Transfusion Manual

Policies and Procedures for Compatibility Testing

Attachment C

The Consultation & Reference Laboratory (CR) of Gulf Coast Regional Blood Center (GCRBC) provides compatibility testing and blood components to many transfusion facilities in the Gulf Coast Region. Staff and administration of all facilities must be familiar with and follow the policies and procedures set forth in the following document.

Version 4

Gulf Coast Regional Blood Center

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Introduction

Compatibility testing is provided by the Transfusion Service of the Consultation and Reference Laboratory of Gulf Coast Regional Blood Center (The Blood Center) to 170 hospitals and healthcare facilities in over 26 counties with a signed, current contract. The Blood Center provides service seven days per week, 24 hours per day.

The *Transfusion Manual* describes policies and procedures that are designed to promote good transfusion practice and are in accordance with applicable regulatory agencies. The manual is intended for the following audience:

- Nursing staff: Policies and procedures outline the requirements for ordering blood components, collecting and labeling a patient blood specimen for pre-transfusion testing, administering blood and components, and recognizing and reporting transfusion reactions.
- Physicians: Blood components provided by The Blood Center are described as well as indications for transfusion and expected results.
- Risk Management, Quality Committee, and/or Transfusion Committee: The manual discusses parameters for evaluating transfusion practice and offers The Transfusion Safety Program as a mechanism for meeting regulatory requirements.
- Hospital Administration: The manual defines the contractual obligations of both the hospital and The Blood Center.

SECTION I: *Responsibilities*

Facility Obligations

1. Implement policies and procedures (SOPs) as required by The Blood Center regarding ordering, storage, administration, and disposition of blood components. Such policies should be readily available to the facility's staff.
2. Provide and document staff training and competency on policies and procedures related to blood transfusions.
3. Obtain informed consent for transfusion.
4. Maintain current versions of The Blood Center forms. Out-of-date or altered versions of forms will not be accepted.
5. Require staff to "read back" and document Critical Values as requested by The Blood Center.
6. Provide oversight of transfusion activities either by committee or designation of a specific individual.
7. Perform blood component utilization review and audits relating to transfusion practice in collaboration with The Blood Center. Such activities are intended to help facilities meet The Joint Commission and other regulatory requirements.
8. Have emergency services and disaster plans.

Best Practice: Place a copy of the *Transfusion Manual* on all nursing units.

Best Practice: Request pre-printed PDF forms which have the facility's name.

Important Information

Emergency services are limited by the distance between The Blood Center and the transfusing facility.

The Facility must make prior arrangements with another provider for emergency medical services in the event of an immediate and unanticipated need for additional blood components. Should a medical event occur which requires immediate transfusion of additional blood components, the patient should be transferred to an appropriate acute-care facility.

9. Provide appropriate follow-up to transfusion-related incidents. Such follow-up may include a Corrective Action Plan.
10. Maintain records of the final disposition of all blood components.
11. Cooperate with The Blood Center regarding product recalls and look-back investigations.
12. To prevent interruptions of service:
    a. Maintain appropriate accreditation and insurance.
    b. Pay invoices on time.
    c. Notify The Blood Center when a change in name or ownership occurs.

Consultation & Reference Laboratory Obligations

1. Meet accreditation standards of the FDA, AABB and CLIA/CMS. A copy of the CLIA certificate can be obtained from laboratory management.
2. Accept only patient blood specimens and request forms that meet established criteria.
3. Perform pre-transfusion testing according to standard operating procedures.
4. Provide blood components in a timely manner.
5. Notify the facility of critical values and request that facility staff "read back" the critical information.
6. Inform the facility when crossmatch-incompatible RBCs are the only option available.
7. Investigate suspected transfusion reactions.

A technologist reviews the blood specimen and request for accuracy.

*Studies have shown: "The relative risk that an **incorrectly labeled** tube does NOT contain the patient's blood is 40 times greater than the risk with a **correctly labeled** tube." (Sazama, K, M.D., "Global Patient Transfusion Safety," 2005)*

The Blood Center Medical Director Obligations

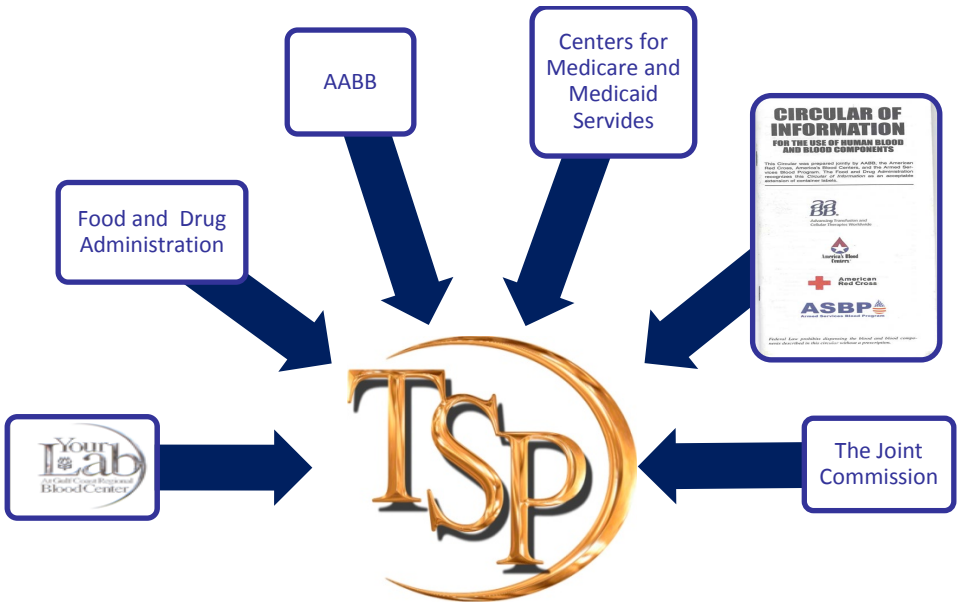
1. Provide recommendations for transfusion practice through the *Transfusion Manual* and medical consultation as needed.
2. Oversee quality assurance activities provided by the Transfusion Safety Program. These activities assist facilities in meeting The Joint Commission and other regulatory standards.
3. Review adverse events related to transfusion and makes recommendations.

SECTION II: *Transfusion Safety Program*

The ***Transfusion Safety Program (TSP)*** was developed to address the increasing regulatory requirements regarding blood transfusions. This program provides comprehensive education and training on transfusion-related practices to nursing, physician, and support staff. ***The Joint Commission (TJC) National Patient Safety Goal*** is to identify patients correctly; the elements of TSP support TJC's mission. TSP strives to help all facilities meet compliance goals with their respective accrediting agencies by reviewing the informed consent process, patient identification, blood administration, recognition of transfusion reactions, and appropriate blood utilization. TSP is also available to consult with the facility in developing best practices. New clients can utilize the *Transfusion Manual* as a guide to implement The Blood Center's transfusion services.

This section provides details on the broad range of services offered to our compatibility-testing clients. These include:

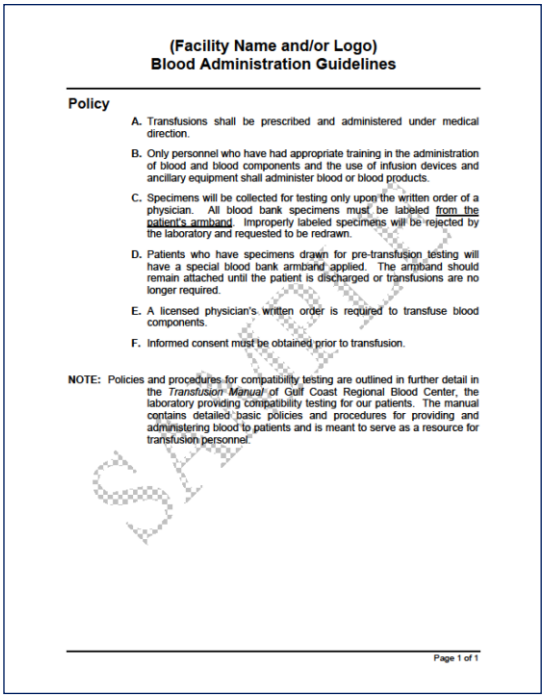
- Policies & Procedures
- Blood Utilization Review
- Education & Training
- Audits
- Annual Performance Reports
- Consulting Services



Policies & Procedures

- Periodically, TSP will review policies, procedures, processes, and forms that relate to transfusion practices in the facility. The following policies, procedures, and forms are required for all facilities:
    - Informed Consent Form for Blood & Blood Components
    - Orders for Blood Transfusions
    - Collection of Patient Sample & Completing Request Form
    - Accepting Units for Transfusion
    - Blood Administration
    - Blood Transfusion Nursing Record
    - Blood Component Disposition Log
    - Recognition & Treatment of Transfusion Reactions
    - Emergency Release of Uncrossmatched Blood
    - Emergency Blood Loss Plan
    - Look-back/Recall of Blood Components
    - Frequency & Documentation of Staff Training on Blood Bank Policies

- As changes are made in the transfusion services, TSP will provide timely updates to clients and assist with incorporating these changes.
- Templates are available to assist with the creation of appropriate policies, procedures, and forms. The templates can be personalized to meet the needs of each facility.



(Facility Name and/or Logo)
Blood Administration Guidelines

Policy

A. Transfusions shall be prescribed and administered under medical direction.

B. Only personnel who have had appropriate training in the administration of blood and blood components and the use of infusion devices and ancillary equipment shall administer blood or blood products.

C. Specimens will be collected for testing only upon the written order of a physician. All blood bank specimens must be labeled from the patient's armband. Improperly labeled specimens will be rejected by the laboratory and requested to be redrawn.

D. Patients who have specimens drawn for pre-transfusion testing will have a special blood bank armband applied. The armband should remain attached until the patient is discharged or transfusions are no longer required.

E. A licensed physician's written order is required to transfuse blood components.

F. Informed consent must be obtained prior to transfusion.

NOTE: Policies and procedures for compatibility testing are outlined in further detail in the *Transfusion Manual* of Gulf Coast Regional Blood Center, the laboratory providing compatibility testing for our patients. The manual contains detailed basic policies and procedures for providing and administering blood to patients and is meant to serve as a resource for transfusion personnel.

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Policy and Procedure Template

Blood Utilization Review

- TSP provides assistance in performing review of blood utilization practices, including appropriate indication of usage, total blood usage by facility, and crossmatch-to-transfusion ratio.

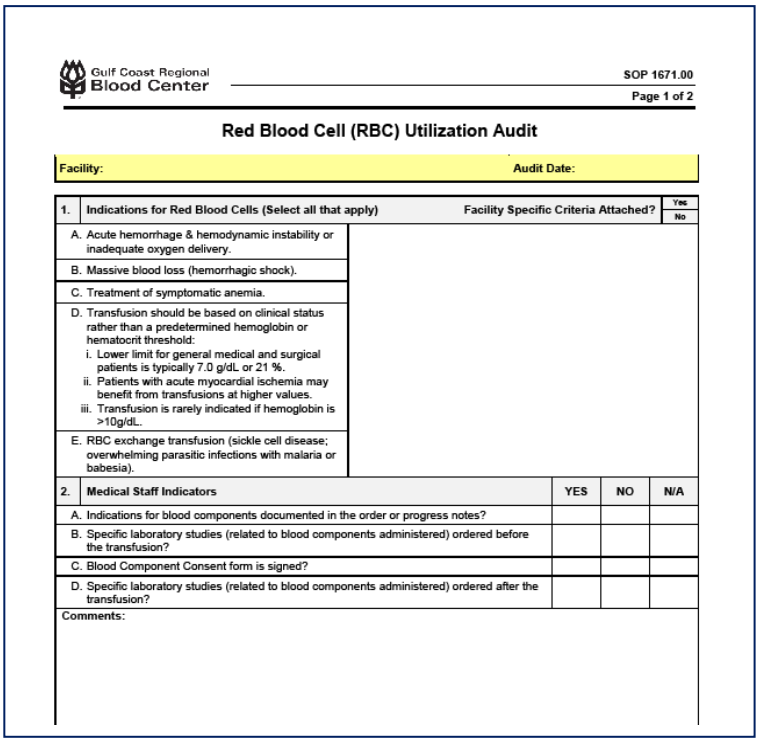
BEST PRACTICES

If applicable, consider the following initial management options for these patient conditions:

- If a patient has anemia related to deficiencies of iron, the anemia may be corrected with iron supplementation and/or diet.
- For a patient with anemia related to vitamin B12 or folate deficiency, consider oral supplements or injections.
- A patient with autoimmune hemolytic anemia who is asymptomatic or has mild symptoms of anemia may benefit from treatment with steroid or immunosuppressant therapy.
- A patient with signs of hypovolemia may be treated with crystalloid or colloid infusion.

- TSP has developed Transfusion Guideline pocket cards for appropriate transfusion of red blood cells, platelets, and plasma. These guidelines can be incorporated by the facility's Blood Utilization Review committee. Examples of the pocket cards are included with this Manual; additional pocket cards are available upon request.
- TSP provides guidance on developing transfusion guidelines that meet the needs of the facility's patient population.

- Periodically, TSP evaluates appropriate utilization of blood components through an audit process.



