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Work Instruction

Title:	**TS-Cryoprecipitate Transfusion**	**WI Number** SFOWI-0077 **Revision:** 14
Department: Immunohematology **Area:** 2425 Geary Blvd SFO Hospital Lab	***Document is in the Final Approval Process. 2 - approvals are required***	
Type of Document: Work Instruction		**Review Period -** 340 **Days**

PURPOSE

To process request for Cryoprecipitated Antihemophilic Factor (AHF).

A. Cryoprecipitated AHF is the cold-insoluble portion of plasma remaining after plasma has been thawed between 1-6 °C.

B. It is prepared by thawing 1 unit of plasma prepared from whole blood or from apheresis Fresh Frozen Plasma at 1 to 6 °C. After it is thawed, the supernatant plasma is removed, leaving the cold precipitated protein. This material is then refrozen at -18 °C or colder within 1 hour and has a shelf life of 1 year.

C. Cryoprecipitated AHF contains coagulation Factor VIII:C (the procoagulant activity), Factor VIII:vWF (von Willebrand factor), fibrinogen, Factor XIII, and fibronectin. One unit of Cryoprecipitated AHF contains approximately 80 to 120 IU of Factor VIII and at least 150 mg of fibrinogen in approximately 15 ml of plasma.

D. Cryoprecipitated AHF, Pooled indicates several units of Cryoprecipitated AHF have been pooled. The volume of the pool is indicated on the label. To determine the minimum potency of the component, assume 80 IU of Factor VIII:C and 150 mg of fibrinogen for each unit of Cryoprecipitated AHF indicated on the label.

E. Cryoprecipitated AHF may be indicated for the treatment of congenital or acquired fibrinogen deficiency or Factor XIII deficiency. Cryoprecipitate is not indicated in hemophilia A and von Willebrand disease when virus-inactivated concentrates are available. Small amounts of cryoprecipitate (sometimes autologous) are also used as a fibrinogen source and mixed with thrombin to prepare 'fibrin sealant' to aid in surgical hemostatsis and for other purposes.

EQUIPMENT

A. ThermoGenesis MT-210 Plasma Thawer
B. ThermoGenesis MT-204 Plasma Thawer
C. Plastic bags

SPECIMEN and REQUISITION

A. Refer to Blood Bank Specimen and Requisition SOP.
B. Cryoprecipitate requisition does not need to be signed, dated or timed unless it is accompanied by a specimen.
C. The appropriate KPHC order is the one with the heading 'Prepare Cryoprecipitate'.
D. A manual Transfusion Service requisition is also acceptable if properly completed with information when KPHC is unavailable.
E. Cryoprecipitate (frozen) is stored at -18°C or below.
F. Cryoprecipitate (thawed) is stored at room temperature.

PROCEDURE

A. Processing Order

1. **Query the patient's ABORh in the computer**
   a. Request a specimen for ABORh if the patient has only one historical blood type.
   b. Current specimen is not required if the patient already has two ABORh.
   c. Patient must have two ABORh before cryoprecipitate can be dispensed for routine transfusion.

2. **Selection of appropriate units**
   a. **Adults**
      ABO compatible cryoprecipitate is not required due to the small amount of plasma.
   b. **Infants less than 1 year old**
      i. Give ABO compatible plasma.
      ii. In an emergency, give group AB as first choice, if unavailable then give group A cryoprecipitate.
   c. **Neonates**
      Refer to Neonatal Transfusion SOP for neonates.

3. **Special Needs**
   Red cell antigen negative, CMV negative, irradiated, leukoreduced need not be considered.

4. **Dosage**
   a. Each unit will increase fibrinogen by 5 to 10 mg/dL in an average-size adult and the hemostatic level is 100 mg/dL fibrinogen. See Procedure Notes.
   b. Each pool of 5 cryoprecipitate is equivalent to 5 units.

B. Thawing Cryoprecipitate

1. Assign any unused thawed cryoprecipitate first.
2. Carefully remove frozen cryoprecipitate from the freezer.
3. Examine for cracks, broken port and tubing and sign of thawing during freezing.
4. Process Cryoprecipitate
   a. Modify frozen cryoprecipitate to thawed cryoprecipitate in the LIS and assign the unit(s) to the patient.
   b. New ISBT face label will print for all thawed products. After unit is thawed, affix the printed ISBT face label (minus the unit#) over the original face label leaving the original unit# visible.
   c. Proceed to Label Verification. Unit that fails verification must not be dispensed until after problem is resolved.
   d. Initial and date on the LIS generated Component Tag. Affix the

Component Label to the back of the matching thawed unit.

e. Affix one Prepare Cryoprecipitate Accession# aliquot label on the top right quadrant of each yellow chart copy of the Component Tag.

f. The expiration of the thawed cryoprecipitate without pooling is 6 hours from thawing.

g. The expiration of thawed pooled cryoprecipitate is 4 hours from thawing.

