CLINICAL PROCEDURE

ADMINISTRATION OF FRESH FROZEN PLASMA (FFP)

Staff this document applies to:

Registered Nurses, authorised enrolled nurses and medical staff

State any related Austin Health policies, procedures or guidelines:

- Blood Component Transfusion - Clinical Practice Guidelines
- Blood Specimen/Request Form Labelling for Pre-Transfusion Testing
- Requesting Blood Components for Emergency and Non-Emergency Transfusion
- (Informed) Consent (to diagnosis and treatment) policy
- Management of Patients Who Refuse Blood and Blood Products policy
- Collection of Blood / Blood Products from the Austin Blood Bank (Austin Hospital)
- Accessing Blood from the Heidelberg Repatriation Hospital (HRH) Blood Fridges
- Accessing Blood from the Austin Operating Suite Blood Fridge
- Anaphylaxis-Initial Management
- Patient Information (adult & paediatric) - Blood Transfusion Website - Austin Health
- Medication Administration – Enrolled nurses and nursing students on placement

Purpose:

This document will provide guidance to staff to safely administer Fresh Frozen Plasma (FFP) and assist in recognising and managing reactions associated with FFP transfusion.

Definition:

- FFP is used to replace multiple coagulation factors in patients who are bleeding or are at risk of bleeding as a result of warfarin overdosage and liver failure, or in the circumstance of massive transfusion or acute DIC.\(^1,2\) For further information refer to Blood Component Transfusion - Clinical Practice Guidelines.
- FFP is separated from one whole blood donation and frozen for storage. It requires thawing by blood bank in a temperature controlled water bath. Thawing usually takes around 30 minutes.
- FFP contains normal plasma levels of all coagulation factors however factor VIII levels are reduced (at least 70% of normal).
- Volume of one unit of FFP is >250mls. The exact volume is recorded on the bag.
- Recommended dose of FFP depends on the clinical situation and the patient’s weight and should be guided by coagulation results. The suggested therapeutic dosage is 10 – 15ml/Kg per treatment.\(^1\)
Clinical Alerts:

- **FFP** is a blood component and must be checked at the patient’s bedside immediately prior to administration by two qualified members of staff: registered nurse, authorised enrolled nurse, medical.

- The staff member spiking/hanging the blood component must be one of the two staff members who have undertaken the blood product and patient identity check.

- **ALL** patients having FFP must have an identification wristband in-situ that includes the patient’s surname, given name(s), UR number and date of birth.

- All FFP transfusions must be supervised and occur within wards/departments.

- Non-urgent administration of FFP should occur between 8am and 8pm. Administration outside of these hours must be based on clinical need as determined by medical staff.

- **Consent:** Patients receiving a non-emergency transfusion of red cells, platelets, FFP and cryoprecipitate shall provide written consent on the Blood Transfusion form M109.0. The duration and frequency of consent may vary:
  - **Acute patients:** patients receiving a blood transfusion associated with surgery or a medical condition shall be consented prior to the first episode of transfusion. The consent will remain valid for the duration of the admission.
  - **Chronic patients:** patients whose treatment program includes regular transfusion e.g. haematology, oncology, renal, shall be consented at the commencement of their treatment. The consent will remain valid for 12 months.
  - **Emergency transfusion:** shall be administered when there is no evidence that the patient has refused transfusion (Management of Patients Who Refuse Blood and Blood products policy)

  Take care with the unconscious/confused/child patient to determine consent for transfusion. Patients who are Jehovah’s Witnesses may not accept blood or its components: Management of Patients Who Refuse Blood and Blood Products policy.

- **Compatible Fluids:** 0.9% sodium chloride, Albumin 4%, plasma protein fractions and ABO compatible plasma may be administered concurrently with blood following approval from the treating doctor.
  - Incompatible Fluids: Crystalloid/colloid solutions containing calcium (i.e. Haemaccel). Concurrent administration will cause clotting in the IV line. Note: Gelofusine has a negligible calcium content and therefore does not clot blood if given concurrently through the same intravenous line.

- Plasma must be ABO group compatible with the recipient's red blood cells as outlined in the table below. Rh(D) group is not relevant.

- A sample for blood grouping should be taken but a crossmatch is not required. Please refer to the hospital policy Blood Specimen/Request Form Labelling for Pre-Transfusion Testing.
- Prescription for FFP should be written on the Blood Product Transfusion Form M109.0.

