

CRYOPRECIPITATE

I. PRINCIPLE

Each unit of cryoprecipitate is prepared by thawing a unit of FFP at 1 – 6° C. During the slow thaw, a white precipitate forms. This is the cryoprecipitate (cryo). The supernatant plasma is removed, leaving the cryo plus 10-15 ml of plasma in the bag. This material is then refrozen at -18° C within 1 hour and has a shelf life of 1 year. Cryo contains approximately 80-120 units of Factor VIII:C (the procoagulant activity), 40-70% of Factor VIII:vWF (von Willebrand factor) from the original unit, 250 mg/dl of fibrinogen and 20-30% of the Factor XIII from the original unit. Cryo may be indicated for the treatment of hemophilia A, von Willebrand's disease, congenital or acquired fibrinogen deficiency, Factor XIII deficiency and obstetric complications or other situations associated with consumption of fibrinogen, such as DIC.

II. POLICY STATEMENT:

- A. Cryo is ordered from ARC and thawed upon a doctor's order to transfuse. It is also to be ordered during a Transfusion Protocol. American Red Cross offers single units and a (pre)pooled (5 singles pooled) unit of cryo. A minimum of 4 units per order is required for infusion. A single unit may be ordered in surgery if the product is to be used for a patch. Consult a pathologist with orders (for infusion) of less than 4. ABO compatible should be given whenever possible. In the case of an emergency, ABO incompatible may be given if ABO compatible units are not immediately available.
- B. Thawed cryo has an expiration time of 6 hours. Cryo should never be thawed unless there is an order to give/use.
- C. Pooled cryo has a 1 year expiration like plasma and cannot be returned to the ARC. UPH Methodist might be willing to take a transfer from us if we have some that are getting close to expiring.

III. SPECIMEN

- A. 1 large (10ml) EDTA tube. Patient must have a Blood Bank ID band. If patient has a current BB ID band with the blood type tested and reported, a new specimen need not be drawn.

IV. PROCEDURE:

- A. Thawing Cryoprecipitate:
 1. Place one cryo bag into a biohazard bag and then into a membrane pocket in the plasma thawer. If a blood product bag breaks or the plastic pocket leaks, follow the decontamination instructions in the maintenance procedure for the MT-202.

2. Set the timer for the proper thaw cycle time for the size bag being thawed by following the steps below. The average time for a (pre)pooled (5 single units pooled) unit of cryo is 16 minutes.
 - a. The time/function display on the front of the MT-202 gives the function status and displays the time remaining on the thaw cycle. Maximum time entered is 99 minutes and 59 seconds. You can only reset the time when the instrument is at rest.
 - b. Press the "RESET" button. The time/display function will flash "00:00."
 - c. Using the keypad, enter the desired thaw time.
 - d. The new thaw time will appear on the time/function display.
3. Press "START." Pressing "START" twice saves your new thaw cycle time and the automatic thawing cycle will be activated. If an error was made in input and you want to start over, press "CLEAR." If you do not press "START" or "CLEAR" in the next 15 seconds, the MT-202 will revert back to the last saved thaw cycle. The pump will start, and the time/function display will have "FILL" flashing on its display. After filling, the thaw time will display a countdown until it reaches zero.
4. When thaw cycle reaches zero, it will beep once and the time/function display will display "DRN." The time/function display will then revert back to the display the total set time that you have entered.
5. A 10-second alarm sounds to let you know the cycle is completed and the cryo bag(s) are ready to be removed.
6. If the unit is not completely thawed, break up remaining frozen cryo with your fingers, replace the unit back in the membrane pocket, and set the timer for a few more minutes.
7. If for any reason you want to interrupt the thaw cycle:
 - a. Press "STOP." The time/function will display "DRN."
 - b. Then "INT" will display
 - c. To resume the thaw cycle press "START" or press "CLEAR" if you want to cancel the cycle and reset the time.
8. At the end of the thaw cycle, remove from MT-202. If the bag of cryo is wet, determine if the cryo bag broke or the membrane leaked. If the membrane pocket leaked, remove it and replace with a new one. Thoroughly dry the cryo bag before administration. Check ports for possible contamination (clean with alcohol wipe if necessary).
9. If the bag of cryo has broken, place it into a bag for disposal using Universal Precautions. Do not dispose of the membrane pocket if it is not damaged. The membrane pocket may be decontaminated and reused. Refer to the decontamination procedure in Section 6.5 of the Thermogenesis Manual.