Gulf Coast Regional Blood Center

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Red Blood Cell (RBC) Utilization Audit

Facility: Audit Date:

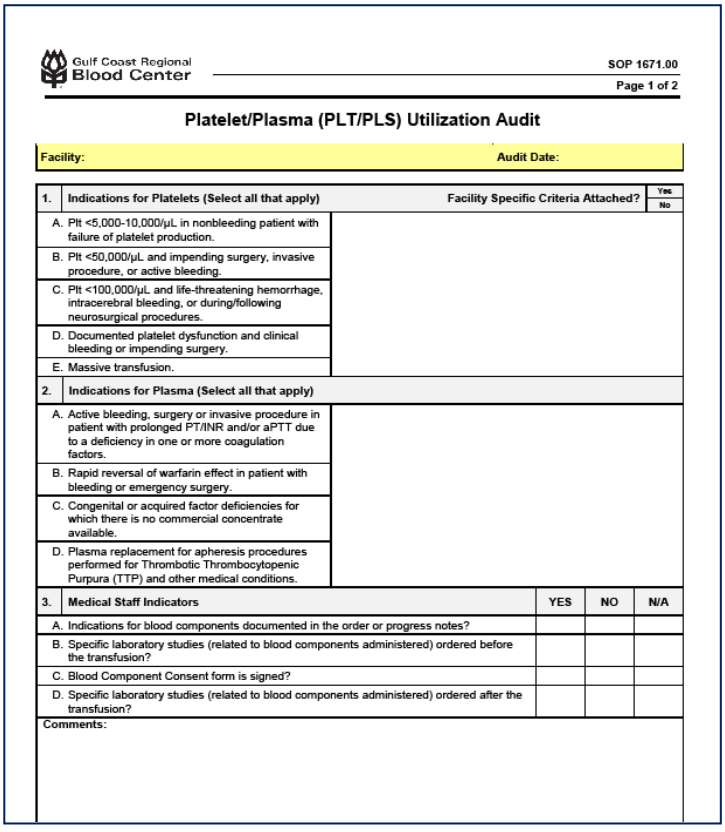
1.	Indications for Red Blood Cells (Select all that apply)	Facility Specific Criteria Attached? Yes / No
A.	Acute hemorrhage & hemodynamic instability or inadequate oxygen delivery.	
B.	Massive blood loss (hemorrhagic shock).	
C.	Treatment of symptomatic anemia.	
D.	Transfusion should be based on clinical status rather than a predetermined hemoglobin or hematocrit threshold: i. Lower limit for general medical and surgical patients is typically 7.0 g/dL or 21 %. ii. Patients with acute myocardial ischemia may benefit from transfusions at higher values. iii. Transfusion is rarely indicated if hemoglobin is >10g/dL.	
E.	RBC exchange transfusion (sickle cell disease; overwhelming parasitic infections with malaria or babesia).	

2.	Medical Staff Indicators	YES	NO	N/A
A.	Indications for blood components documented in the order or progress notes?			
B.	Specific laboratory studies (related to blood components administered) ordered before the transfusion?			
C.	Blood Component Consent form is signed?			
D.	Specific laboratory studies (related to blood components administered) ordered after the transfusion?			

Comments:

Red Blood Cell Utilization Audit form

Platelet/Plasma Utilization Audit form



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Platelet/Plasma (PLT/PLS) Utilization Audit

Facility: Audit Date:

1.	Indications for Platelets (Select all that apply)	Facility Specific Criteria Attached? Yes / No
A.	Plt <5,000-10,000/µL in nonbleeding patient with failure of platelet production.	
B.	Plt <50,000/µL and impending surgery, invasive procedure, or active bleeding.	
C.	Plt <100,000/µL and life-threatening hemorrhage, intracerebral bleeding, or during/following neurosurgical procedures.	
D.	Documented platelet dysfunction and clinical bleeding or impending surgery.	
E.	Massive transfusion.	
2.	**Indications for Plasma (Select all that apply)**	
A.	Active bleeding, surgery or invasive procedure in patient with prolonged PT/INR and/or aPTT due to a deficiency in one or more coagulation factors.	
B.	Rapid reversal of warfarin effect in patient with bleeding or emergency surgery.	
C.	Congenital or acquired factor deficiencies for which there is no commercial concentrate available.	
D.	Plasma replacement for apheresis procedures performed for Thrombotic Thrombocytopenic Purpura (TTP) and other medical conditions.	

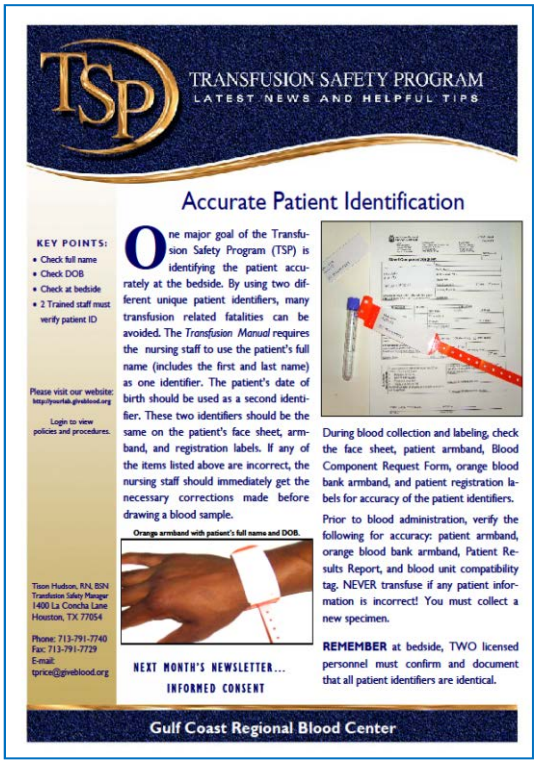
3.	Medical Staff Indicators	YES	NO	N/A
A.	Indications for blood components documented in the order or progress notes?			
B.	Specific laboratory studies (related to blood components administered) ordered before the transfusion?			
C.	Blood Component Consent form is signed?			
D.	Specific laboratory studies (related to blood components administered) ordered after the transfusion?			

Comments:

Education and Training

- TSP can assist with methods to provide and document training and competency of staff involved in the collection of blood specimens and administration of blood components.
- TSP can provide data on transfusion practice performance indicators. Based on the facility's data, TSP can provide focused in-service programs for clients with unacceptable results or those looking to improve their processes.
- All new clients will receive start-up training. Additionally, training for new employee orientation and annual competency is available upon request.

TSP issues a quarterly newsletter. The newsletter offers information on compliance and the latest news in transfusion practice. It can be easily posted in the unit or break room for staff ***to read the latest news.***


TRANSFUSION SAFETY PROGRAM
LATEST NEWS AND HELPFUL TIPS

Accurate Patient Identification

KEY POINTS:
- Check full name
- Check DOB
- Check at bedside
- 2 Trained staff must verify patient ID

Please visit our website: http://yourlab.giveblood.org

Login to view policies and procedures.

One major goal of the Transfusion Safety Program (TSP) is identifying the patient accurately at the bedside. By using two different unique patient identifiers, many transfusion related fatalities can be avoided. The *Transfusion Manual* requires the nursing staff to use the patient's full name (includes the first and last name) as one identifier. The patient's date of birth should be used as a second identifier. These two identifiers should be the same on the patient's face sheet, armband, and registration labels. If any of the items listed above are incorrect, the nursing staff should immediately get the necessary corrections made before drawing a blood sample.

Orange armband with patient's full name and DOB.

During blood collection and labeling, check the face sheet, patient armband, Blood Component Request Form, orange blood bank armband, and patient registration labels for accuracy of the patient identifiers.

Prior to blood administration, verify the following for accuracy: patient armband, orange blood bank armband, Patient Results Report, and blood unit compatibility tag. NEVER transfuse if any patient information is incorrect! You must collect a new specimen.

REMEMBER at bedside, TWO licensed personnel must confirm and document that all patient identifiers are identical.

NEXT MONTH'S NEWSLETTER...
INFORMED CONSENT

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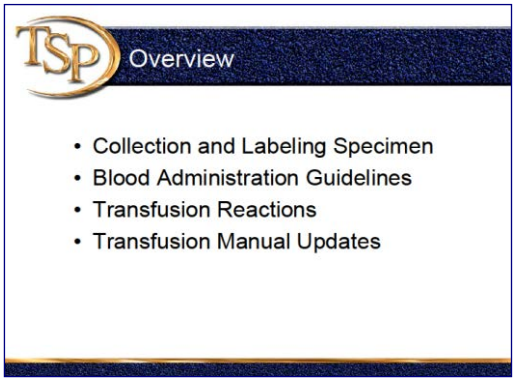
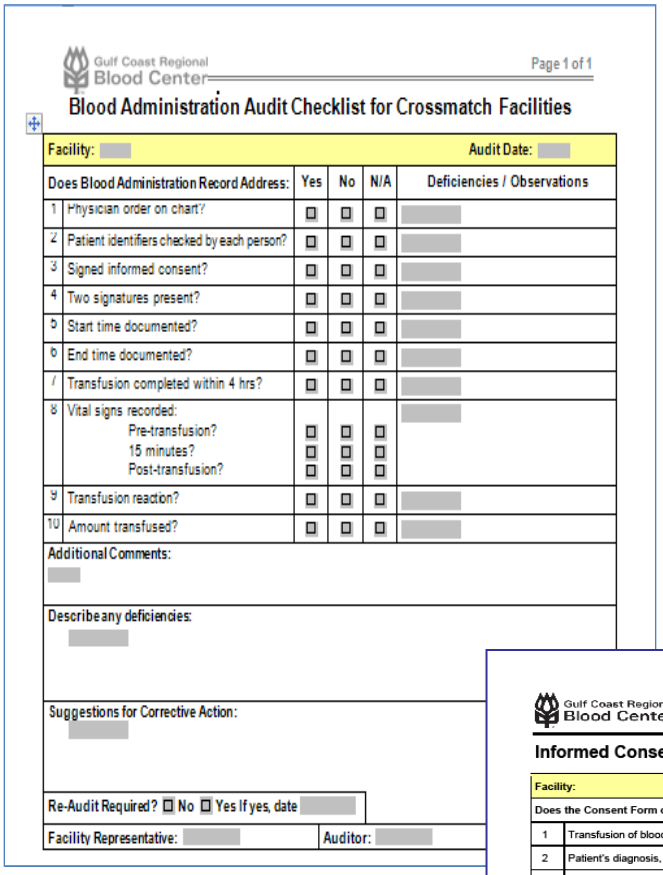
Gulf Coast Regional Blood Center



Presentations and in-services by our highly trained TSP staff are available.

Audits

- TSP will perform periodic audits of various elements of transfusion safety, including informed consent, orders to transfuse, administration of blood and blood products, documentation of transfusion, and presence or absence of transfusion reactions.
- TSP will provide a formal written report on the findings of audits performed within the facility.



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Blood Administration Audit Checklist for Crossmatch Facilities

Facility: Audit Date:

Does Blood Administration Record Address:		Yes	No	N/A	Deficiencies / Observations
1	Physician order on chart?	☐	☐	☐	
2	Patient identifiers checked by each person?	☐	☐	☐	
3	Signed informed consent?	☐	☐	☐	
4	Two signatures present?	☐	☐	☐	
5	Start time documented?	☐	☐	☐	
6	End time documented?	☐	☐	☐	
7	Transfusion completed within 4 hrs?	☐	☐	☐	
8	Vital signs recorded: Pre-transfusion? / 15 minutes? / Post-transfusion?	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	
9	Transfusion reaction?	☐	☐	☐	
10	Amount transfused?	☐	☐	☐	

Additional Comments:

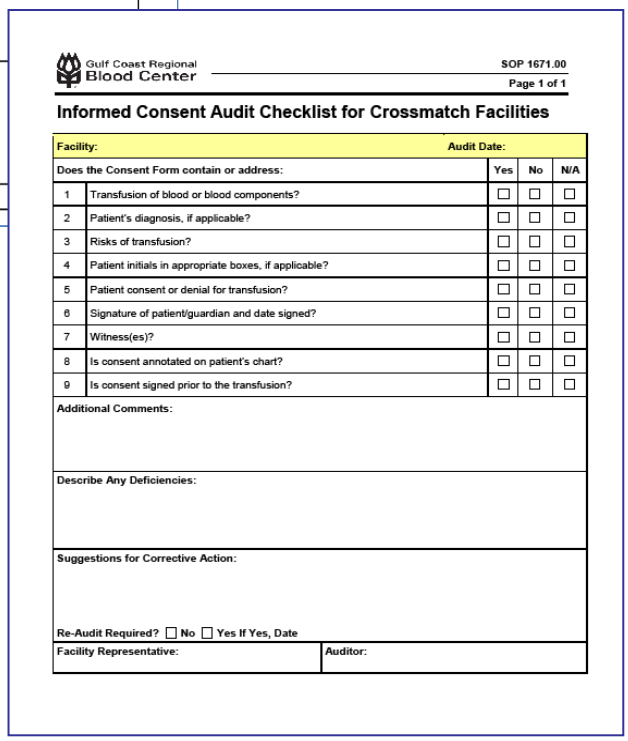
Describe any deficiencies:

Suggestions for Corrective Action:

Re-Audit Required? ☐ No ☐ Yes If yes, date

Facility Representative: Auditor:

Blood Administration Audit Checklist



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Informed Consent Audit Checklist for Crossmatch Facilities

Facility: Audit Date:

Does the Consent Form contain or address:		Yes	No	N/A
1	Transfusion of blood or blood components?	☐	☐	☐
2	Patient's diagnosis, if applicable?	☐	☐	☐
3	Risks of transfusion?	☐	☐	☐
4	Patient initials in appropriate boxes, if applicable?	☐	☐	☐
5	Patient consent or denial for transfusion?	☐	☐	☐
6	Signature of patient/guardian and date signed?	☐	☐	☐
7	Witness(es)?	☐	☐	☐
8	Is consent annotated on patient's chart?	☐	☐	☐
9	Is consent signed prior to the transfusion?	☐	☐	☐

Additional Comments:

Describe Any Deficiencies:

Suggestions for Corrective Action:

Re-Audit Required? ☐ No ☐ Yes If Yes, Date

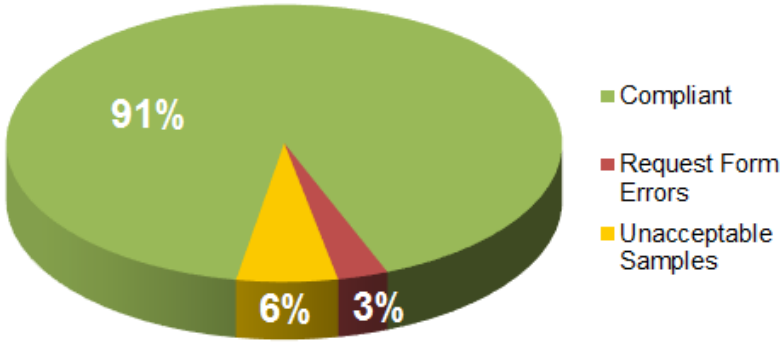
Facility Representative: Auditor:

Informed Consent Audit

Annual Performance Reports

TSP provides a formal report on quality and compliance measures associated with transfusion practices.