- **Transfusion Reactions** associated with FFP include allergic reactions that can be mild, however severe life-threatening reactions such as anaphylaxis and transfusion-related acute lung injury (TRALI) may occur.

- **Signs and symptoms** should be acted upon immediately and may include:
  - Urticaria/itching, fever, shivering / chills, facial flushing, cardiorespiratory compromise; wheeze, dyspnoea, cyanosis, chest tightness, tachycardia, hypotension, shock; nausea, vomiting, diarrhoea, abdominal cramps.\(^1\)\(^2\)\(^3\)

- **Fluid Overload**: FFP is a plasma volume expander and care should be taken with patients who have critical fluid balance issues, particularly when greater than 600mls is administered. HMO review may be required between bags.

> For patients under anaesthesia, a change in haemodynamic or respiratory stability may reflect a blood transfusion reaction.

**ALL** actual or suspected transfusion reactions must be reported for investigation. The hospital blood bank and transfusion working group follow-up all reported transfusion reactions and inform the Australian Red Cross Blood Service of significant events that may have traceability and recall implications.

- FFP is issued from blood bank for immediate use. If there is no intention to administer the FFP, then it must be returned to blood bank without delay.

- **Do Not** store FFP in ward fridges.

<table>
<thead>
<tr>
<th>Patient's ABO Blood Group</th>
<th>Compatible ABO Blood Group of Plasma for Transfusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown</td>
<td>AB (if required urgently)</td>
</tr>
<tr>
<td>O</td>
<td>O or A or B or AB</td>
</tr>
<tr>
<td>A</td>
<td>A or AB</td>
</tr>
<tr>
<td>B</td>
<td>B or AB</td>
</tr>
<tr>
<td>AB</td>
<td>AB (A if AB unobtainable)</td>
</tr>
</tbody>
</table>


**Equipment:**

- Patent intravenous (IV) access: 18 – 20 gauge cannula is recommended for adults.\(^3\) Smaller gauges may be used but may restrict the flow rate of transfusion and result in a longer time to infuse a component.\(^3\)
  - 22-24G or larger is recommended for paediatric patients.\(^3\)

- Blood administration set with a 170 – 200 micron in-line filter
Each blood administration set must be changed within 8 hours or at the end of transfusion, whichever is sooner.³

- Prescription written on the Blood Transfusion form M109.0.
- Compatibility and Administration form D1.1 issued with the FFP.
- Observation chart.
- Fluid balance chart if required.
- Standard precautions equipment: non-sterile gloves, eye protection goggles.
- Infusion devices may be used to administer FFP.

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**Patient Preparation:**

- Explain the procedure to include the indication/s for blood transfusion
- Educate about adverse reactions (see reactions clinical alerts)
- Provide patient information brochure on *Transfusion of Blood & Blood Products* located on wards/departments where blood is administered. Alternatively a copy is available on the hospital intranet Patient Information Materials Website and the Blood Transfusion website.
- Identify allergies and relevant past history from patient and/or medical record
- Assess patient for any pre-existing fever, rash, itching or other signs which may later be confused with a transfusion reaction
- Ensure that written patient consent has been obtained prior to transfusion. Refer to clinical alerts section for guidance.
- Ensure that the patient has patent IV access prior to requesting blood to be collected from the blood bank
- Provide Blood Bank with at least 30 minutes notification prior to the expected transfusion time to allow thawing of the FFP units.

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**Procedure:**

1. **Patient and Blood Component Identification Procedure**

   Two qualified members of staff (registered nurse, authorised enrolled nurse, medical) must check FFP unit and orders against the patient’s identification at the patient’s bedside immediately prior to administration.

   1. **ASK** the patient to **state** their **FULL name and date of birth** and ensure that the details provided (including UR number) are identical to those on:
      - The patient’s identification wristband,
      - Compatibility label attached to the FFP unit,
Prescription: Blood Transfusion Form M109.0, and
Compatibility and Administration Record D1.1.

If the patient is unconscious / confused / infant, the identification wristband must be used to verify their identity. Check the identification wristband for the patient’s surname, given name(s), UR number and date of birth. It is also important to verify the patient’s identity with a carer/spouse/parent if available.