- B. Testing to be added on and resulted in Sunquest:
- C. Thaw unit in Sunquest by opening up the patient's order in Blood Order Processing (BOP). Click on the Allocation Tab. Then branch into Blood Component Prep (BCP) by clicking the green BCP button. Enter Thaw Code (Product Code for Cryo-5 pack is THCRYP and the Product Code for Cryo-single is THCRY). Hit Tab. Enter time and date thawed. Hit Tab. Click the green Continue button in the lower right hand corner of screen. Scan or type in unit number (the Component and Division# fields will fill in automatically). Hit Tab. Your new expiration date and time will be displayed at the bottom of the screen. Click the green Save button in the lower right hand corner of screen. A Preview Output/New Units box will pop up, click the Finish button. The unit will then automatically be Allocated to that patient. Use the (]) key to place an "OK" in the Transfuse Status (TS) box.
- D. Phone nursing unit and document by free texting, in the "Note" line in Sunquest (BOP), the time and the name of the person notified.
- E. Cryo should be used as soon as possible, but no more than 6 hours after thawing.
- F. Cryo is stored at room temperature.
- G. Note new expiration date and time (6 hours after thawing) on label of cryo bag.
- H. Write "Thawed" on the label.
- I. Do not refreeze.
- J. If cryo is not used before new expiration date, it is to be discarded in an approved biohazard waste container.
- K. After checking over all your work, click Save, and the unit tag(s) will print to attach to the unit(s).

V. TECHNICAL NOTES:

- A. Leaking or damaged units are to be double bagged and placed on the bottom shelf of the blood refrigerator for destruction. The unit must have a note attached to it describing the problem and a note is to be left for the supervisor.
- B. Expired units are to be discarded by the receiving facility. Credit will not be given for expired units. Units discarded at UnityPoint Pekin are destroyed by autoclaving.
- C. All units shipped out (transferred) must be updated in the computer. Refer to BSU procedure in the SQ BB Guide.

VI. DOSAGE CALCULATIONS:

If an order is placed to give cryo in an amount appropriate to the patient's size, the following formula is to be used. The patient must have had a recent fibrinogen assay performed and the physician must stipulate the desired rise in fibrinogen in milligrams (mg).

An average bag of cryo contains 250mg of fibrinogen.

Kg = 2.2 lbs

Obtain patient weight from nursing floor. Look in IQ for most recent fibrinogen and hematocrit (HCT) result.

Blood Volume = weight in Kg x 70ml/Kg

Plasma volume (PV) = blood volume x (1.0 – HCT)

mg of fibrinogen required = $\frac{(\text{Desired fibrinogen level} - \text{Initial fibrinogen level}) \times \text{PV}}{100}$

Bags of cryo required = $\frac{\text{mg of fibrinogen required}}{250 \text{ (mg/bag of cryo)}}$

Example: patient weight 200 lbs

HCT = 30%

Desired fibrinogen level = 300

Initial fibrinogen level = 100

200

2.2 = 91Kg

91Kg x 70ml/Kg = blood volume of 6370

6370 x (1.0 – 0.3) = 4459 (Plasma volume)

(300-100) x 4459

100

= 8918 mg fibrinogen required

8918

250 = 35.7 (36) bags of cryo needed.

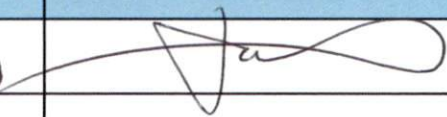
VII. REFERENCES

- A. AABB TECHNICAL MANUAL, current edition, American Association of Blood Banks
- B. STANDARDS FOR BLOOD BANKS AND TRANSFUSION SERVICES, current edition, American Association of Blood Banks
- C. BLOOD TRANSFUSION THERAPY - A Physicians Handbook, current edition, American Association of Blood Banks
- D. CIRCULAR OF INFORMATION For the Use of Human Blood and Blood Components, current edition, American Red Cross

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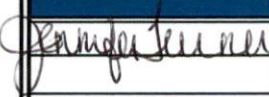
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| POLICY CREATION : | Date |
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| Author: Jenny Turner, MLT (ASCP) | 11/29/18 |
| Medical Director: Kathryn Kramer, MD | 11/29/18 |

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| Rev | Description of Change | Author | Effective Date |
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Reviewed by

| Lead | Date | Coordinator/ Manager | Date | Medical Director | Date |
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|  | 12-10-18 | | | | |
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