Overall Quality Indicators



Request Form Error Category	Total
Missing or Illegible Phlebotomist Signatures	0
Missing or Incomplete Information	0
Missing or Copied Request Form	2
Wrong Request Form	0
Original Request Form Faxed	0
Facility Section Errors	0
Units Needed Not Indicated	0
Total Errors	2

Request Form Errors

This chart lists errors on the Blood Component Request *form that are tracked by TSP.*

Unacceptable Sample Error Category	Total
Missing Phlebotomist Initials/Date	3
Missing Patient Information	1
No Armband	0
Wrong Tube	0
Wrong Blood In Tube	0
Specimen Hemolyzed	0
Not Enough Blood in Sample Tube	0
Total Errors	4

Unacceptable Specimens

The chart shows a breakdown of the reasons for unacceptable blood samples.

Consulting Services

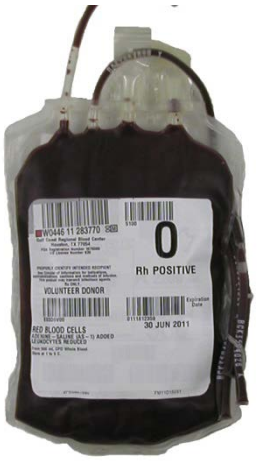
- Provide guidance on the content required elements of a consent form for blood transfusion.
- Advise on the development of appropriate guidelines for patient identification and specimen labeling and handling requirements.
- Support the development of internal assessment programs that focus on critical elements of blood administration.
- Assist with establishing a blood utilization review process to facilitate appropriate usage of blood components.
- Assist with the use of Root Cause Analysis (RCA) to investigate the processes and systems that contribute to a sentinel or near-miss event.
- Provide guidance on the development of a blood management program.
- Assist with an in-house training program of transfusion practices with a train-the-trainer format.
- Provide access to evidence-based literature on effective transfusion practices.

SECTION III: *Components*

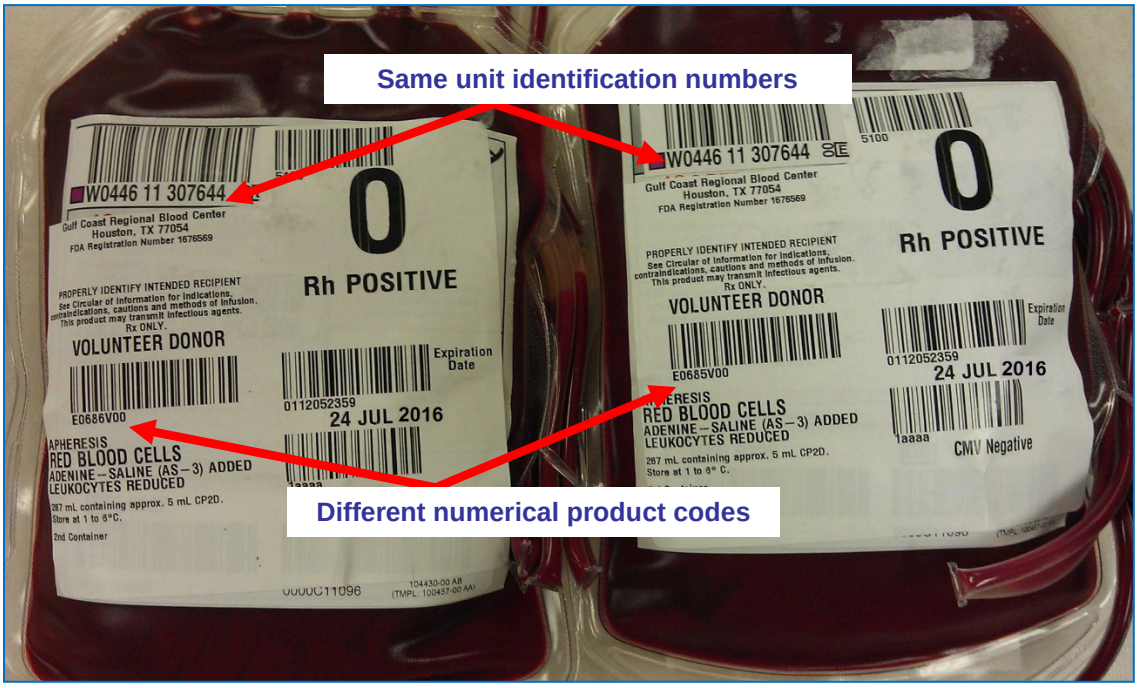
Red Blood Cells (RBC)

Description of RBC Components

- **LRBC**: As a standard practice, The Blood Center provides Leukocyte-Reduced RBC which contain <5 X 10^6 leukocytes per unit. Clinical studies have shown that LRBC minimize febrile transfusion reactions and CMV transmission. LRBC in additive solution have an approximate hematocrit of 60% in a volume of 330 mL.
- **Apheresis or Double LRBC**: If two LRBC have the same unit identification numbers but different numerical component codes, the RBCs represent an apheresis or double RBC donation. EXAMPLE: Unit number W044611307644 with component codes E0686 and E0685 are a double-RBC from the same donation.

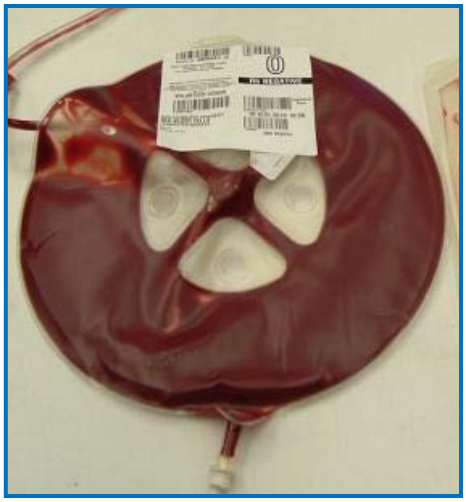


LRBC



Apheresis or double RBC from the same donation has the same unit identification numbers but different numerical product codes.

- **WRBC**: Washed RBC have been washed with normal saline and are suitable for patients who have had severe allergic reactions or who have IgA-deficiency. The Blood Center may substitute WRBC for LRBCs. The expiration date of WRBC is shortened; transfuse upon receipt. WRBC may be in a donut-shaped bag. WRBC have a hematocrit of 75% in a volume of approximately 180 mL.
- **FRBC**: Frozen-deglycerolized RBC are thawed, the cryoprotective solution is removed, and RBC are suspended in a saline solution. FRBC may be the only available RBC for patients who need rare blood types. The expiration date is shortened; transfuse upon receipt. Deglycerolized RBC may be in a donut-shaped bag.
- One RBC unit increases the hemoglobin in a 70-kg adult by approximately 1 g/dL (hematocrit by 3%).



A donut-shaped bag may contain WRBC or FRBC.

Indications for RBC Transfusions

See *Transfusion Guidelines* inserts for additional information.

- Acute hemorrhage and hemodynamic instability or inadequate oxygen delivery.
- Treatment of symptomatic anemia.
    - Lower limit for general medical and surgical patients is typically 7.0 g/dL or 21%.
    - Patients with acute myocardial ischemia may benefit from transfusion at higher values.
    - Transfusion is rarely indicated if Hgb >10 g/dL.

RBC Storage

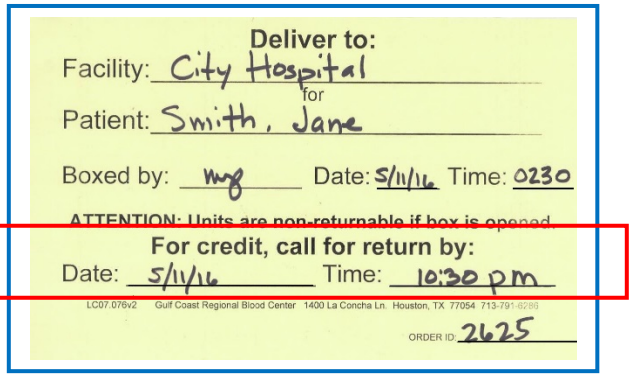
- Maintain the temperature between 1-6ºC. Do **NOT** store RBC in a refrigerator that has not been approved by The Blood Center for the storage of blood components.
- For most facilities, RBC are delivered in a transport box containing ice. The boxes have been validated to maintain the temperature for 24 hours. Do **NOT** open the box until ready to transfuse. Unit deliveries of RBC are one to a box. This minimizes the RBC loss due to delays or improper storage temperatures as long as the box remains unopened.

Labeled Transport Box

- If the facility has a Blood Center-approved blood bank refrigerator, RBC are delivered in a cooler and transferred to the refrigerator.

RBC Return

- Consult The Blood Center staff before returning RBC. Unused RBC that have been stored as required may be acceptable to return for credit. Washed or deglycerolized RBC cannot be returned for credit.
- If the facility has a Blood Center- approved blood bank refrigerator, RBC must be returned as soon as possible or on the day following the crossmatch expiration date. The Blood Center drivers must return the RBC.
- For all other facilities, returns must be initiated before the **time on the box label**. RBC must be in the unopened transport box.

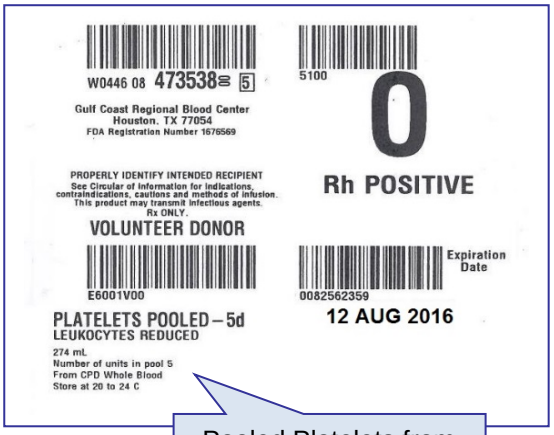


Platelets

Description of Platelet Components

- **Apheresis platelets**: Apheresis platelets are prepared from a single donor.
- **Pooled platelets**: Platelets from whole blood donations are pooled.
- Both apheresis and pooled platelets contain ≥ $3x10^{11}$ platelets in an approximate volume of 200 - 400 mL.
- One unit increases the platelet count in a 70-kg adult by 30,000 - 60,000/µL. If random donor platelets are requested, The Blood Center will substitute one unit of apheresis or pooled platelets for each 6-10 random donor platelets.
- Apheresis and pooled platelets are leukocyte-reduced.

Apheresis Platelets



Pooled Platelets from 5 donors

Indications for Platelet Transfusions

See *Transfusion Guidelines* inserts for additional information.

- Platelet count <5,000 - 10,000/µL in nonbleeding patient with failure of platelet production.
- Platelet count <50,000/µL and impending surgery, invasive procedure, or active bleeding.
- Platelet count <100,000/µL and life-threatening hemorrhage or intracerebral bleeding.
- Documented platelet dysfunction and clinical bleeding or impending surgery.

Platelet Storage

- Do **NOT** refrigerate.
- Platelets are delivered in a validated transport box containing a “room temperature” water bag to assist agitation and maintain the temperature between 20 - 24ºC for 24 hours. Do **NOT** open the box until ready to transfuse.

Platelet Return

- Consult The Blood Center before returning platelets.
- Platelets may be returned if the box is unopened and at least 24 hours remain until platelet expiration. Returns must be initiated within 20 hours after issue.

Plasma

Description of Plasma Components

- Plasma contains all of the clinically important coagulation factors. Plasma may be either:
  - **FFP**: Fresh Frozen Plasma.
  - **FP24**: Plasma frozen within 24 hours of phlebotomy
  - **JFFP**: Equivalent to 2-3 units. The Blood Center may substitute 1 JFFP for every 2 - 3 units of plasma.
- One mL of plasma contains one IU of each coagulation factor. For coagulopathy secondary to a factor deficiency, the dose is 10 - 20 mL/kg (3-6 units) in an adult. Factor levels are expected to increase by 20% immediately after transfusion.
- The volume of plasma is approximately 220 mL.

Thawed Plasma

Indications for Plasma Transfusions

See *Transfusion Guidelines* inserts for additional information.

- Active bleeding, surgery or invasive procedure in a patient with a prolonged PT/INR and/or aPTT due to a deficiency in one or more coagulation factors.
- Rapid reversal of warfarin effect in a patient with bleeding or emergency surgery.
- Congenital or acquired coagulation deficiencies.

Plasma Storage

- Transfuse as soon as possible.
- Plasma is delivered in a transport box containing ice. The boxes have been validated to maintain the temperature between 1-6^{o}C for 24 hours. Do **NOT** open the box until ready to transfuse.

