Identification number for the product to be issued.
- At time of issuing the product, Hospital Blood Bank Scientists or Technical Officers must check that:
  - the patient's identity matches the documentation provided
  - any special requirements documented on the transfusion request form, eg: CMV negative or irradiated products, are met
  - the blood product issued is within the expiry date
  - the time of issue is recorded in the Blood Bank computer system
- The person collecting the product must check that the details on the compatibility label match exactly the details on the patient's documentation. If there is any discrepancy the product must not be removed until this has been resolved by the CHW Blood Bank staff.
- Blood products **WILL NOT** be issued via the Lamson Transport System.
- **"30 minute rule": ALL** fresh blood and blood components (e.g. red cells, platelets, cryoprecipitate, FFP) MUST commence transfusion **within 30 minutes** of collection time once removed from storage. If for any reason the transfusion cannot commence within 30 minutes, the product must be returned back to the appropriate storage in Blood Bank.
- When a patient is haemodynamically stable, only 1 Unit of red cells/fresh product will be dispensed at a time, to avoid wastage.
- **Downtime procedure:** In the event of computer or printing issues the patient will be dispensed the product in a timely manner. The Blood Bank staff will give the person collecting the product the checking sheet in a handwritten format – as per Australian Standard.

5.2 Blood required to be held in Operating Theatres

The transfer of blood for elective surgery between the Blood Bank and the Operating Theatre will occur on weekday mornings.

- The Blood Bank will be informed of any patients booked for surgery requiring blood according to the Surgical Blood Order Schedule.
- Clinical Staff in the operating theatre will provide the Operating Theatre Porters with the appropriate documentation for the release of blood products from the Blood Bank.
- Any product required to be stored in the Operating Theatre Blood Fridge will be issued by Blood Bank staff in accordance with section 5.1 for Collecting and Transporting of Blood Products.

- Once transported to the Operating Theatre, Nursing Staff will check each blood pack against the documentation for request and against the Blood Transfusion Form as it is stored in the blood fridge.
- Any unused blood products will be returned to the Blood Bank the following morning by the Operating Theatre Porter and Blood Bank staff will adjust computer records indicating the products return.
- Blood stored in the Operating Theatre fridge must only be used for patients in the operating theatre at the time of surgery only and be signed out of the Blood Fridge as per protocol.
- For any further blood products required from the Blood Bank during surgery, a Blood Bank Collection Slip must be used if it involves subsequent units blood components.

6 Administration

The most basic principle of patient care during a transfusion is to ensure patient safety.

All clinical staff must be aware of the mandatory requirements for providing safe transfusion according to NSW Health Policy Directive PD2012_016.

All staff involved in the decision for and administration of the transfusion should complete the "Bloodsafe" eLearning package as the minimum educational requirement.

BEFORE the Pre-Transfusion check is commenced you will need to confirm that:

- Consent has been obtained. The staff members checking and transfusing the blood component have a responsibility to ensure that there is valid consent. If appropriate consent and/or documentation has not been identified then the transfusion should be delayed until informed consent has been obtained; exceptions are in emergency situations (as detailed in Section 2 Consent).
- The prescription has been satisfactorily completed, including any medications.
- Intravenous access is suitable and patency has been assessed PRIOR to collecting the blood component.
- Appropriately trained and competent staff are available for the duration of the transfusion, including two RN or MO to complete the pre-transfusion check.

The **bedside** check is a vital step in preventing transfusion error. All patients receiving blood or blood components must be positively identified at the bedside at the time of priming and prior to commencement of Transfusion.

6.1 Pre-Transfusion Check

- **In the presence** of the patient, two people must independently identify the patient when the transfusion is being **set up**. This involves two Registered Nurses, or a Registered Nurse and a Medical Officer, or two Medical Officers.
- The patient's identity must be checked against the patient's identification wristband.

