UnityPoint Health Pekin
Department of Pathology
Pekin, IL 61554

Effective Date: 11/27/18
Date Reviewed/ Date Revised: 11/27/18
TRM.44450, TRM.44525

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° 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, then thaw the ordered units. 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. MT-202 Thermogenesis Plasma Thawer
B. Membrane Pockets

V. PROCEDURE:

A. Thawing 24-hour frozen plasma:
    1. Place one plasma 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 250 ml bag of fresh frozen plasma is 22 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 plasma bags are ready to be removed.
6. If the unit is not completely thawed, break up remaining frozen plasma with your fingers, replace the plasma 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 plasma is wet, determine if the plasma bag broke or the membrane leaked. If the membrane pocket leaked, remove it and replace with a new one. Thoroughly dry the plasma bag before administration. Check ports for possible contamination (clean with alcohol wipe if necessary).
9. If the bag of plasma 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:
    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. Thermogenesis Corporation, Operators Manual for the Thermogenesis MT-202 Plasma Thawer, Rev. 1.03.

POLICY CREATION :		***Date***
Author:	***Sharrol Brisbin, MT (ASCP)***	***02/01/2002***
Medical Director:	***Kathryn Kramer, MD***	***02/01/2002***

MEDICAL DIRECTOR		
DATE	NAME	SIGNATURE
12-3-18	Kathryn O. Kramer MD	
SECTION MEDICAL DIRECTOR		

REVISION HISTORY (began tracking 2011)			
Rev	Description of Change	Author	Effective Date

Reviewed by

Lead	Date	Coordinator/ Manager	Date	Medical Director	Date
Jennifer Jenner	11-29-18				