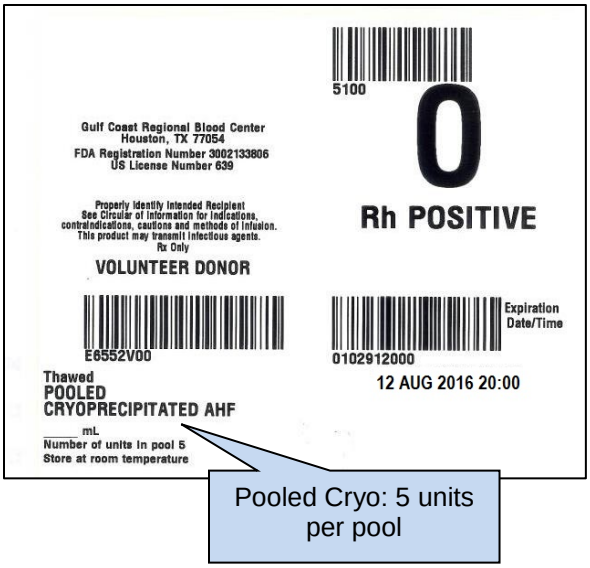
Plasma Return

- Plasma cannot be returned for credit. Plasma expires within 5 days of thawing.

Cryoprecipitate (CRYO)

Description of CRYO

- Contains fibrinogen, Factor VIII, Factor XIII, vWF, and fibronectin in approximately 15 mL of plasma.
- Available as individual units or in pools of 5 units. The standard cryoprecipitate dose for an adult is 10 individual units or 2 pools. The Blood Center will send cryoprecipitate pools whenever possible.



Indications for CRYO

- Hypofibrinogenemia
- Factor XIII deficiency
- Von Willebrand disease

CRYO Storage

- Transfuse immediately upon receipt.
- CRYO is delivered in a validated transport box containing a “room temperature” water bag. Do NOT refrigerate.

CRYO Return

- CRYO cannot be returned for credit. CRYO expires within 6 hours of thawing.

Special Transfusion Needs

The Blood Center is required to have a policy that defines patients who have special transfusion requirements. If a patient is known to fit into one of the following groups, The Blood Center will fill the component request as indicated below when products are available.

Patient	*Irradiated*	*CMV Negative*	*Sickle Cell Negative*	*Other*
Hodgkin's Lymphoma	Required			
Congenital cellular immunodeficiency	Required			
Bone marrow or hematopoietic progenitor cell (HPC) transplant candidate or recipient	Required	Preferred		
Solid organ (liver, lung, heart) transplant recipient who is CMV negative		Preferred		
Sickle Cell Disease			Required	Hemoglobin S (Sickle Cell) negative RBCs required; Rh/K phenotype-match when available
IgA-deficient patient with anti-IgA				Washed RBCs; IgA-deficient plasma products
Recurrent severe allergic reactions				Washed RBCs
Patient with clinically significant antibody				Antigen negative RBC
Liver Disease				Fresh frozen plasma ***or*** FB24-Plasma frozen within 24 hours after phlebotomy

Autologous and/or Directed Donor Units

Making Arrangements for Donating Autologous and/or Directed Donor Units

To make arrangements for autologous or directed donation, call the Autologous and Directed Program. If no answer, leave a message. Program staff will return the call. Use the patient's legal name (i.e., name on driver's license) when making the request.

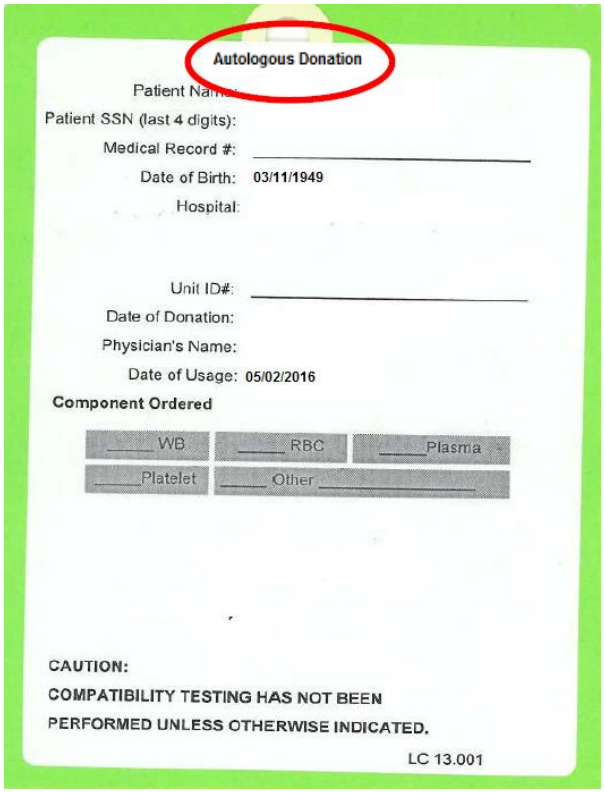
- Phone: 713-791-6608
- Hours: Monday through Friday 8:00 a.m. 5:00 p.m.

Additional information and forms may be found on The Blood Center's website: **www.giveblood.org**.

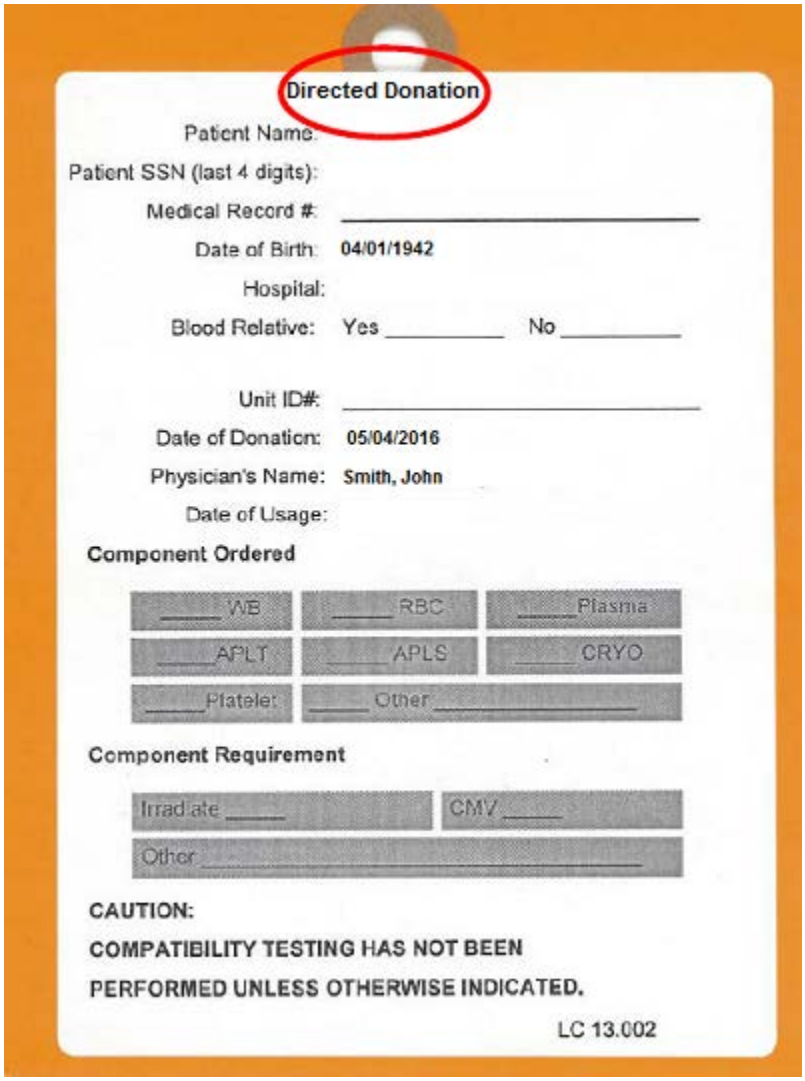
Ordering Autologous and/or Directed Units for Transfusion

1. The physician must specify autologous and/or directed donors in the order.
2. The facility must collect a blood sample and complete a *Blood Component Request* following the usual protocol for Type and Crossmatch. Specify autologous and/or directed donors on the request. Autologous RBCs should be transfused first.
3. The Blood Center will perform and bill routine pre-transfusion tests.
4. Autologous units are billed whether or not transfused. Additional autologous and/or directed donor fees are applied.

Autologous Donation Label: Always Transfuse Autologous Units First



Directed Donation Label: Transfuse Directed Donor Units before Random Donor Units.



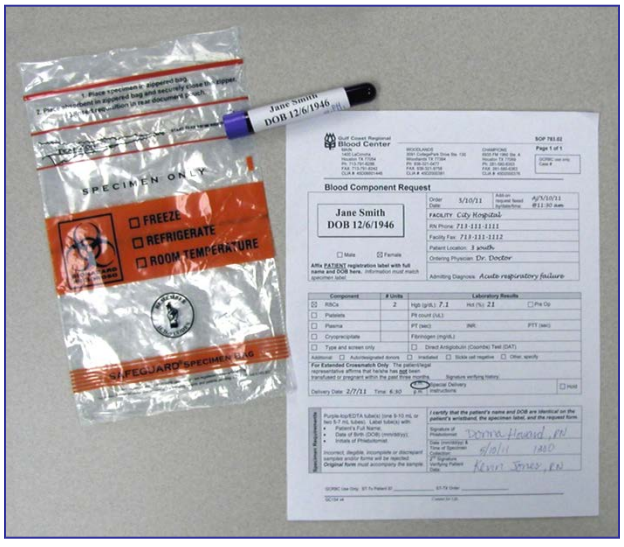
SECTION IV: *Ordering Blood Components*

Introduction

There are two critical elements to ordering blood components. The first is to complete the request form accurately as indicated by the physician's order. The second is to collect and accurately label a patient blood specimen for pre-transfusion testing. In addition to meeting FDA and AABB requirements, the procedure for collecting and labeling a patient specimen meets The Joint Commission National Patient Safety Goals to improve the accuracy of patient identification. Accurate identification of the intended recipient and the blood component may be the single most important step in ensuring transfusion safety.

Important Information

- **Most fatal transfusion reactions occur because of patient identification errors at the time of specimen collection or blood administration.**
- **Patient identification at phlebotomy and transfusion is critical to safe transfusion.**



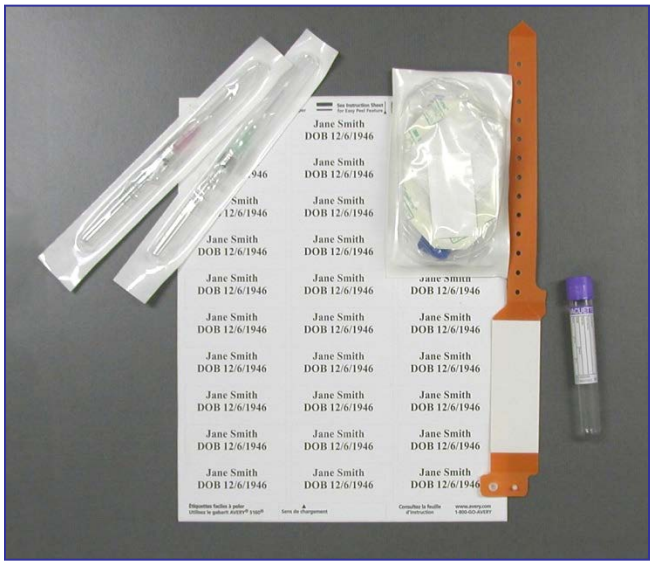
The patient must be correctly identified. The patient specimen and request form must be completed at the bedside.

Patient information must be identical on the specimen label and on the request form.

Phlebotomy Supplies

The transfusion facility is responsible for maintaining an adequate inventory of phlebotomy supplies.

Supplies	Example Product	Supplier
Plastic blood collection tubes: • 9-mL EDTA (purple stopper) preferred • Two 5-7 mL EDTA tubes are acceptable	Greiner Bio-One VACUETTE®, 16 X 100 whole blood collection tubes with D3 EDTA *Item # GR-456038B*	Cardinal Healthcare, Scientific Products Distributer 1450 Waukegan Road McGraw Park, IL 60085 1-800-964-5227 www.cardinalhealth.com
Orange armbands	Sentry Bar Code LabelBand® Wristbands (Adult) *Item # 5080-17-PDM*	PDC Healthcare 27770 N Entertainment Dr., Ste. 200 Valencia, CA 91355 1-800-772-1122 www.pdchealthcare.com
Specimen transport bags suitable for biohazards		Facility approved vendor



Phlebotomy supplies, patient labels, orange armband, and purple-top (EDTA) tube

Procedure

- **Ordering Blood Components**
- **Collecting and Labeling a Patient Specimen**

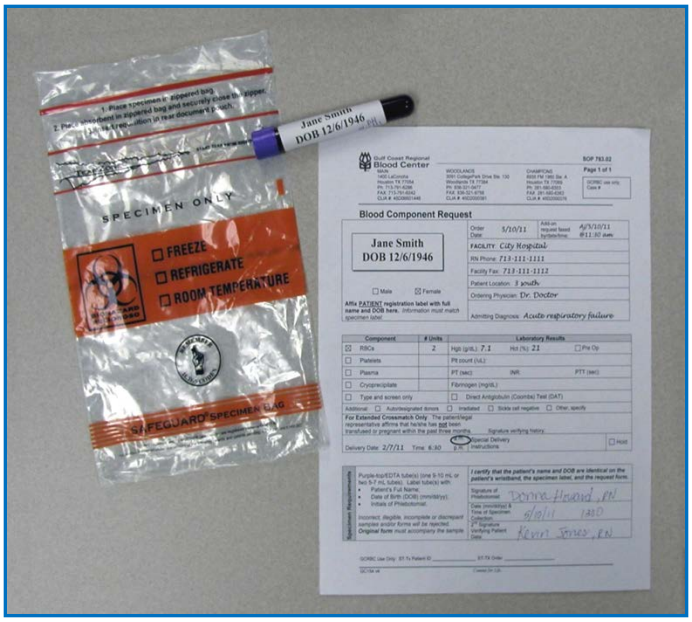
Routinely, a blood specimen for a crossmatch and/or Type and Screen will expire in 3 days after collection. Examples of properly completed forms and labels are included.

