

## 24-HOUR FROZEN PLASMA

Test Code: TXFFP

### I. PRINCIPLE

24-hour plasma is prepared from whole blood collection and frozen within 24 hours of the blood donation at  $-18^{\circ}$  C. Studies have shown that there is a measurable decrease, but unlikely to be a clinically significant decrease in the level of Factor VIII, and thus can be used for clinical situations not requiring the replacement of Factor VIII only. The anticoagulant solution used is indicated on the label. Component volume varies depending on the method used to collect and prepare the component. The component volume is on the label. The Red Cross, due to its large geographic donor area, has found it difficult to freeze plasma within four hours (FFP), resulting in loss of potential units of FFP and potential shortages. To serve the patients 24-hour plasma has been made available for correction of coagulation deficiencies.

### II. POLICY STATEMENT:

It is the policy of UnityPoint Health-Pekin Hospital laboratory to routinely stock FFP and accept 24-hour frozen plasma, only when FFP is not available.

### III. GENERAL INFORMATION:

- A. 24-hour plasma serves as a source of coagulation factors.
- B. While it contains less of the labile Factor VIII, studies have shown that 24-hour frozen plasma should be capable of effective use in place of FFP.
- C. Our physicians at UnityPoint Health-Pekin Hospital order FFP and expect the clotting factors to be of adequate concentration to correct a bleeding problem. Since most of our patients are transfused to correct an abnormal Protime, 24-hour frozen plasma can be an acceptable substitute for FFP.
- D. Because we are not always aware of the indication for transfusion at the time of the order, FFP is given out when it is available.
- E. 24 hour frozen plasma is not to be used to treat for deficiency of Factor VIII.
- F. Indications for 24-Hour Frozen Plasma:
  1. Management of preoperative or bleeding patients who require replacement of multiple plasma coagulation factors (e.g. liver disease).
  2. Patients with massive transfusion who have clinically significant coagulation deficiencies.
  3. Patients on warfarin who are bleeding or need to undergo an invasive procedure before vitamin K could reverse the warfarin effect or who need to have anticoagulation therapy after the procedure.
  4. For transfusion or plasma exchange in patients with thrombotic thrombocytopenic purpura (TTP).

5. Management of patients with selected coagulation factor deficiencies, congenital or acquired, for which no specific coagulation concentrates are available.
  6. Management of patients with rare specific plasma protein deficiencies, such as C-1-esterase.
- G. Contraindications for 24-Hour Frozen Plasma:
1. Do not use 24-hour frozen plasma when coagulopathy can be corrected more effectively with specific therapy, such as vitamin K, cryoprecipitated AHF, or Factor VIII concentrates.
  2. Do not use 24-hour frozen plasma when blood volume can be safely and adequately replaced with other volume expanders.
  3. Do not use to correct Factor VIII deficiency.
- H. Side effects and hazards:
1. Antibodies in the plasma may react with the recipient's red cells, causing positive DAT.
  2. Hemolytic transfusion reaction.
  3. Ferile non-hemolytic reaction.
  4. Allergic reaction.
  5. Anaphylactoid reaction.
  6. Transfusion-related acute lung injury (TRALI).
    - a. ARC prepares plasma from mostly male donors to reduce the risk of TRALI.
    - b. Signs and symptoms of TRALI include: dyspnea, tachypnea, hypoxemia, cyanosis, fever, hypotension and respiratory distress. When a case of TRALI is suspected, the American Red Cross is contacted and the appropriate specimens are submitted.
  7. Graft – vs – Host disease.
  8. Transmission of infectious disease.
  9. Circulatory overload.
  10. Hypothermia.
  11. Metabolic complications.
  12. Detailed descriptions of all reactions can be found in the circular of information for the use of human blood and blood components.
- I. Dosage and administration:
1. Compatibility tests before transfusion are not necessary.
  2. Plasma must be ABO-compatible with the recipient's red cells.
  3. The volume transfused depends on the clinical situation and patient size and may be guided by laboratory assays of coagulation function.
  4. Do not use the frozen component if there is evidence of container breakage or thawing during storage.



5. To minimize wastage of blood products and facilitate patient care, 24-hour frozen plasma is thawed on an "as needed basis." When more than one unit is ordered, triage accordingly using the following guidelines:
  - a. Order is from the operating room or emergency room:  
Blood bank technician is to contact the operating room or emergency room and determine if all units are needed now for immediate transfusion. If so, thaw the ordered units. It is acceptable to thaw 2 (or 4 for a massive transfusion) units at a time when there is a need. If units are to go to surgery, place temperature sensor on units and put in cooler to go to surgery.
  - b. Order is from a nursing floor: Thaw one unit. Determine if the second (or more) unit will be used immediately. If so, thaw the next. If not, inform the nurse to call the blood bank 20 to 30 minutes before the next unit is needed.
6. In the very rare instance of a 24 hour frozen plasma being ordered for a baby, call the pathologist for further instructions.