- The patient or parent/guardian should be asked to verbally state the following if able to do so:
  - Surname, Given Name, DOB and MRN if known
  - Address
- If a patient is unconscious or unable to state their name (eg: neonate) a parent/guardian may state the patient identity. In the absence of carers, it is sufficient that the two people completing the pre-transfusion check confirm the patient's identity by using the patient's ID wristband.
- In the operating theatre, the patient identity check must be completed by the Anaesthetist and a second staff member.
- The following details on the blood pack component label must be checked and must match exactly the details on the blood request form, the prescription order AND the patient's identification wristband:
  - Patients Surname, Given Name and Date of Birth
  - Hospital Medical Record Number
  - Unique blood unit number
  - The ABO and Rh D group
  - The expiry date on the blood product
- In some instances, blood issued may be compatible but not identical to the patient's own ABO and Rh (D) group. Check for compatibility before commencing transfusion and review the information on Blood Component Compatibilities. If still concerned, contact Blood Bank.
- **Check** that special requirements specified by the prescribing medical officer are met eg;
  - CMV negative or irradiated products
  - If a pre-medication or frusemide is required
  - The volume, rate and the duration of the transfusion
- The blood product should be visually inspected for any signs of deterioration or damage. If there is evidence of any leaks, clots or discolouration, the product should not be infused and should be returned to the Blood Bank immediately.
- Both staff members responsible for completing the pre-transfusion check must sign, date and time the blood component issue sheet.

6.2 Administration and Set up

All Red Cell, Platelet, FFP and Cryoprecipitate units require filtration via a standard 170-200 micron filter. At CHW this filter is the Baxter Blood Infusion Set.

Standard Precautions MUST be used:

- The unit/pack to be transfused should be mixed thoroughly by gentle inversion.

- A new, sterile Baxter Blood Infusion Set is to be used for each component type to be transfused. For example Platelets **may not** be transfused in the same set as Red Cells, one after the other.
- **Blood Administration sets must not be "piggy backed" to other lines**. If vascular access is an issue the Transfusion can be connected to a valve on a 3-way tap or trifocate, ensuring that the other lumens are clamped and/or have compatible fluids only being administered i.e. 0.9% sodium chloride - Co-administration of IV Fluids and Medications. If a 3 way tap or trifocate is required to be utilised then **YOU MUST** flush the device with 0.9% sodium chloride prior to and post transfusion.
- A burette should be attached to the Infusion Set and used to "spike" the blood pack using an aseptic technique.
- The blood Infusion Set may be primed with normal saline or the blood component only **at the bedside.**
- Ensure that IV access is patent prior to connecting the Infusion. Set to the patient's IV access device.
- The Baxter Colleague/Flogard IV pump is suitable for the transfusion of **ALL** blood components and they should have a biomedical tag for due date of next service.
- The Baxter Blood infusion set should be changed every **12 hours** with fresh blood components, and no more than 4 units of blood are to be transfused per filter to avoid slow flow rates.
- Each staff member involved in the pre-transfusion check must determine the rate of transfusion independently of each other before commencing the transfusion.

The only fluid compatible with **all** fresh blood and blood components is **0.9% Sodium Chloride**. You **MUST** flush pre and post Transfusion with 0.9% Sodium Chloride **ONLY** to ensure vascular access patency.

- Blood and blood products must not be administered concurrently with any other fluid, medication, parental nutrition or blood product.
- Medications MUST NOT be added to the blood pack to be transfused or to the Infusion Set. Refer to section 6.7 on Co-administration of IV Fluids and Medications.
- Dextrose MUST NOT be used for priming or adding to the Infusion Set.

6.3 Use of a Syringe Driver to Administer Blood

The following procedure should be followed in accordance with the Pre-Transfusion Check (Section 6.1) and Administration and Set-Up (Section 6.2):

- For infants and neonates or any patient on minimum fluid requirements, a syringe driver may be used to transfuse blood and blood components.
- The volume of blood required should be drawn into the syringe using an aseptic technique and administered via mini-line and a 170-200 micron filter.
- Each syringe & Infusion Set used should be single-use only and discarded appropriately at the end of the transfusion.
- Syringe driver should have a biomedical tag and due date of next service.

6.4 Patient Observation and Monitoring

All patients receiving a transfusion should be monitored for any potential complications and adverse transfusion reactions. **The patient should be closely observed for the first 15-30 minutes** as severe and life-threatening reactions can occur after only a small amount of blood being transfused.