Step	Action	Comment
1	Confirm the physician's order.	 The patient's full name and date of birth must be identical on the chart, wristband, and all documents related to transfusion.
2	If transfusion is anticipated, obtain informed consent.	
3	Obtain patient registration labels. Compare to the patient's face sheet.	
4	Using the physician's order complete the *Blood Component Request* form:	Use blue or black ink. Write legibly. Complete a new form if corrections are needed.
	• Affix patient registration label with full name and date of birth.	Indicate if the patient is male or female.
	• Order date	If additional units are needed following the initial order, see **Additional Components** section.
	• Facility name and contact information	Be specific to avoid confusion with similar names. Pre-printed facility-specific forms are available upon request.
	• Patient location	
	• Ordering physician	Use the name of the physician who wrote the order, not the admitting physician.
	• Admitting diagnosis	Do not use indication (anemia, etc) for transfusion.
	• Blood component; number of units	As ordered by the physician
	• Laboratory data as indicated	
	• Type and Screen	
	• Direct Antiglobulin (Coombs) Test	
	• Additional needs	Autologous or designated donor units, irradiation, or sickle cell negative as ordered by the physician.
	• Extended crossmatch; verifier signature	Available at selected facilities only. See **Extended Crossmatch** section.
	• Delivery date and time; special delivery instructions	If the date of transfusion is not known, check HOLD. STAT and ASAP are not acceptable.

Step	Action	Comment
5	Gather supplies: • Completed *Blood Component Request* form • Patient registration labels • Orange blood bank armband • Purple-top tubes (minimum of one 9-mL or two 5-7 mL tubes) • Specimen delivery bag • Phlebotomy supplies	**CRITICAL STEP!** **Specimens must be labeled at the patient's bedside by the person who collects the specimen.** **NEVER PRE-LABEL TUBES.** CAUTION! Labels must have the patient's full name and date of birth (DOB). If pre-transfusion tests reveal a problem, additional specimen may be requested.
6	Positively identify the patient at the patient's bedside by examining the patient's facility armband.	If possible, ask the patient to state his/her name and DOB.
7	Verify that the patient's identifying data is identical on the: • Facility armband; • *Blood Component Request* form; • Patient registration labels.	STOP Frequent cause for rejection: The Blood Center will request a new specimen **and** a new *Blood Component Request* form if the specimen and/or form are discrepant.
8	Perform the phlebotomy carefully to avoid hemolysis. Completely fill the tubes.	**Best Practice**: Attach a new blood bank armband with each order. Date the armband. Remove the armband after 3 days.
	Affix a patient registration label to each tube. **Initial, date and time each label.**	STOP Frequent cause for rejection: The Blood Center will request a new specimen **and** a new *Blood Component Request* form if the phlebotomist's initials are not on the specimen.
	Affix a patient registration label to the orange blood bank armband. Attach the blood bank armband to the patient.	If the facility printer cannot accommodate the patient's first and last name, the full name and DOB should be HANDWRITTEN on the patient's orange blood bank armband, tube labels, and Blood Component Request Form.
9	Sign the *Blood Component Request* form. Write the date and time of collection on the form.	STOP Frequent cause for rejection: The Blood Center will request a new specimen **and** a new *Blood Component Request* form if the phlebotomist does not sign, date, and time the form.

Step	Action	Comment
10	Verify the information on the *Blood Component Request* form and the specimen labels with a 2nd trained person. The 2nd person verifying information must sign the *Blood Component Request* form.	**Best Practice**: Reading aloud, verify that the patient's identification data matches the: • Facility armband • Specimen labels on the tubes • *Blood Component Request* form • Orange blood bank armband
11	Place the specimens and the **original** *Blood Component Request* form in the appropriate compartments of a biohazard specimen bag. Arrange pickup and delivery.	Transport the specimen as soon as possible following collection. If a delay is anticipated, store the specimen between 1-10°C. The following transport methods are acceptable: • Arrange for pickup by The Blood Center. • Contract with an independent courier service. • Deliver by facility staff.

Rejected specimens and specimen recollection result in delays, increased expense, and inconvenience for The Blood Center staff, facility staff, and most of all, the patient.



The information on the patient specimen and the Blood Component Request must be identical.

- *Patient's first and last name*
- *Date of birth*
- *Date of collection*

Properly Completed Blood Component Request Form

Gulf Coast Regional Blood Center

Address: 1400 La Concha Houston TX 77054 Ph: 713-791-6286
Fax: 713-791-6242 CLIA #: 45D0660146

SOP 783.02
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GCRBC use only; Case #

Blood Component Request

Jane Smith
DOB 12/6/1946

☐ Male ■ Female

Affix PATIENT registration label with full name and DOB here. *Information must match specimen label.*

Order Date: 05/10/16

Add-on Request: ordered by (initials)/date/time

FACILITY: City Hospital
RN Phone: 713-111-1111
Facility Fax: 713-111-1112
Patient Location: 3 south
Ordering Physician: Dr. Doctor
Admitting Diagnosis: Acute respiratory failure

Component	# of Units	Laboratory Results	SPECIAL NEEDS
■ RBCs	2	Hgb (g/dL): 7.3 Hct (%): 21	☐ **Irradiated**
☐ Platelets		Plt count (/uL):	☐ **Sickle Cell Negative**
☐ Plasma		PT (sec): INR: PTT (sec):	☐ **CMV Negative**
☐ Cryoprecipitate		Fibrinogen (mg/dL):	
☐ Type &Screen only ☐ Direct Antiglobulin (Coombs) Test (DAT)			☐ **Auto/Designated Donors**

Delivery 5/11/16 **Time** 6:30 (a.m.) p.m. **HOLD** ☐

Special Delivery Instructions

For Extended Crossmatch Only:
The patient/legal representative affirms that he/she has **not** been transfused or pregnant within the past three months.

Signature of nurse verifying history (first and last name)

Specimen Requirements

Purple-top/EDTA tube(s) (one 9-10 mL or two 5-7 mL tubes). Label tube(s) with:

- Patient's Full Name
- Date of Birth (DOB) (mm/dd/yy)
- Initials of Phlebotomist
- Date/Time of Collection

Incorrect, illegible, incomplete or discrepant samples and/or forms will be rejected.

I certify that the patient's name and DOB are identical on the patient's wristband, the specimen label, and the request form.

Ann Jones
Signature of Phlebotomist

5/10/16 @2:30pm
Date (mm/dd/yy) & Time of Specimen Collection

Bob Smith
2nd Signature Verifying Patient Data

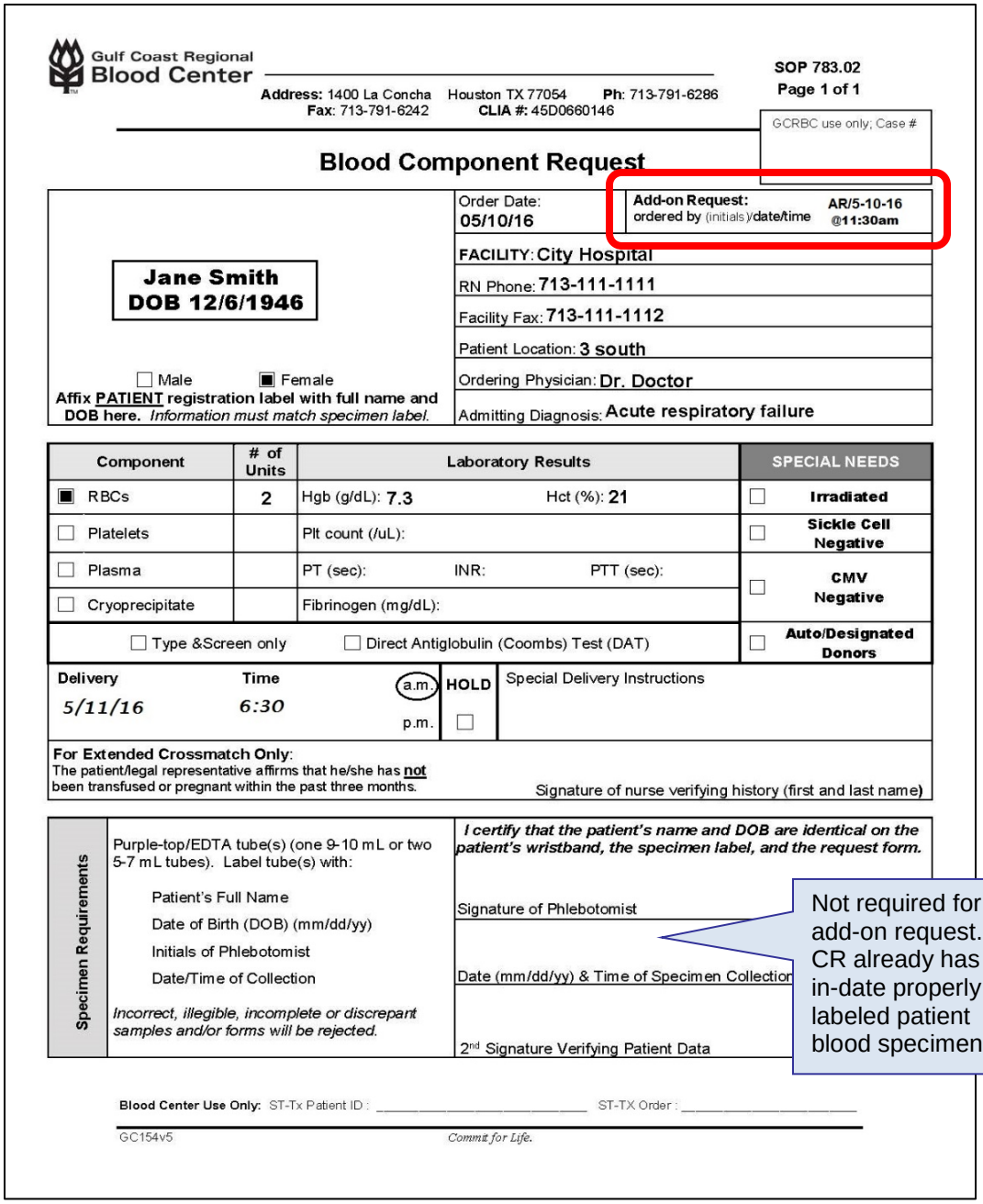
Blood Center Use Only: ST-Tx Patient ID : _____ ST-TX Order : _____

GC154v5 *Commit for Life.*

Requesting Additional Components (Add-on Request)

Routinely, a blood specimen, crossmatch, and/or Type and Screen will expire three days from collection. If the blood specimen is current, additional units can be "added" to the initial request.

1. Verify the blood specimen is current. Call The Blood Center if unsure.
2. Complete the *Blood Component Request* form. See Step 4 of the procedure.
3. In the **Add-on request faxed by/date/time** box on the *Blood Component Request* form:
   - Initial.
   - Write the date and time.
4. Fax the "add-on" request to **The Blood Center (Main Location)**: **713-791-6242**



Gulf Coast Regional Blood Center

Address: 1400 La Concha Houston TX 77054 Ph: 713-791-6286
Fax: 713-791-6242 CLIA #: 45D0660146

SOP 783.02
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GCRBC use only; Case #

Blood Component Request

Order Date: 05/10/16

Add-on Request: ordered by (initials)/date/time AR/5-10-16 @11:30am

FACILITY: City Hospital
RN Phone: 713-111-1111
Facility Fax: 713-111-1112
Patient Location: 3 south
Ordering Physician: Dr. Doctor
Admitting Diagnosis: Acute respiratory failure

Jane Smith
DOB 12/6/1946

☐ Male ■ Female
Affix PATIENT registration label with full name and DOB here. *Information must match specimen label.*

Component	# of Units	Laboratory Results	SPECIAL NEEDS
■ RBCs	2	Hgb (g/dL): 7.3 Hct (%): 21	☐ Irradiated
☐ Platelets		Plt count (/uL):	☐ Sickle Cell Negative
☐ Plasma		PT (sec): INR: PTT (sec):	☐ CMV Negative
☐ Cryoprecipitate		Fibrinogen (mg/dL):	
☐ Type &Screen only		☐ Direct Antiglobulin (Coombs) Test (DAT)	☐ Auto/Designated Donors

Delivery 5/11/16 Time 6:30 (a.m.) p.m. HOLD ☐ Special Delivery Instructions

For Extended Crossmatch Only:
The patient/legal representative affirms that he/she has **not** been transfused or pregnant within the past three months.

Signature of nurse verifying history (first and last name)

Specimen Requirements

Purple-top/EDTA tube(s) (one 9-10 mL or two 5-7 mL tubes). Label tube(s) with:
- Patient's Full Name
- Date of Birth (DOB) (mm/dd/yy)
- Initials of Phlebotomist
- Date/Time of Collection

Incorrect, illegible, incomplete or discrepant samples and/or forms will be rejected.

I certify that the patient's name and DOB are identical on the patient's wristband, the specimen label, and the request form.

Signature of Phlebotomist

Date (mm/dd/yy) & Time of Specimen Collection

2nd Signature Verifying Patient Data

Not required for an add-on request. CR already has an in-date properly labeled patient blood specimen.