2. Cross check the following blood component details (one at a time) against the FFP unit label, compatibility label attached to the unit and the Compatibility and Administration Record D1.1:
   - Type of blood component
   - Blood group of FFP unit and patient - Are they compatible?
   - Donation number
   - Expiry date
   - Special requirements e.g. cryo-depleted

3. Check the prescription (blood transfusion form M109.0) for the following:
   - Type of blood component
   - Duration of infusion
   - Special requirements e.g. cryo-depleted
   - Medications required e.g. premedication, frusemide

4. Visually inspect the FFP bag for:
   - Leaks at ports or seams
   - Evidence of discolouration or turbidity
   - Presence of clots

5. Mix thoroughly by gentle inversion before use.

If a discrepancy is found with ANY of the above steps DO NOT PROCEED and rectify the problem immediately. If unsure seek advice from senior staff.

2. FFP Administration Rate
   - FFP should be administered no faster than one unit over 1/2 hour in the non-emergency setting. The administration of one FFP unit must be completed within 4 hours of commencement.
   - FFP may be administered faster in acute bleeding situations.
   - FFP is a plasma volume expander therefore caution should be exercised with faster administration and the patient should be observed for signs of fluid overload.

Disclaimer: This Document has been developed for Austin Health use and has been specifically designed for Austin Health circumstances. Printed versions can only be considered up-to-date for a period of one month from the printing date after which, the latest version should be downloaded from the Intranet.
3. **Patient Monitoring**

Always maintain close observation of the patient for the first 15 minutes of the FFP transfusion and observe for signs of transfusion reaction and/or fluid overload (see [Transfusion Reactions](#) in the clinical alerts section). Severe transfusion reactions are most likely to occur at the beginning of transfusion therefore close observation of the patient will facilitate prompt recognition and management of the reaction.

The following vital signs are the minimum required and should be performed with the administration of each new unit of FFP.

- Vital signs (Temperature, pulse rate, respiratory rate and blood pressure) immediately prior to commencing the transfusion;
- Repeat vital signs after 15 minutes;
- Repeat vital signs at the end of the bag.

More frequent vital signs during the transfusion of each new bag of FFP must be taken when:

1. The patient has an unstable underlying condition;
2. The patient becomes unwell or shows signs of a transfusion reaction.

Maintain frequent visual observations (at least every 15 minutes) of the patient throughout the transfusion for signs of transfusion reaction or fluid overload. A reaction can occur at any stage during transfusion.

Record ALL vital signs taken during transfusion on the appropriate hospital observation chart with reference to the start and completion times of each FFP unit.

4. **Transfusion Reaction/s – Immediate management**

Be aware that clinical symptoms (see clinical alert section on [Transfusion Reactions](#)), not only changes in vital signs may be the first indication of a transfusion reaction.

In the event of a transfusion reaction:

1. **STOP** administration immediately and maintain IV access. (keep the suspected unit and attached administration set for investigation of the reaction).
2. **ASSESS** vital signs and stabilise the patient.
3. **CHECK** the FFP, all labels and forms against the patient’s identification to confirm that the blood was intended for the patient.
4. **NOTIFY** medical officer promptly. [MET / MER](#) call if patient meets criteria.
5. **ADMINISTER** instructions given by the medical officer to treat the reaction.
6. **REMAIN** with the patient until the reaction has resolved.
7. **REPORT** the transfusion reaction. Complete the transfusion reaction report, located on page 4 of the Blood Transfusion Form M109.0. Send a copy of the report, the FFP unit with attached giving set and appropriate blood specimens to blood bank for investigation. Complete a RISKMAN incident report.

8. **DOCUMENT** the transfusion reaction and associated management in the patient's medical record.

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**Post Procedure:**

**Disposal of waste**

- On completion of the FFP transfusion dispose of any waste (blood bags and giving sets) into the yellow infectious waste bins located on all wards/departments.

**Documentation**

- Ensure the compatibility and administration record D1.1 is complete to allow traceability of donor units to the patient. Some complications of transfusion can be recognised many years following transfusion therefore; *It is a requirement that all blood / blood products can be traced back to the individual recipient by donation or batch number for a period of 20 years.*

- Ensure the following is documented in the patient’s medical record: vital signs, date and time of administration, signatures of staff checking and administering FFP and patient tolerance of the treatment.

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**Legislation/References/Supporting Documents:**

6. Public Record Office Standard, PROS 99/04, Authority, General Retention & Disposal Authority for Public Health Services Patient Information Records, Incorporating Variations 1 & 2, Ref No. 3.7.0

7. Serious Hazards of Transfusion (SHOT) website: http://www.shotuk.org/


Authorised/Endorsed by:

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