**TRAINING UPDATE**

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|---|---|---|---|
| **Lab Location:** | SGMC and WAH | **Date Implemented:** | 1.3.2019 |
| **Department:** | Field Operations | **Due Date:** | 1.20.2019 |

**DESCRIPTION OF PROCEDURE REVISION**

| **Name of procedure:** |
|---|
| Plasma for Transfusion |
| **Description of change(s):** |
| In emergency situations, plasma may be issued prior to the antibody screen being complete. However, we must have a current T&S in the blood bank and ABO typing (including ABO retype as applicable) must be complete. |

**Electronic Document Control System**


**Document No.:** SGAH.BB74[5]
**Title:** Plasma for Transfusion
**Owner:** LESLIE BARRETT
**Status** INWORKS
**Doc Effective Date:** 01-Feb-2019

**Next Review Date:**

Non-Technical SOP

| | |
|---|---|
| **Title** | **Plasma for Transfusion** |
| **Prepared by** | Stephanie Codina Date: 1/24/2011 |
| **Owner** | Stephanie Codina Date: 1/24/2011 |

| **Laboratory Approval** | | |
|---|---|---|
| **Print Name and Title** | **Signature** | **Date** |
| *Refer to the electronic signature page for approval and approval dates.* | | |
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| Local Issue Date: | Local Effective Date: | |

| **Review:** | | |
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| **Print Name** | **Signature** | **Date** |
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Document:SGAH.BB74[5] Status:INWORKS, Effective:2/1/2019, Check Version Before Use

Form revised 3/31/00

## TABLE OF CONTENTS



Document:SGAH.BB74(5) Status:INWORKS,Effective:2/1/2019, Check Version Before Use

## 1. PURPOSE

Plasma is the aqueous portion of the blood which includes albumin, coagulation factors, fibrinolytic proteins, immunoglobulin, and other proteins. An average unit contains 200-250 mL of plasma and will increase the clotting factor activities by 4-5% and fibrinogen by approximately 10 mg/dL. Plasma is stored frozen (≤ -18°C) for up to 1 year. Once thawed, plasma is stored at 1-6°C for up to 5 days.

## 2. SCOPE

Plasma may be ordered for transfusion in the following situations:

- Active bleeding with coagulopathy (INR >1.7 or PTT >55s)
- Undergoing invasive procedure with coagulopathy (INR >1.5 or PTT >55s)
- Replacement of factor V due to factor V deficiency
- Thrombotic thrombocytopenic purpura (TTP)
- Therapeutic apheresis procedure
- Acute hemorrhage (>3 liters of volume replacement or bleeding >40 mL/Kg)
- Massive transfusion protocol
- Patients on warfarin who are bleeding or need to undergo an invasive procedure before vitamin K can reverse the warfarin effect
- Management of patients with rare specific plasma protein deficiencies, such as C-1-esterase, Antithrombin III, protein C, protein S, or heparin cofactor
- Replacement of coagulation factor deficiency when the specific coagulation concentrate is not available (factors II, IX, X, and XI).
- Hereditary angioedema.
- In the absence of any of these indications following consultation with the pathologist.

## 3. RESPONSIBILITY

All Blood Bank employees must understand and adhere to this procedure when handling plasma for transfusion.

Form revised 3/31/00

## 4. DEFINITIONS

Plasma Frozen Within 24 Hours After Phlebotomy (PF24) - Plasma that is collected and frozen within 24 hours of collection. The levels of Factor V, Factor VIII, and other labile plasma proteins are decreased compared with FFP.

Plasma Frozen Within 24 Hours After Phlebotomy and Held At Room Temperature For Up To 24 Hours After Phlebotomy (PF24RT24) - Plasma that is collected and frozen within 24 hours of collection. The plasma may be held at room temperature for up to 24 hours before freezing. The levels of Factor V, Factor VIII, and other labile plasma proteins are decreased compared with FFP.