Blood Center Use Only: ST-Tx Patient ID : _____ ST-TX Order : _____

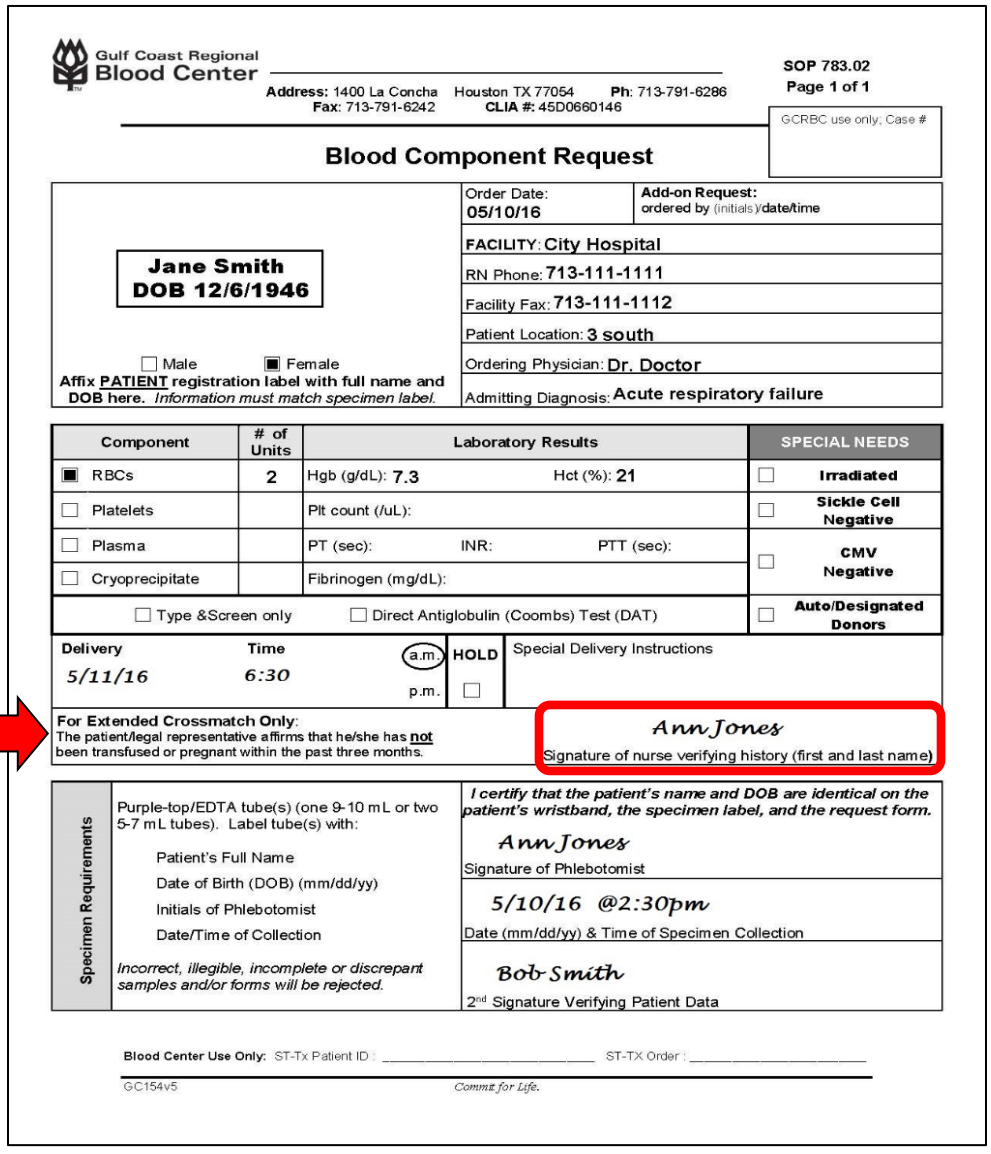
GC154v5 *Commit for Life.*

Extended Crossmatch

Routinely, a blood specimen for crossmatch, and/or Type and Screen will expire three days from collection. The extended crossmatch is an option for outpatients and pre-operative patients in selected facilities. If the patient's medical history indicates that there have been no pregnancies or transfusions within the past three months, the specimen can be used for compatibility testing for up to seven days. An accurate history decreases the likelihood of a transfusion reaction.

1. A phlebotomist must ask the patient or the patient's legal representative if he/she has been transfused or pregnant within the past three months.
2. If the answer is no, the phlebotomist must sign the **Extended Crossmatch** section of the *Blood Component Request* form. The phlebotomist's signature verifies that he/she has talked to the patient and obtained an accurate history.

The expiration date of the extended crossmatch shortens to three days once The Blood Center issues the RBCs or the patient is transfused.



Gulf Coast Regional Blood Center

Address: 1400 La Concha Houston TX 77054 Ph: 713-791-6286
Fax: 713-791-6242 CLIA #: 45D0660146

SOP 783.02
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GCRBC use only; Case #

Blood Component Request

Jane Smith
DOB 12/6/1946

☐ Male ■ Female
Affix PATIENT registration label with full name and DOB here. *Information must match specimen label.*

Order Date: 05/10/16
Add-on Request: ordered by (initials)/date/time
FACILITY: City Hospital
RN Phone: 713-111-1111
Facility Fax: 713-111-1112
Patient Location: 3 south
Ordering Physician: Dr. Doctor
Admitting Diagnosis: Acute respiratory failure

Component	# of Units	Laboratory Results	SPECIAL NEEDS
■ RBCs	2	Hgb (g/dL): 7.3 Hct (%): 21	☐ Irradiated
☐ Platelets		Plt count (/uL):	☐ Sickle Cell Negative
☐ Plasma		PT (sec): INR: PTT (sec):	☐ CMV Negative
☐ Cryoprecipitate		Fibrinogen (mg/dL):	
☐ Type &Screen only		☐ Direct Antiglobulin (Coombs) Test (DAT)	☐ Auto/Designated Donors

Delivery: 5/11/16 Time: 6:30 (a.m.) p.m. HOLD ☐ Special Delivery Instructions

For Extended Crossmatch Only:
The patient/legal representative affirms that he/she has not been transfused or pregnant within the past three months.

Ann Jones
Signature of nurse verifying history (first and last name)

Specimen Requirements

Purple-top/EDTA tube(s) (one 9-10 mL or two 5-7 mL tubes). Label tube(s) with:
Patient's Full Name
Date of Birth (DOB) (mm/dd/yy)
Initials of Phlebotomist
Date/Time of Collection
Incorrect, illegible, incomplete or discrepant samples and/or forms will be rejected.

I certify that the patient's name and DOB are identical on the patient's wristband, the specimen label, and the request form.
Ann Jones
Signature of Phlebotomist
5/10/16 @2:30pm
Date (mm/dd/yy) & Time of Specimen Collection
Bob Smith
2nd Signature Verifying Patient Data

Blood Center Use Only: ST-Tx Patient ID: _____ ST-TX Order: _____

GC154v5 *Commit for Life.*

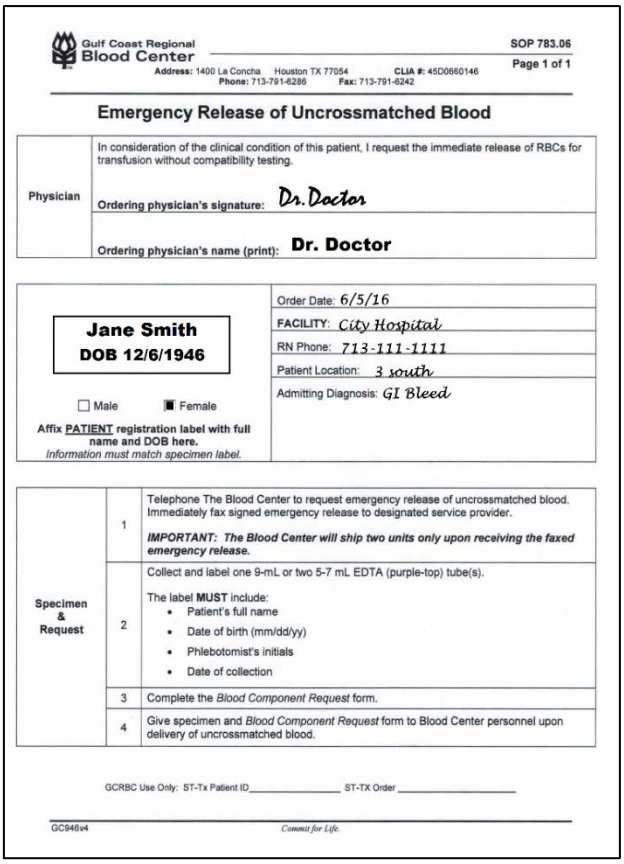
SECTION V: *Requesting Uncrossmatched RBC in an Emergency*

Important Information

In the event of an emergency, a physician may determine that RBC must be transfused prior to completing pre-transfusion tests.

Rapid delivery of uncrossmatched blood is affected by the distance between The Blood Center and the transfusing facility.

- **Notify The Blood Center.**
- Complete the *Emergency Release of Uncrossmatched Blood* form.
  - Physician's name: **The ordering physician must sign the emergency release. The physician's name must be legibly printed.**
  - Affix patient registration label with patient's full name and date of birth. Check male or female.
  - Order date.
  - Facility name, phone number
  - Patient's location and admitting diagnosis



Gulf Coast Regional Blood Center
Address: 1400 La Concha Houston TX 77054 CLIA #: 45D0660146
Phone: 713-791-6286 Fax: 713-791-6242
SOP 783.06
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Emergency Release of Uncrossmatched Blood

Physician	In consideration of the clinical condition of this patient, I request the immediate release of RBCs for transfusion without compatibility testing.
	Ordering physician's signature: Dr. Doctor
	Ordering physician's name (print): **Dr. Doctor**

Jane Smith
DOB 12/6/1946

☐ Male ■ Female

Affix PATIENT registration label with full name and DOB here.
Information must match specimen label.

Order Date: 6/5/16
FACILITY: City Hospital
RN Phone: 713-111-1111
Patient Location: 3 south
Admitting Diagnosis: GI Bleed

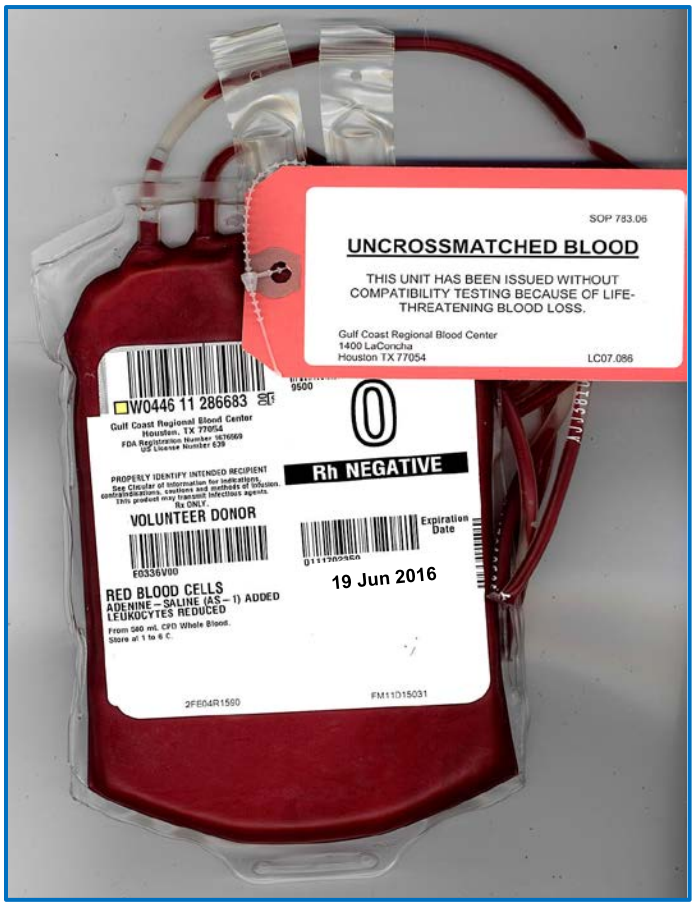
Specimen & Request	1	Telephone The Blood Center to request emergency release of uncrossmatched blood. Immediately fax signed emergency release to designated service provider. ***IMPORTANT: The Blood Center will ship two units only upon receiving the faxed emergency release.***
	2	Collect and label one 9-mL or two 5-7 mL EDTA (purple-top) tube(s). The label **MUST** include: • Patient's full name • Date of birth (mm/dd/yy) • Phlebotomist's initials • Date of collection
	3	Complete the *Blood Component Request* form.
	4	Give specimen and *Blood Component Request* form to Blood Center personnel upon delivery of uncrossmatched blood.

GCRBC Use Only: ST-Tx Patient ID_____ ST-TX Order _____

GC946v4 *Commit for Life.*

- Fax the completed *Emergency Release of Uncrossmatched Blood* form to The Blood Center.

- Upon receipt of the faxed *Emergency Release of Uncrossmatched Blood* form, the Blood Center will send 2 **<u>uncrossmatched</u>** Group O RBC. The RBC may be Rh-negative or Rh-positive. The RBC will have a red tag indicating that they are uncrossmatched.

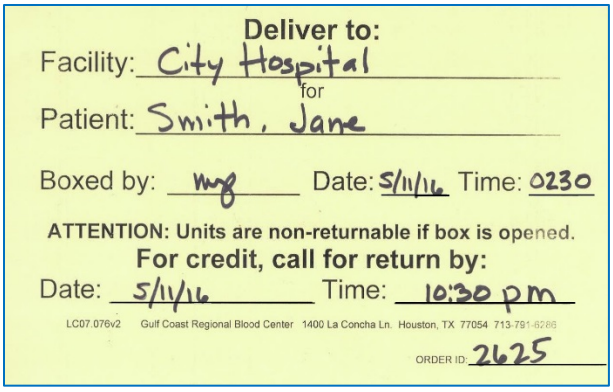


- Complete the *Blood Component Request* form; collect and label the patient blood specimen. Follow Blood Center-approved procedures.
- Send the specimen and form to The Blood Center with the driver who delivers the uncrossmatched RBC.
- When completed, The Blood Center will notify the facility of the results of compatibility testing. Copies of *Patient Results* report and the final bill will follow.