- **Visual** observation of the patient is the best way of assessing patients during transfusion.
- Educate the patient and parent of the adverse effects and advised to contact the staff immediately if they experience any symptoms during or after the transfusion.
- Transfusions should be given in areas where patients can be readily observed.
- Transportation of patients should be avoided whilst a transfusion is in progress. However, if a patient is required to leave the ward/ outpatient area for any reason, a staff member trained in transfusion administration must accompany the patient.
- It is advisable that an assessment of the patient is undertaken prior to the transfusion commencing. This will assist prompt recognition of a possible transfusion reaction, e.g. presence of a rash/fever pre-transfusion.
- A full set of observations should be taken and documented on the Standard Paediatric Observation Chart before, during and after the transfusion to detect any adverse event as early as possible.
- The frequency and documentation of observations must be adjusted to the patient's individual clinical circumstances. As a minimum requirement observations should be checked and recorded on the Standard Paediatric Observation Chart:
  - As a **baseline** before the start of the transfusion.
  - Within **15 minutes after the start** of the transfusion or with commencement of each new unit.
  - **Hourly** during the transfusion and
  - **At the end** of each blood component unit.
- Patients should be closely **observed** for the first **15 -30 minutes** of the transfusion and should be instructed to report to staff if they experience any discomfort or unusual symptoms. If not able to visualise the patient it is recommended that the staff stay with the patient for the initial 15 minutes if possible.
- Each patient's clinical circumstance must be assessed on an individual basis.

Refer to Section 7 regarding Management of Adverse Transfusion Reactions if a patient displays or reports any signs and symptoms of an adverse event.

6.5 Use of Special Filters

Leucodepletion Filters

Red cell and platelet units are leucocyte-depleted at the ARCBS and filters are no longer needed when administering these units.

6.6 Time Limit: 30 minute – 4 hour Rule

There is an increased risk of bacterial contamination once blood products have been removed from the appropriate storage conditions.

- Red cells, FFP and cryoprecipitate for transfusion must commence transfusion within **30 minutes** of removal from storage and must be complete within **4 hours** of the transfusion start time.
- **Platelet** transfusions should be commenced within **30 minutes** of removal from a platelet agitator because of the risk of the platelets clumping and becoming damaged. Once transfusion has commenced they should be infused within **1 hour**.
- Refer to Appendix I.

6.7 Co-administration of IV Fluids and Medications

Medications MUST NOT be added to any blood component pack or to the administration set.

ONLY in situations where alternate IV access is unobtainable or when it is absolutely necessary that medications are to be given during a blood transfusion, should the following procedure be followed:

- The blood transfusion should be stopped and the IV line should be flushed with normal saline before and after the administration of the medication.
- The blood transfusion can then be recommenced ensuring that the transfusion is completed within 4 hours of the start time.
- Co-administration of Morphine and/or Ketamine diluted ONLY in Normal Saline has been shown not to adversely affect red cells. If morphine and/or Ketamine are required to be co-administered as a PCA infusion, then they must be infused via a separate IV line.

IV fluids MUST NOT be added to any blood component pack or to the administration set.

- Red cell transfusion fluid compatibilities include - Normal saline, 4% albumin and ABO compatible plasma BUT only with the haematologist's approval.
- Platelets are **only** compatible with Normal saline.
- If co-administration of any of the previous fluids are required, they must be infused via a separate IV giving set and the prescribing medical officer should be consulted and the decision to co-administer MUST be documented in the patient's medical record.

6.8 Albumin Administration

Human Albumin is available for administration as Albumex® and comes in two concentrations, Albumex® 4% and Albumex® 20%. Caution should be taken to ensure the right concentration and dose is given.

The following procedure should be followed in accordance with sections 5.1 and 6.1.

Standard Precautions must be used:

- A new standard IV administration set is to be used for the administration of Albumin concentrations. No filter is required. Do NOT agitate the solution.
- Administration from glass bottles requires a vented system. An airway needle is required for adequate flow.
- Medications are not to be added to the administration set.
- Patient observation and monitoring should be followed in accordance with section 6.4.
- Record the batch number of each bottle by removing the batch sticker and placing on the patient's medication chart/IV Fluid order.
- Each bottle should only be accessed once and be used as single use only.
- For continuous or replacement of losses, a bottle of 4% Albumen can hang for a maximum of 24 hours, as long as the IV administration set is maintained as a CLOSED system. Once the IV administration set has been broken the line is to be discarded, due to the risk of bacterial contamination.