Fresh Frozen Plasma (FFP) - Plasma that is collected and frozen within 8 hours of collection. FFP contains plasma proteins including all coagulation factors and high levels of labile coagulation Factors V and VIII. FFP is not routinely stocked in the hospitals.

Thawed Plasma -Derived from either FFP or PF24 that is given a 5-day expiration date after thaw. Thawed plasma contains stable coagulation factors, but has decreased levels of other factors. SGAH and WAH convert all plasma products thawed plasma.

Plasma Cryoprecipitate Reduced (CPP) -Also known as cryopoor plasma. CPP is made from FFP that has been centrifuged and depleted of cryoprecipitate. The remaining plasma product is labeled as CPP and is deficient in fibrinogen, Factor VIII, Factor XIII, von Willebrand factor (vWF), cryoglobulin, and fibronectin. CPP can be helpful in plasma exchange for patients with a diagnosis of thrombotic thrombocytopenic purpura (TTP) who have not responded to apheresis with regular plasma, because the high-molecular-weight forms of vWF (multimers) are more thoroughly removed than smaller multimers. CPP is not routinely stocked in the hospitals.

## 5. PROCEDURE

### A. Selection of Plasma for Transfusion

| Step | Action |
|---|---|
| 1 | The floor will order plasma in the system using the "TPLAS" order. Blood bank staff members should receive the order per procedure. |
| 2 | Prior to thawing plasma, ensure the recipient has had a T&S drawn and tested. If the T&S is greater than 3 days old, ensure the recipient is wearing a valid blood bank armband. The T&S is good for the following intervals:<br>A. Inpatients: Entire hospitalization<br>B. Outpatients: One year<br><br>Note: In emergency situations, plasma may be issued prior to completion of the antibody screen as long as blood bank has received a current T&S specimen and the ABO/Rh testing has been resulted. |

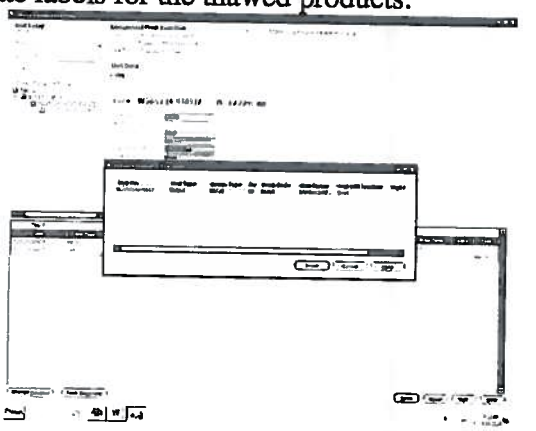
Document:SGAH.BB74[5] Status:INWORKS; Effective:2/1/2019, Check Version Before Use

Form revised 3/31/00

| Step | Action |
|---|---|
| 3 | Choose plasma units from the freezer for the recipient.<br>A. Plasma products MUST be ABO-compatible.<br>B. Rh does not need to be taken into consideration when transfusing plasma since plasma is non-cellular.<br>C. Refer to Appendix A for guidance.<br>D. Give AB plasma products in emergency situations where the recipient's blood type is unknown.<br>E. CPP **cannot** be substituted for plasma and should only be transfused when specifically requested and approved by a pathologist.<br>F. **Note: Only 2 plasma may be ordered for a patient at one time unless the patient is actively bleeding or undergoing plasma exchange.** The provider must re-evaluate the patient and place a new order if additional plasma units are needed.<br>G. When selecting plasma units, attempt to select units with the same product E code. This will simplify the thawing and labeling process. |
| 4 | Remove each unit of plasma from its box or wrap and inspect for splits or breakage. Discard any unit that contains splits or breakage and select another unit for thawing per procedure. |
| 5 | Access Sunquest function, "Blood Component Preparation."<br><br>Note: Do **NOT** branch to Blood Component Preparation from function Blood Order Processing. The label check will generate QA failures and Sunquest will falsely generate a message to Cerner indicating the plasma is ready for pickup. |
| 6 | At the "Value" prompt, type the thaw function that corresponds to the plasma you are thawing then press the "tab" key. The thaw function is T + the E code of the frozen plasma unit. Refer to appendix B for additional information. |
| 7 | Press the tab key to default the current date and time as the thaw time. Enter the date and time on which the plasma was thawed if thawed at an earlier time (such as during a computer downtime). |
| 8 | Click the "continue" button. |
| 9 | A second "Blood Component Prep" screen will appear.<br>A. At the "Unit #" prompt, scan the unit number DIN of the plasma unit to be thawed.<br>B. At the "Component" prompt, scan the product code from the plasma unit. This will also autofill the division field. |
| 10 | Repeat steps 9A and 9B for each plasma unit **containing the same E** code to be thawed at the same time. |
| 11 | When all plasma units have been entered, click the "Save" button. |