SECTION VI: *Receiving Blood Components*

Delivery

Blood components are delivered in a validated transport box. The transport boxes have a label with the allowable date and time for return. If the facility has a Blood Center-approved refrigerator, red blood cells are delivered in a cooler. A blood administration set may be delivered as requested.


Deliver to:
Facility: City Hospital
for
Patient: Smith, Jane
Boxed by: mg Date: 5/11/16 Time: 0230
ATTENTION: Units are non-returnable if box is opened.
For credit, call for return by:
Date: 5/11/16 Time: 10:30 pm
LC07.076v2 Gulf Coast Regional Blood Center 1400 La Concha Ln. Houston, TX 77054 713-791-6286
ORDER ID: 2625

- **<u>Transport box</u>**: Confirm that components have been delivered for the correct patient. Date and sign both copies of the bill; return one copy with The Blood Center driver. If not transfused and the box has not been opened, call to return the components to The Blood Center before the return date and time indicated on the box label.

Do <u>NOT</u> open the box until ready for transfusion. Blood components <u>must</u> remain in an unopened box until transfusion.

- **Cooler**: Confirm that components have been delivered to the correct facility. Date and sign both copies of the bill; return one copy with The Blood Center driver. Transfer RBC to a Blood Center-approved refrigerator.

RBC may be transported in a cooler and transferred to a blood bank refrigerator.

Blood Component Disposition Log

Whether blood is delivered in a transport box or cooler, record the blood components in the facility-specific blood disposition log. At a minimum, the log should have the:

- Patient's name;
- Component unit number;
- Date of receipt;
- Final disposition (transfused, returned or discarded).

Additionally, if the facility has been approved for a blood bank refrigerator, the log should have the:

- Date and time that RBC were removed from the refrigerator;
- Date and time that RBC were returned to the refrigerator if not transfused.

Blood Component Disposition Logs (Examples)

A

Receipt date/time/initials	Patient	Unit#	XM expiration date	Unit expiration Date	Final Disposition	Date, Time & Initials
5-11-16 5:06 dh	Jane Smith	W044611261359	5-13-16	6-2-16	Discarded	5-11-16 0800 dh

B

Patient Name	Specimen collected by date/init	Request delivery (date/time)	Unit#	Receipt date/time	Received by initials	XM Exp Date	Final Disposition	Disposition date/time	Initials
Jane Smith	5-10-16 dh	5-11-16 08:00	W044611261359	5-11-16 5:06	dh	05-13-16	Returned	5-11-16 0800	dh

C

Auto/Dir Units	Labs Ordered	Labs Drawn Date/Initials	Date Delivery Requested	Receipt date/time/initials	Patient	Unit#	XM Exp Date	Final Disposition: date/time/initials
Yes	5-11-16	5-11-16 dh	5-11-16	5-11-16 5:06 dh	Jane Smith	W044611261359	5-13-16	R 5-11-16 0800 dh

D

Refrigerator Facilities Only

Auto/ Directed	Patient	Receipt: date/time/ initials	Unit #	XM Exp Date	Unit Exp Date	Refrigerator		Final Disposition: date/time/initials	
						Sign Out: date/time/ initials	Return: date/time/ initials*		
No	Jane Smith	5-11-16 5:06 dh	W044611261359	5-13-16	5-20-16	5-11-16 0800 dh		T	5-11-16 0800 dh

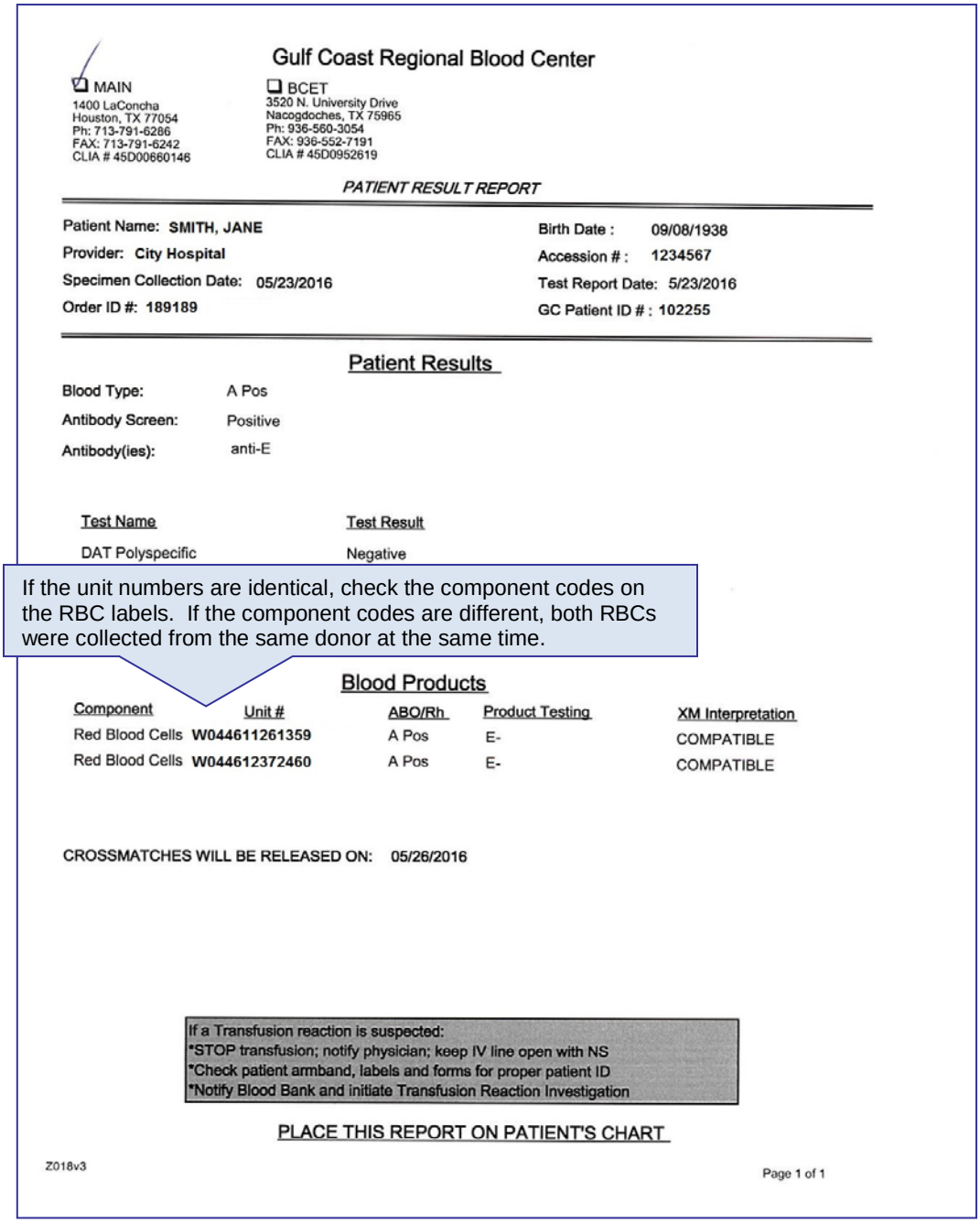
*If not transfused

T-Transfused R-Returned D-Discarded

Documents

The following documents accompany blood component delivery.

Patient Result Report: Use the *Patient Result Report* to compare all patient and blood component identification during preparation for transfusion. Place the report on the patient's chart. The report has instructions in the event that a transfusion reaction is suspected.



Gulf Coast Regional Blood Center

☑ MAIN
1400 LaConcha
Houston, TX 77054
Ph: 713-791-6286
FAX: 713-791-6242
CLIA # 45D00660146

☐ BCET
3520 N. University Drive
Nacogdoches, TX 75965
Ph: 936-560-3054
FAX: 936-552-7191
CLIA # 45D0952619

PATIENT RESULT REPORT

Patient Name: **SMITH, JANE**
Provider: **City Hospital**
Specimen Collection Date: **05/23/2016**
Order ID #: **189189**
Birth Date : 09/08/1938
Accession # : 1234567
Test Report Date: 5/23/2016
GC Patient ID # : 102255

Patient Results

Blood Type: A Pos
Antibody Screen: Positive
Antibody(ies): anti-E

Test Name	Test Result
DAT Polyspecific	Negative

If the unit numbers are identical, check the component codes on the RBC labels. If the component codes are different, both RBCs were collected from the same donor at the same time.

Blood Products

Component	Unit #	ABO/Rh	Product Testing	XM Interpretation
Red Blood Cells	**W044611261359**	A Pos	E-	COMPATIBLE
Red Blood Cells	**W044612372460**	A Pos	E-	COMPATIBLE

CROSSMATCHES WILL BE RELEASED ON: 05/26/2016

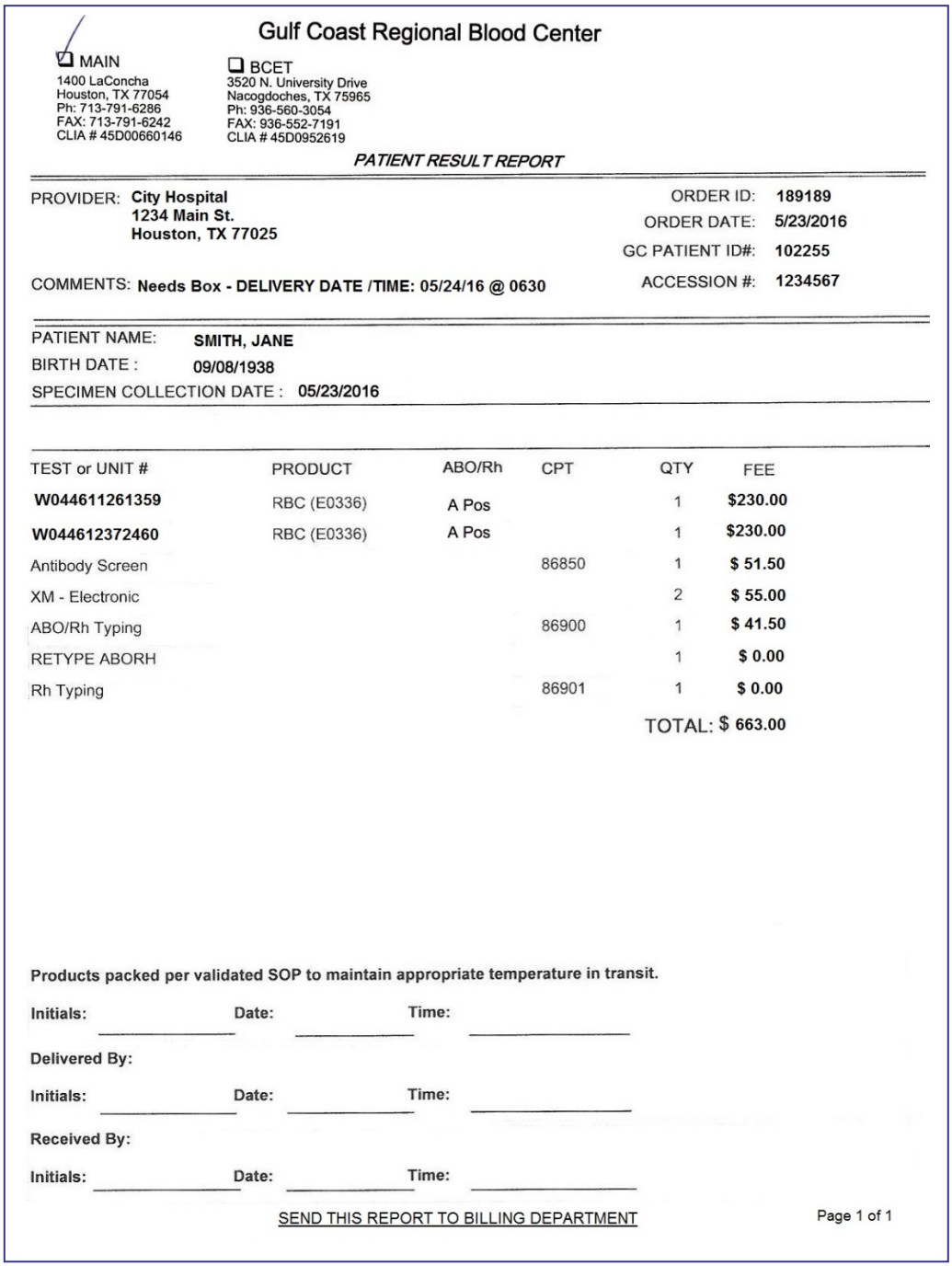
If a Transfusion reaction is suspected:
*STOP transfusion; notify physician; keep IV line open with NS
*Check patient armband, labels and forms for proper patient ID
*Notify Blood Bank and initiate Transfusion Reaction Investigation

PLACE THIS REPORT ON PATIENT'S CHART

Z018v3

Page 1 of 1

Billing Report: There are two copies of the bill. Date and sign both copies. Return one copy with The Blood Center's driver. Route one copy to the person or department responsible for payment of The Blood Center's invoices.



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Ph: 936-560-3054
FAX: 936-552-7191
CLIA # 45D0952619

PATIENT RESULT REPORT

PROVIDER: **City Hospital**
1234 Main St.
Houston, TX 77025

ORDER ID: **189189**
ORDER DATE: **5/23/2016**
GC PATIENT ID#: **102255**
ACCESSION #: **1234567**

COMMENTS: **Needs Box - DELIVERY DATE /TIME: 05/24/16 @ 0630**

PATIENT NAME: **SMITH, JANE**
BIRTH DATE : **09/08/1938**
SPECIMEN COLLECTION DATE : **05/23/2016**

TEST or UNIT #	PRODUCT	ABO/Rh	CPT	QTY	FEE
W044611261359	RBC (E0336)	A Pos		1	**$230.00**
W044612372460	RBC (E0336)	A Pos		1	**$230.00**
Antibody Screen			86850	1	**$ 51.50**
XM - Electronic				2	**$ 55.00**
ABO/Rh Typing			86900	1	**$ 41.50**
RETYPE ABORH				1	**$ 0.00**
Rh Typing			86901	1	**$ 0.00**

TOTAL: $ **663.00**

Products packed per validated SOP to maintain appropriate temperature in transit.