6.9 Coagulation Factor Administration

Several Coagulation Factor products are available from the CHW Blood Bank.

- The procedure for collecting Coagulation Factors from the Blood Bank should be followed in accordance with section 5.1.
- Reconstitution should be followed as per individual product information.
- The administration of Coagulation Factors should be followed as per the CHW guideline Medication Management and Handling.
- Record Batch numbers on the medication chart or remove the peel off sticker and place on the medication chart/clinical progress notes.
- If having difficulty in reconstituting the Coagulation Factor please contact the Haematology CNC on page 7052 in BH or Blood Bank on 52284 AH. Before discarding the product, please contact Blood Bank as they have troubleshooting guides and guidelines for reconstituting of Coagulation Factors.
- Vials that have been broken or unable to be reconstituted vials MUST be returned to Blood Bank so they can have a product fault examination and be sent back to the company.

6.10 Waste Management

- Standard precautions must be used when handling blood products required for clinical waste.
- If a severe transfusion reaction is suspected then the blood pack should be retained and sent to the CHW Blood Bank for further testing. Refer to Section 7 on Management of Transfusion Reactions. Ensure all efforts to avoid further contamination of the bag.
- All waste should be discarded following hospital policy. Refer to Waste Management Policy.

6.11 Blood Warmers for Red Cells Only

All blood warmers within CHW must be assessed by Biomedical Engineering to ensure that they meet the specifications of the manufacturer and are validated for the use of blood warming. A blood warmer maybe indicated for the use of:

- Large volume rapid transfusions >15mL per hour in children or >30mL/hr in adults.
- Exchange transfusions

Red Cells: should only be warmed as they flow through the administration set. The thermometer should at all times be visible and the alarm has been tested and is audible. The temperature of the blood warmer MUST be documented in the patient's clinical notes and must not exceed 40^{o}C. Water baths are not recommended due to the high risk of bacterial contamination and dry heat sources are only to be used within CHW.

Never warm using improvised methods including: microwaving, use of heated towels, radiator/heater. These methods can ALL damage red cells and cause harm to the patient.

7 Management of Adverse Transfusion Reactions

Acute transfusion reactions can commonly present in complex clinical situations, when the diagnosis requires distinguishing between a reaction to the transfused blood product and a coincidental complication of the illness being treated that occurs during or immediately after a blood transfusion. As a consequence any suspected transfusion reactions require immediate recognition, laboratory investigation, and appropriate clinical management[19]. Blood Transfusion can be associated with various adverse effects. Some reactions are acute, others delayed. It is essential to monitor all patients closely to recognise the signs and symptoms of a transfusion reaction.

ALL transfusion reactions **MUST** be reported to the CHW Blood Bank and the Haematologist on call.

Complications of Transfusion
• Febrile reactions
• Allergic reactions manifested as urticaria, wheezing, anaphylactoid reactions
• Alloimmunisation of the recipient of red blood cells, white blood cells, platelets and protein antigens
• Haemolytic transfusion reaction
• Circulatory overload
• Bacterial contamination
• Metabolic complications such as hypothermia, acidosis, hyperkalemia, hypocalcaemia
• Clinically significant depletion of coagulation proteins and platelets if massive transfusion.
• Transmission of viral infectious disease
• Iron overload
• Transfusion Associated Graft-versus-host (TA-GVH) disease
• Transfusion-related Acute Lung Injury (TRALI)

7.1 Acute Complications of Transfusion

Acute transfusion reactions can occur during or shortly after the transfusion (within 24hours). They can be mild, moderately severe and even life-threatening with the most common reactions being fever, chills and a rash.

- The most common cause of Mild Reactions is hypersensitivity.
- Moderately Severe Reactions include febrile non-haemolytic transfusion reactions. During the early stages of a transfusion reaction it may be difficult to distinguish between a moderate severe reaction and a life-threatening reaction.
- Life-Threatening Reactions involve shock, intravascular haemolysis, anaphylaxis and TRALI. Common causes are ABO incompatible transfusions and contaminated blood packs.