#### IV. INSTRUMENTATION/EQUIPMENT

- A. Helmer QuickThaw Plasma Thawer
- B. Helmer Plasma Overwraps (standard size)
- C. Plastic Security Snaps

#### V. PROCEDURE:

##### A. Thawing 24-hour frozen plasma:

1. Place one plasma bag into a Helmer Plasma Overwrap bag (located on the side of the plasma thawer). *\*When thawing a plasma bag (of any type or size), a plasma overwrap bag must be used.*
2. Press the LIFT OUT button on the side of the plasma thawer that you are going to use, to raise and open the basket. Do not try to manually lift the baskets out of the chamber. Manually lifting baskets will damage the system. Only press the LIFT OUT button if the baskets are installed. The basket must be installed for the lift out system to operate correctly.
3. After the basket is raised, hook the slot at the top of the overwrap bag over the tab on the basket.
4. Insert a security snap through the top set of holes on the basket compartment. Push the snap toward the basket until it snaps against the overwrap bag.
5. Set the timer for the proper thaw cycle time for the size bag being thawed by pressing the CYCLE TIME button (press repeatedly to toggle through the time settings). There are pre-programmed time settings of 0, 3, 5, 8, 10, 12, 14, 16, 18, 20, 25, 35, 45, and 55 minutes, as well as a hold

("HO") setting. The average time for a 250 ml bag of fresh frozen plasma is 25 minutes.

6. After choosing a time, press the CYCLE START button. The lift out system closes the basket and lowers it into the chamber. The basket begins to agitate after it reaches the bottom of its travel.
  7. The remaining cycle time (in minutes) is displayed on the cycle time indicator (located on the control panel).
  8. To indefinitely extend a thaw cycle that is already in progress, press the TIME SET button until the display reads "HO". Press the TIME SET button again and the cycle will finish its initial programmed time.
  9. To stop or pause a thaw cycle before the cycle is complete, press the LIFT OUT button to raise the basket. The remaining time is displayed on the cycle time indicator. Press the LIFT OUT button again to resume the thaw cycle. The basket is lowered into the chamber and the agitation resumes. The hold ("HO") setting may be selected while the thaw cycle is paused.
  10. When a thaw cycle reaches the end of its programmed time setting, the basket stops agitating, lifts out, and opens. An audible alarm sounds to indicate the thaw cycle has completed, and the cycle time indicator resets to the previously selected time setting.
  11. If the unit is not completely thawed, break up remaining frozen plasma with your fingers, replace the plasma back in the basket with the overwrap bag attached to the basket tab and security snap back in place. Set the timer for a few more minutes. Press the CYCLE START button.
  12. At the end of the thaw cycle, remove security snap and unhook overwrap bag from basket. If the bag of plasma is wet, determine if the plasma bag broke or the overwrap bag leaked. If the overwrap bag leaked, remove it and replace with a new one if thaw cycle is not complete. Thoroughly dry the plasma bag before administration. Check ports for possible contamination (clean with alcohol wipe if necessary).
  13. If the bag of plasma has broken, place it into a bag for disposal using Universal Precautions. Check water in the chamber for any contamination evident. If water was contaminated, empty and clean the chamber and baskets, refill with fresh distilled water and Bacteriostatic Water Treatment Solution as soon as possible.
- B. Testing to be added on and resulted in Sunquest:
1. Add on the BBID # (for any order that has a possibility of a product being given-except Rhogams) by using the "R" key on the Add a Test Keyboard. Then scan in BBID#.
  2. If the patient has not already been typed on another order with the current blood draw, you must add on an ABO/Rh. This can be done by



using the (T) key on the Add a Test Keyboard. Perform testing and enter reactions and interpretation.

- 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 with the V00 at the end replaced with a T). 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 "OK" in the Transfuse Status (TS) box.
- D. Phone nursing unit and document by free texting in the "NOTE" line in Sunquest, the time and the name of the person notified.
- E. 24-hour plasma, should be used as soon as possible, but no more than 24 hours after thawing (stored at 1°C to 6°C) when administered as a source of labile coagulation factors.
- F. Note new expiration date and time (24 hours after thawing) on label of plasma bag.
- G. Change label to "Thawed Plasma."
- H. Do not refreeze.
- I. If plasma is not used before new expiration date, it is to be discarded in an approved biohazard waste container.
- J. After checking over all your work, click Save, and the unit tag(s) will print to attach to the unit(s).

## VI. REFERENCES

- A. American Red Cross, Circular of Information for the Use of Human Blood and Blood Components. Revised: October 2017.
- B. Helmer Scientific QuickThaw™ Plasma Thawing System Operation Manual, 14400 Bergen Boulevard, Noblesville, IN 46060, 360094-1/M.
- C. Helmer Scientific QuickThaw™ Plasma Thawing System Service Manual, 14400 Bergen Boulevard, Noblesville, IN 46060, 360097-1/J.

<b>POLICY CREATION :</b>		<b>Date</b>
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<b>REVISION HISTORY (began tracking 2011)</b>			
Rev	Description of Change	Author	Effective Date
01	Deleted Thermogenesis Plasma Thawer. Added Helmer QuickThaw Plasma Thawer.	Jenny Turner	5/16/19

**Reviewed by**

Lead	Date	Coordinator/ Manager	Date	Medical Director	Date
Jenny Turner	5-23-19				