Document:SGAH.BB74[5] Status:INWORKS,Effective:2/1/2019, Check Version Before Use

Form revised 3/31/00

| Step | Action |
|---|---|
| 12 | A "Preview Output / New Units" screen will appear. Review the information to ensure accuracy, then click on the "finish" button to generate new product/expiration date labels for the thawed products.  |
| 13 | Thaw the plasma unit(s) in a 30-37°C waterbath. **Do not attempt to speed thawing by raising the temperature of the plasma thawer!**<br>A. The use of an automated plasma thawer is preferred.<br>B. Place each unit in a plastic bag if the unit(s) will be submerged in water (open waterbath). This step may be omitted if the plasma is thawed in a closed-system.<br>C. Remove plasma from the waterbath immediately when completely thawed. |
| 14 | Wipe any moisture from the outside of the bag with a clean, disposable towel. Adhere the updated plasma/expiration date label(s) to the thawed plasma unit(s).<br>A. Ensure you are placing the correct label on the correct unit.<br>B. Adhere the new labels directly over the lower half of the product label.<br>C. Handwrite the volume of plasma and anticoagulant on labels for apheresis units in the designated area. |
| 15 | Perform a blood label check of each thawed unit in Sunquest per procedure. Note: The units will remain in an unavailable status until the label check is completed. |

Document: SGAH.BB74[5] Status:INWORKS,Effective:2/1/2019, Check Version Before Use

Form revised 3/31/00

| Step | Action |
|---|---|
| 16 | Allocate the plasma to the designated recipient using Sunquest function, "Blood Order Processing."<br>A. Access Blood Order Processing.<br>B. Open the TPLAS order from the order list.<br>C. Review the order, indications, and provider instructions.<br>D. Enter the recipient's blood bank armband number in the "Armband #" field.<br>E. Click the "Allocation" tab.<br>F. At the "Unit #" prompt, scan the unit number from the thawed plasma unit.<br>G. At the "Component" prompt, scan the E code from the product. This will autofill the component and division fields.<br>H. Click the "Select" button to allocate the unit to the recipient.<br>Repeat steps 16D-F for all additional plasma units to be allocated. |
| 17 | Each plasma unit allocated to the patient will display in the "Compatibility Testing" area of the screen. In the "TS" column, enter "]" for each unit to indicate the unit is acceptable for transfusion to the patient. **Do not allocate units that do not meet specifications.** |
| 18 | Click the "Save" button. |
| 19 | The message, "Continue to Blood Product Issue?" will appear.<br>A. Click "Yes" and continue per issuing procedure if the plasma will be immediately issued.<br>B. Click "No" if the plasma will be stored in the blood bank prior to issue. |
| 20 | For units that were not issued, attach the printed patient information and store the plasma refrigerated (1-6°C) until issue or expiration. |

## 6. RELATED DOCUMENTS

SOP: Order Entry, Receiving Orders in the GUI System
SOP: Disposal of Blood and Blood Products
SOP: Blood Label Check
SOP: Issuing Blood Components