7.2 Delayed Complications of Transfusion

Delayed complications include transfusion transmitted infections and delayed haemolytic reactions that can occur days, months or even years after the transfusion.

Some examples of delayed transfusion reactions include:

- Cytomegalovirus, Epstein Barr Virus, Toxoplasmosis, Hepatitis B and C
- Delayed haemolytic transfusion reactions
- Post-transfusion Purpura
- Graft versus Host Disease
- Immunosuppression
- Iron Overload

Patients and parents/guardians should be instructed to report immediately if any of the below signs and symptoms are experienced as they could indicate a transfusion reaction.

7.3 Reaction Types and Signs & Symptoms

Type of Reaction	Signs and Symptoms
Mild Allergic	Localized urticaria, pruritis, rash
Severe Allergic	Flushing, wheezing, hypotension, anaphylaxis
Febrile	Unexpected fever > 38° C may be accompanied by rigors/chills
Acute Haemolytic	Rigors, fever, flank pain, tachycardia, dyspnoea, hypotension, hemoglobinuria, unexplained bleeding
Transfusion Related Lung Injury (TRALI)	Dyspnoea, respiratory failure, pulmonary oedema, chills, fever
Septic reaction	Fever, chills, rigors, nausea/vomiting, hypotension

7.4 Immediate management of a suspected transfusion reaction:

If a patient develops any of the above:

1. **STOP** the transfusion and provide immediate care.
2. Perform a complete check of observations and document on the Standard Paediatric Observation Chart.
3. Check patient identity and confirm that the right blood product has been given to the right patient.
4. Call for a clinical review or rapid response (444)
5. Maintain IV access with normal saline using a new IV giving set.
6. Contact the Haematologist on-call and the CHW Blood Bank for further investigations.
7. Document the reaction and the management in the patients' medical record.
8. Report the incident in IIMS reporting system.

7.5 Wrong Product Administration

1. **STOP** the transfusion and provide immediate care.
2. Perform a complete check of observations and document on the Standard Paediatric Observation Chart.
3. Check patient identity and confirm that the right blood product has been given to the right patient.
4. Call for a clinical review or if necessary a rapid response (444)
5. Maintain IV access with normal saline using a new IV giving set.
6. Contact the Haematologist on-call and the CHW Blood Bank for further investigations.
7. After notifying Blood Bank, ensure the unit and a copy of the Blood Component Sheet is returned to Blood Bank
8. Document the reaction and the management in the patient's medical record.
9. Report the incident in IIMS reporting system

7.6 Investigation of a Transfusion Reaction:

After the decision is made to discontinue the transfusion, send the following requests and blood samples to the CHW Blood Bank in consultation with the Haematologist on call and Blood Bank lab staff:

- 1mL EDTA tube sample: FBC & DAGT
- 5-10mL EDTA tube sample: Group & Screen
- 2mL Lithium Heparin tube sample: EUC's
- Blood Cultures from the patient (NOT from the existing IV cannula, may be taken from CVADs)

- Urine sample (first voided sample after the reaction): Urinalysis (to check for blood)- if positive, send to Micro for MC&S
- Blood Pack (Placed in a sealed specimen bag. Do not send via Lamson Tube. Do not send any sharp objects, ensure blood pack is not contaminated further as this will impact on the investigation)

Note: For platelets, fresh frozen plasma, cryoprecipitate and other blood products, only the Blood pack and Blood Cultures from the patient are needed for further investigations.

Notification to ARCBS of transfusion reaction by medical officer or Blood Bank staff.

7.7 Incident Information Management System - IIMS.

The Incident Information Management System (IIMS) should be used to report any suspected transfusion reaction or any 'near miss' event that occurs related to the blood transfusion process. All Blood and Blood Component related incident reports are discussed and reviewed by the Transfusion Review Committee.

All staff should familiarise themselves with the CHW policy on Incident Management
http://intranet.kids/o/documents/policies/policies/2006-8324.pdf

8 Documentation

The complete documentation of transfusions allows adequate follow up investigation of any serious adverse event as well as aid the auditing process in transfusion practice.

All blood transfusions should be completely documented and include the following:

- The indication for the use of blood or blood components
- Documented Consent
- The outcome of the transfusion & whether or not it achieved the desired effect
- The date of the transfusion
- The time the transfusion commenced and completed
- The type and volume of the transfusion
- Compatibility label or report must be included in the clinical notes
- Complete documentation of nursing observations throughout the transfusion
- The management and outcome of any adverse event.