ISBT Code	BCP Code	Starting Component	Ending Component	Codabar
E5165	Cryoprecipitated AHF	CRFR	CRTH	10100
E3587 E3588	Cryoprecipitated AHF, Pooled	CRC5F	CRC5T	10191

h. Place frozen cryoprecipitate in a plastic bag, then place it in the plasma thawer. Thaw for the length of time set in the plasma thawer.

i. Cryoprecipitate must be thawed between 30-37°C. Temperature above 37° C could result in protein denaturation and greater loss of Factor VIII activity.

C. Storage of Thawed Cryoprecipitate

Store thawed cryoprecipitate at room temperature until they are picked up.

PROCEDURE NOTE(S)

A. If thawed cryoprecipitate is not used before it expires, it will be wasted.
   1. Destroy in the computer using the Final Disposition function with the reason EXPIRED.
   2. Document in the Blood Product Wastage Access database.

B. If a unit of cryoprecipitate breaks in the plasma thawer,
   1. Final dispose the unit in the LIS to 'Destroyed' status.
   2. Fill out the appropriate blood supplier form for credit.

C. The dosage required to achieve the desired effect is readily calculated from the difference between the current and desired (usually 200 mg/dL) concentrations of fibrinogen, a projection of the patient's plasma volume [as (1 − hematocrit) × 0.7 dL/kg × body mass, or 30 dL if the patient's weight is unknown], and the usual fibrinogen content of cryoprecipitate (150-250 mg/unit).

   Dose (units) = [Desired fibrinogen increment (mg/dL) × Plasma volume]/150 mg/unit

REFERENCE

A. AABB, Standards for Blood Banks and Transfusion Service, current edition, Bethesda, MD.

B. AABB, Technical Manual, current edition, Bethesda, MD.

Associated Documents:

External Documents

Blood supplier forms

Associated Documents:

SFOWI-0105 -- TS-Neonatal Transfusion
SFOWI-0111 -- TS-Dispensing Blood and Blood Components
SFOWI-0079 -- TS-Blood Bank Specimen and Requisition
SFOWI-0054 -- TS-Double Check

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Documents Generated:

Check As Applicable (X or NA)	Format History	New Format Requirements
	A document created before September 1, 2005 was written before the new document format template and electronic approving process were implemented. Documents were copied from another document database and pasted on the QSI Quality Management System in order to be included in the Kaiser Permanente San Francisco Laboratory electronic document control database.	This document will be re-written to conform to the new Kaiser Permanente San Francisco Laboratory document format template whenever this document is revised.
Comments:	Documents created after QSI implementation have been directly entered in the QSI environment.	

Document Revision History:

Revision: 14	**Date Created:** 09/21/2005 **Date of Last Revision:** 05/01/2018	**Last Approval Date:** 09/09/2016

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Reason for Change:

Revision:	Sec/Para Changed	Change Made:	Date
1	N/A	Added steps to make barcode labels to comply with FDA requirement.	4/14/06
2	Approver	New Lab Director	01/01/07
3	Procedure	Change component code and computer function to Cerner	4/21/07
4	Approver	New Lab Director	7/1/07
5	Procedure	New Zebra component label printer.	12/31/07
6	Procedure	Add ISBT product codes	4/27/08
7	Procedure	Delete pool cryo.	7/13/08
8	Approver	New Lab Director	5/22/11
9	Procedure A.1.a. & b. Procedure B.1. Procedure B.5. Procedure B.7.	Clarified requirement for two ABORh. Deleted obsolete practice. Changed instructions to place unit in plastic bag then place in thawer. Added instructions to write the exp. date and time, and initials on the unit.	8/21/12
10	Approver	New Lab Director.	5/8/13
11	Approver Procedure A. Procedure Notes B.	New BB Medical Director. Reformatted and revised. New. Taken from the 17th edition of AABB Technical Manual Chapter 20, Hemotherapy Decisions and Their Outcomes.	8/29/13
12	Procedure A.2.b.ii	Revised due to unavailability of group AB cryoprecipitate supply from BCP and based on recommendation from BCP Medical Director.  Cryoprecipitate for Neonates_email fr DrPandey_5-7-14.rtf	5/7/14
13	Approver	New CLIA Director.	9/8/16
14	Specimen & Requisition Procedure A.1.c. Procedure B.4. Procedure Notes	Updated requisition requirements. Clarified that 2 ABORh needed for cryo dispense. Revised due to BPAM implementation on 3/20/18. ISBT face label will be auto generated for all thawed products requiring Label Verify. Prepare Cryo Acc# aliquot label is to be affixed on the top right quadrant of each yellow chart copy. Added instructions for broken cryo unit.	3/13/18

Notification List:

Approvals:

First Approver's Signature

Name: Maria F Serrano/CA/KAIPERM
Title: Transfusion Service Medical Director

Second Approver's Signature

Name: Eric Suba/CA/KAIPERM
Title: Chief of Pathology; CLIA Director

Document History Section