Document:SGAH.BB74[5] Status:INWORKS,Effective:2/1/2019, Check Version Before Use

Form revised 3/31/00

## 7. REFERENCES

1. Fung, MK, Eder, AF, Spitalnik, SL, and Westhoff, CM. 2017. Technical Manual of the AABB, 19th ed. AABB Publishing, Bethesda, Maryland.
2. Standards for Blood Banks and Transfusion Services, 31st ed. (2018). AABB Publishing, Bethesda, Maryland.
3. Circular of Information for the Use of Human Blood and Blood Components. 2009.

## 8. REVISION HISTORY

| Version | Date | Reason for Revision | Revised By | Approved By |
|---|---|---|---|---|
| | | Supersedes WAB.014.000, SHB.014.001 | | |
| 000 | 4.16.13 | Section 2: Updated transfusion indications.<br>Section 4: Updated to reflect change from PF24 to thawed plasma with an expiration date of 5 days.<br>Section 5: Updated to reflect change from PF24 to thawed plasma with an expiration date of 5 days. Removed instructions for placing and receiving orders; nursing now completes these tasks in Cerner. Added instructions for ISBT-128 labeled units.<br>Section 9: Added appendix B and C. | SCodina | NCacciabeve |
| 001 | 5.20.14 | Removed all references to codabar-labeled units.<br>Section 4: Added definition of PF24RT24.<br>Section 5: Updated instructions to reflect the Sunquest v6.4 upgrade. Added blood label check instruction.<br>Section 9: Added new plasma units/outputs to Appendix B.<br>Footer: version # leading zero's dropped due to new EDCS in use as of 10/7/13. | SCodina | NCacciabeve |
| 2 | 2.24.2015 | Section 5: Updated T&S requirements for plasma transfusion. | SCodina | NCacciabeve |
| 3 | 2.6.2017 | Header: Added WAH | LBarrett | NCacciabeve |
| 4 | 12.28.18 | Section 5: Added allowance to issue plasma prior to AbS completion in an emergency. | SCodina | NCacciabeve |

## 9. ADDENDA AND APPENDICES

Appendix A - Selection of plasma products
Appendix B - Plasma thawing functions

Document:SGAH.BB74[5] Status:INWORKS,Effective:2/1/2019, Check Version Before Use

Form revised 3/31/00

## Appendix A
## Selection of Plasma Products

| Recipients Type | 1st Choice | 2nd Choice | 3rd Choice | 4th Choice |
|---|---|---|---|---|
| O-positive or O-negative | O | A | B | AB |
| A-positive or A-negative | A | AB | | |
| B-positive or B-negative | B | AB | | |
| AB-positive or AB-negative Or Unknown Blood Type | AB | | | |

Document:SGAH.BB74[5] Status:INWORKS,Effective:2/1/2019, Check Version Before Use

Form revised 3/31/00

## Appendix B
## Plasma Thawing Functions

| Original Product | Component Prep Function | Final (Thawed) Product |
|---|---|---|
| E0701 | TE0701 | E2684 |
| E0707 | TE0707 | E2702 |
| E0713 | TE0713 | E2720 |
| E0869 | TE0869 | E2121 |
| E1624 | TE1624 | E2121 |
| E2553 | TE2553 | E2700 |
| E2555 | TE2555 | E2684 |
| E2585 | TE2585 | E2718 |
| E2587 | TE2587 | E2702 |
| E2617 | TE2617 | E2736 |
| E2619 | TE2619 | E2720 |
| E7644 | TE7644 | E2121 |
| E7646 | TE7646 | E5548 |
| E7648 | TE7648 | E5549 |
| E7650 | TE7650 | E5550 |

Document:SGAH.BB74[5] Status:INWORKS,Effective:2/1/2019, Check Version Before Use

Form revised 3/31/00