Whittington Health NHS

Fresh Frozen Plasma & Cryoprecipitate ~ clinical use

Subject:	Fresh Frozen Plasma & Cryoprecipitate ~ clinical use
Policy Number	N/A
Ratified By:	Hospital Transfusion Committee
Date Ratified:	November 2009 (v2) review with minor amendments July 2015
Version:	3.0
Policy Executive Owner:	Medicine, Frailty and Networked Service ICSU (Clinical Director)
Designation of Author:	Transfusion Laboratory Manager
Name of Assurance Committee:	Hospital Transfusion Committee
Date Issued:	July 2015
Review Date:	3 years hence
Target Audience:	All clinical staff involved in the prescription of Fresh Frozen Plasma and Cryoprecipitate
Key Words:	Fresh Frozen Plasma (FFP), Cryoprecipitate (CP) International Normalised Ratio (INR) Activated Partial Thromboplastin Time Ratio (APTTR)

Version Control Sheet

Version	Date	Author	Status	Comment
2.0	Nov 2009	J Dalton, Transfusion Laboratory Manager	OFF LINE	Approved at Hospital Transfusion Committee
3.0	July 2015	S Marston (Transfusion Laboratory Manager) A Thomas (Haematology Registrar)	LIVE	Reviewed with minor amendments

➢ Criteria for use

FFP and CP transfusions are indicated for the treatment of haemorrhage in patients with a coagulopathy and to cover urgent surgery procedures in patients with an acquired coagalopathy not related to anticoagulant therapy

A coagulopathy is defined as when the clotting indices are prolonged (i.e. INR >1.5 and/or APTTR > 1.5 and/or the fibrinogen level < 1.0 g/l).

	Please see Whittington Health Guideline: ***Emergency Reversal of Anticoagulation***

➢ Background/ introduction

This document sets out the FFP and CP requirements in different clinical situations. However, there is the need to recognise that deviations from the schedule will occur from time to time based on the clinical requirements of the patient.

NB. Requests that are outside of these guidelines will be referred to the consultant haematologist for guidance on clinical management of the patient.

FFP contains all the clotting factors.

CP is rich in fibrinogen, Factor VIII, Von Willebrand factor (vWF)

Risks associated with FFP and CP transfusions include transmission of pathogens, allergic reactions, anaphylaxis and transfusion related acute lung injury. The patient should be informed about possible complications of transfusion, and the importance of reporting any adverse effects.

Benefits include reducing morbidity/mortality resulting from bleeding.

➢ Contents

➢ 1. Conditions requiring FFP and CP support:

The codes F1 to F6 and C1 to C5, used below, are the recommended national shorthand that are planned to be used on request forms and laboratory information systems to aid requesting and local, regional and national audit.

Fresh Frozen Plasma (FFP):

Emergency issue of FFP in the absence of coagulation indices (ie INR, APTTR, Fibrinogen).

2 - 4 units will be issued in the following cases only:

Aortic Aneurysm
Major haemorrhage
Deep penetrating trauma

Coagulation studies must be performed to establish a baseline for further treatment.

Replacement of single coagulation factor deficiencies.
Where a specific or combined factor concentrate is unavailable. **(F1)**

FFP is suboptimal for reversing warfarin. Where emergency reversal is required, prothrombin complex concentrate is the treatment of choice.

Please see Whittington Hospital NHS Trust Guideline:
Emergency Reversal of Anticoagulation

Acute disseminated intravascular coagulation (DIC).
In the presence of bleeding and abnormal coagulation results. **(F3)**

Thrombotic thrombocytopenic purpura (TTP).
Usually in conjunction with plasma exchange. **(F4)**

- Seek advice from consultant haematologist. **Avoid platelets**

Massive transfusion.
Coagulation factor deficiency can be expected after blood loss of 1 - 1.5 x blood volume, aim for INR <1.5 and/or APTTR < 1.5. **(F5)**

Liver disease.
To correct bleeding or as prophylaxis before surgery when the INR is >1.5. **(F6)**

<u>Cryoprecipitate</u> (CP):

Acute disseminated intravascular coagulation (DIC).
Where there is bleeding and a fibrinogen level < 1g/L. **(C1)**

Advanced liver disease.
To correct bleeding or as prophylaxis before surgery, when the fibrinogen level <1g/L. **(C2)**

Bleeding associated with thrombolytic therapy - causing hypofibrinogenaemia. **(C3)**

Hypofibrinogenaemia (fibrinogen level <1g/L).
Secondary to massive transfusion. **(C4)**

Renal failure or liver failure.
Associated with abnormal bleeding where DDAVP is contraindicated or ineffective. **(C5)**

Inherited Hypofibrinogenaemia.
Where fibrinogen concentrate is not available. **(C6)**

➢ 2. Dosage and rate of transfusion

FFP and CP are issued on a named patient basis. The standard products are normally held as stock items and are obtained through the blood transfusion laboratory (ext 5766).