Remember to record ALL related blood incidents, including 'near misses' and 'wrong blood in tube episodes' using the Incident Information Management System - IIMS.

9 Bibliography and References

1. NSW Health Policy Directive 'Consent to Medical Treatment – Patient Information' PD2005_406: http://www.health.nsw.gov.au/policies/PD/2005/pdf/PD2005_406.pdf (accessed July 2012)
2. Guidelines for the administration of blood components. Australian and New Zealand Society of Blood Transfusion and the Royal College of Nursing Australia. 2nd Edition, 2011.
3. The Clinical use of Blood in Medicine, Obstetrics, Paediatrics, Surgery & Anaesthesia, Trauma & Burns. World Health Organization Blood Transfusion Safety. 2002. Accessed via http://www.who.int/bloodsafety/clinical_use/en/Manual_EN.pdf
4. Australian Red Cross Blood Service. Blood component information – Circular of information 2012.
5. ANZSBT Pre-transfusion Laboratory Guidelines. March 2007. Accessed via www.anzsbt.org.au
6. ANZSBT Guidelines for Gamma Irradiation of Blood Components. May 2003. Accessed via www.anzsbt.org.au
7. Boulton, F. British Committee for Standards in Haematology Transfusion, Transfusion Guidelines for Neonates and Older Children, 2004, British Journal of Haematology. Volume 124(4) p 433-453.
8. National Health and Medical Research Council & Australian Society of Blood Transfusion. Clinical Practice Guidelines on the use of blood components. Accessed via www.nhmrc.gov.au/publications/synopses/_files/cp85.pdf
9. 'Flippin Blood', a blood safe flip chart to help make transfusion straightforward. Australian Red Cross Blood Service and the South Australian Department of Health. August 2006.
10. The Children's Hospital at Westmead Oncology Learning Package for Nurses. Section 9 Blood Product Administration and Management. Oncology Nurse Education Department. 2005.
11. The Children's Hospital at Westmead Blood Bank Policy Manual. Department of Haematology. 3rd Edition. 2004.
12. The Children's Hospital at Westmead Blood Bank Method Manual. Department of Haematology. 2nd Edition. 2004.
13. Women's and Children's Hospital Adelaide, Clinical Practice Guidelines for Paediatrics. Accessed via http://www.transfusion.com.au/TRANSFUSIONPOCKETGUIDES/Pocket_WCHPaediatric.asp
14. Atterbury, C & Wilkinson, J. Blood Transfusion. Continuing Professional development: Blood transfusion. 2000, Nursing Standard. Volume 14 (34) p 47-54
15. Gray, S & Murphy, M. Guidelines for Administering Blood and Blood Components. 1999, Nursing Standard. Volume 14 (13-45) p 36-39
16. SHOT report. Serious Hazards of transfusion (UK) Annual Report 2001-2002. Accessed via www.shotuk.org
17. Simpson, J and Kinsey, S. Paediatric Transfusion. 2001, Vox Sanguinis. Volume 81 (1) p 1-5.
18. NSW Health Policy Directive "Blood – Management of Fresh Blood Components" PD2012_016: http://www.health.nsw.gov.au/policies/pd/2012/pdf/PD2012_016.pdf (accessed July 2012)
19. S Gerald Sandler, MD, FACP, FCAP; Chief Editor: Emmanuel C Besa, MD Transfusion Reactions http://emedicine.medscape.com/article/206885-overview, Jan 2012

Appendix I: Time Limits for Transfusion Duration

Blood Component	Temperature range and conditions	Start Infusion	Complete Infusion
Whole Blood/Red Cells	**2° to 6°C**	**Within 30minutes**	**Within 4 Hours or less of commencing transfusion**
Platelet	**20° to 24°C**	**Immediately within 30 minutes**	**Within 30 – 60 minutes**
Frozen Plasma	**At or below -25°C**	**Within 30minutes After thawing**	**Within 4 Hours or less**
Cryoprecipitate	**At or below -25°C**	**Within 30minutes After thawing**	**Within 4 Hours or less**