Adult dosage: should be evidence based - monitor coagulation and clinical response.

FFP = 12-15ml/kg
CP = 5 – 10ml/kg (often equivalent to 2 pools for an adult)

For **children born before 1st January 1996** it is recommended that pathogen inactivated components are used (eg Methylene Blue Treated components). These are held as stock items in the blood transfusion laboratory.

Low anti-T FFP (required for patients suffering Necrotising EnteroColitis) is available from the National Blood Service through the blood transfusion laboratory.

IgA deficient FFP (required for patients with anti-IgA) is available from the National Blood Service through the blood transfusion laboratory.

Neonatal and paediatric dosage: should be evidence based - monitor coagulation and clinical response.

FFP = 12 - 15mL/Kg + Vitamin K and monitor coagulation
CP = 5 – 10ml/kg

Haemorrhagic Disease of the Newborn

Neonates with coagulopathy and bleed or risk from bleed from invasive procedure

Neonates with respiratory distress, hypotension, sepsis, liver disease plus significant coagulopathy

Rate of transfusion

In the absence of cardiovascular disease the following rates of transfusion apply. If in doubt, discuss with the clinical haematologist.

Adult	= 5 - 10 mL/minute
Paediatric	= 5 - 10 mL/minute

For requesting and administration of blood components:

Please see Whittington Hospital NHS Trust Guideline:
'Blood Policy ~ from prescription to administration'

➢ 3. Response to FFP and CP transfusions:

Monitor by assessing the effect on bleeding and by measuring the coagulation indices (INR, APTT, Fibrinogen) after all transfusions. This will help guide further treatment.

➢ 4. ABO and Rh D compatibility:

Group A FFP and CP is suitable for group A and O patients

Group AB FFP and CP is suitable for group B and AB patients

Group AB FFP and CP may be used if no group A available

Rh D positive plasma products may be given to Rh D negative recipients. There is no need for cover with prophylactic anti-D immunoglobulin.

➢ 5. Contacts:

- Blood Transfusion Laboratory – ext 5766
- Out of hours on-call haematologist – bleep 2686
- Clinical Haematologists – bleeps 3037, 3060
- Transfusion Practitioner – bleep 2953

➢ 6. References

Handbook of Transfusion Medicine – HMSO (5th Edition)
Guidelines for the use of fresh frozen plasma and Cryoprecipitate - British Committee for Standards in Haematology (BCSH)
Guidelines for neonates and older children - BSCH
A National Blood Conservation Strategy - National Blood Transfusion Committee and National Blood Service

➢ 8. Compliance:

This will be audited as part of national and regional FFP and CP usage audits.

Haemovigilance reporting to SHOT

Appendix A

Plan for Dissemination and implementation plan of new Procedural Documents

To be completed and attached to any document which guides practice when submitted to the appropriate committee for consideration and approval.

Acknowledgement: University Hospitals of Leicester NHS Trust

Title of document:	**Fresh Frozen Plasma & Cryoprecipitate ~ clinical use**		
Date finalised:	**November 2009 (REVIEWED AND RE-ISSUED JULY 2015)**	**Dissemination lead: Print name and contact details**	
Previous document already being used?	**Yes**		
If yes, in what format and where?	**On intranet**		
Proposed action to retrieve out-of-date copies of the document:	**Replace on intranet**		
To be disseminated to:	**How will it be disseminated/implemented, who will do it and when?**	**Paper or Electronic**	**Comments**
Trustwide		**Electronic**	**Intranet**
Is a training programme required?	Currently transfusion training programme is mandatory for all medical and nursing staff involved in blood transfusion.		
Who is responsible for the training programme?	**Transfusion practitioner**		

Appendix B

Equality Impact Assessment Tool

To be completed and attached to any procedural document when submitted to the appropriate committee for consideration and approval.

Impact (= relevance) 1 Low 2 Medium 3 High	Evidence for impact assessment (monitoring, statistics, consultation, research, etc	Evidential gaps (what info do you need but don't have)	Action to take to fill evidential gap	Other issues
Race	**1**			
Disability	**1**			
Gender	**1**			
Age	**1**			
Sexual Orientation	**1**			
Religion and belief	**1**			

Once the initial screening has been completed, a full assessment is only required if:

- The impact is potentially discriminatory under equality or anti-discrimination legislation
- Any of the key equality groups are identified as being potentially disadvantaged or negatively impacted by the policy or service
- The impact is assessed to be of high significance.

If you have identified a potential discriminatory impact of this procedural document, please refer it to relevant Head of Department, together with any suggestions as to the action required to avoid/reduce this impact.