Initials: _____ **Date:** _____ **Time:** _____

Delivered By:

Initials: _____ **Date:** _____ **Time:** _____

Received By:

Initials: _____ **Date:** _____ **Time:** _____

SEND THIS REPORT TO BILLING DEPARTMENT

Page 1 of 1

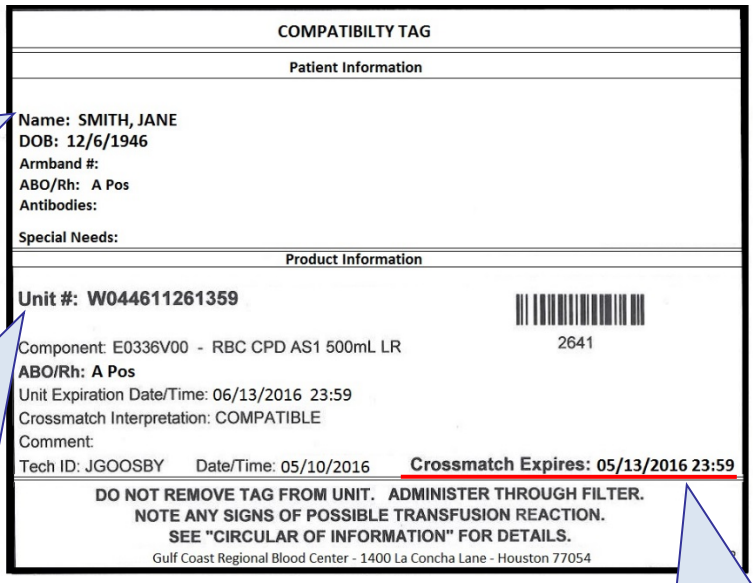
Compatibility Tag: A *Compatibility Tag* is attached to each component. The tag has the patient identifiers, the component information, and the date and time that the crossmatch expires. The tag **must** remain attached to the component at all times. Red blood cells must be transfused before the crossmatch expiration.

Patient:
- Name
- Date of Birth
- ABO/Rh

Component:
- Unit Identification Number*
- Blood Component*
- ABO/Rh
- Expiration Date/Time

*If two RBC have the same unit numbers but different numerical component codes, the units represent double or apheresis RBC collected from the same donor. See illustration, **Section III**.

EXAMPLE: Unit number W044611261359 with component codes E4532 and E4533 represents a double RBC from the same donation.



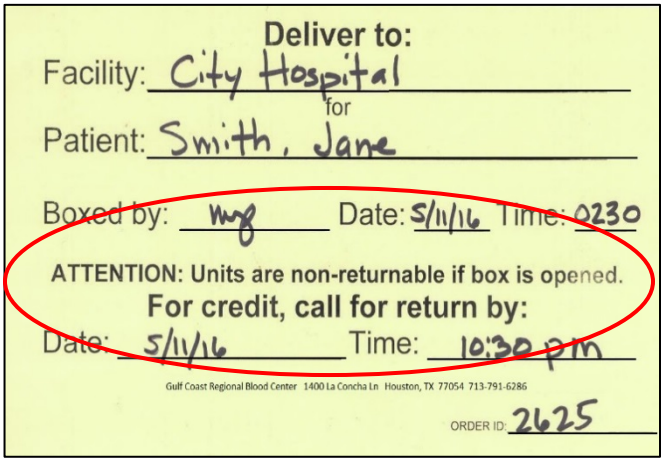
Crossmatch Expiration Date & Time

During computer downtime, documents may be handwritten; the final bill may be delayed.

SECTION VII: *Returns*

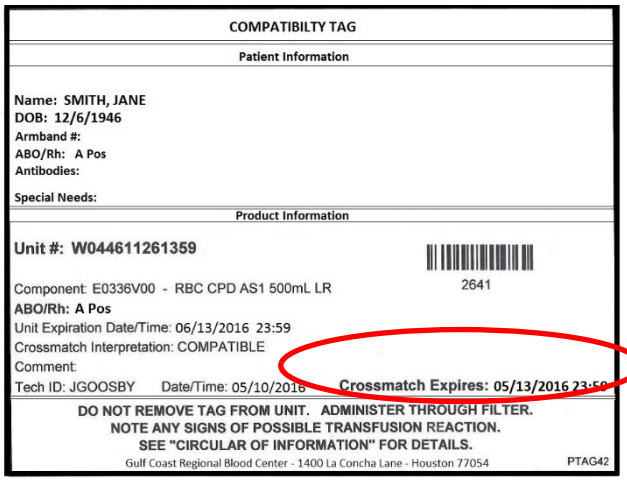
Blood components are delivered in a validated transport box. If the facility has a Blood Center-approved refrigerator, red blood cells are delivered in a cooler.

Transport Box


Deliver to:
Facility: City Hospital
for
Patient: Smith, Jane
Boxed by: mg Date: 5/11/16 Time: 0230
ATTENTION: Units are non-returnable if box is opened.
For credit, call for return by:
Date: 5/11/16 Time: 10:30 pm
Gulf Coast Regional Blood Center 1400 La Concha Ln Houston, TX 77054 713-791-6286
ORDER ID: 2625

- Transport boxes have a label with the allowable date and time for return. The transport box should remain unopened until the time of transfusion. Call The Blood Center to arrange returns. Only Blood Center drivers are allowed to pick up returns. Plan ahead to allow adequate time for component return.
- If not used, RBC can be returned for credit within the allowable time if the box is unopened.
- Platelets may be returned if the box is unopened and at least 24 hours remain until platelet expiration; platelet returns must be initiated with 20 hours after issue.
- Plasma and Cryoprecipitate cannot be returned.

Approved Refrigerator


COMPATIBILTY TAG
Patient Information
Name: SMITH, JANE
DOB: 12/6/1946
Armband #:
ABO/Rh: A Pos
Antibodies:
Special Needs:
Product Information
Unit #: W044611261359
2641
Component: E0336V00 - RBC CPD AS1 500mL LR
ABO/Rh: A Pos
Unit Expiration Date/Time: 06/13/2016 23:59
Crossmatch Interpretation: COMPATIBLE
Comment:
Tech ID: JGOOSBY Date/Time: 05/10/2016 Crossmatch Expires: 05/13/2016 23:59
DO NOT REMOVE TAG FROM UNIT. ADMINISTER THROUGH FILTER.
NOTE ANY SIGNS OF POSSIBLE TRANSFUSION REACTION.
SEE "CIRCULAR OF INFORMATION" FOR DETAILS.
Gulf Coast Regional Blood Center - 1400 La Concha Lane - Houston 77054
PTAG42

- Check refrigerators daily. Call The Blood Center to arrange returns. Only Blood Center drivers are allowed to pick up returns. Plan ahead to allow adequate time for component return.
- Return unused RBC within 24 hours of the crossmatch expiration on the *Compatibility Tag*.
- Platelets are not refrigerated. Platelets may be returned if the box is unopened and at least 24 hours remain until platelet expiration; platelet returns must be initiated with 20 hours after issue.
- Plasma and Cryoprecipitate cannot be returned.

SECTION VIII: *Blood Component Administration*

Introduction

Accurate identification of the intended recipient and the blood component may be the single most important step in ensuring transfusion safety.

Important Information

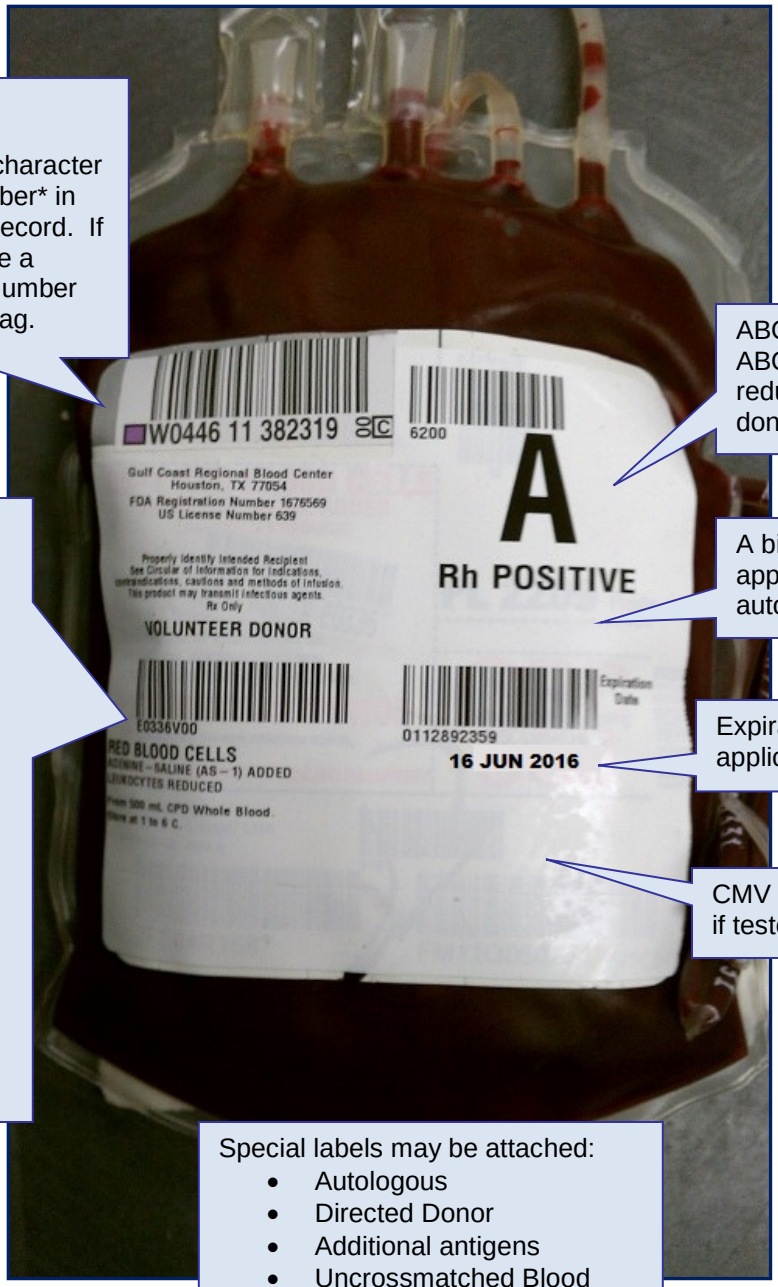
Most fatal hemolytic transfusion reactions occur because of patient identification errors at the time of specimen collection or blood administration.

Positive patient identification at transfusion is critical!

Supplies for the Administration of Blood Components

Transfusion Supplies	*Comment*
Normal saline (0.9% sodium chloride injection, USP)	**Best Practice**: Normal saline can be added to blood components. Do not add medications or other solutions.
Needle or IV catheter	• 18-20 gauge in an adult, minimum 21-gauge • 21-23 gauge in a child, minimum 25 gauge • If a minimum-gauge needle must be used, transfuse slowly to prevent hemolysis. • A multi-lumen central venous catheter can be used for the infusion of blood, preferably through the distal port. Middle and proximal ports can be used for the administration of IV fluids, TPN, etc.
Blood administration sets	• Transfuse blood components using a standard blood administration set with filter. • More than one unit of blood component may be given through the same administration set. LIMITS: o The set cannot be used longer than 4 hours. o No more than two RBC can be transfused with the same set. • Do NOT transfuse platelets and RBC through the same set. Platelets may get caught in the filter by RBC debris.
Blood warmer, optional	 An FDA-cleared warming device may be used to warm blood to a maximum of 37°C. The blood warmer must have a temperature sensor and a warning system to detect malfunctions and prevent damage to blood components. The use of microwaves or hot/warm water is strictly forbidden. Routinely perform and document appropriate quality control procedures to ensure that blood components are never warmed above 37°C. Consider using a blood warmer for patients with severe cold autoimmune hemolytic anemia (cold agglutinin disease).
Infusion pump, optional	Infusion pumps must be approved by the manufacturer for the infusion of blood components. Never use pumps with a small bore needle.
Transfusion Record	Facility specific

Blood Component Label



ALERT!

Record the entire 13-character unit identification number* in the patient's medical record. If available, you may use a removable adhesive number from the back of the bag.

ABO/Rh label. The ABO/Rh label size is reduced on autologous donations.

- Component code*
- Component name
- Required storage conditions

*If two RBCs have the same unit numbers but different numerical component codes, the units represent double or apheresis RBC collected from the same donation. See illustration, **Section III**.

A biohazard label may appear on some autologous units.

Expiration date and time, if applicable

CMV negative or positive if tested

Special labels may be attached:

- Autologous
- Directed Donor
- Additional antigens
- Uncrossmatched Blood

Selection of ABO/Rh for Transfusion of Blood Components

- **RBC**

  The patient and donor will usually have identical ABO/Rh types. However, if identical ABO/Rh types are not available or if the patient has unexpected antibodies to RBC antigens, alternate ABO/Rh types are acceptable.

- **Platelets**

  Platelets should be ABO-compatible when possible. Since platelets may contain a few RBC, Rh-negative women of child-bearing age should receive Rh-negative platelets if possible. In the event that ABO-compatible platelets are not available, platelets of any ABO/Rh may be administered with approval.

- **Plasma**

  Plasma does not contain RBC. Plasma should be ABO-compatible. Any Rh type is acceptable for any patient.

- **CRYO**

  CRYO does not contain RBC. All ABO/Rh types are acceptable.

See the *Acceptable Component Blood Types* table on the following page to determine if the component blood type is acceptable.

Acceptable Component Blood Types

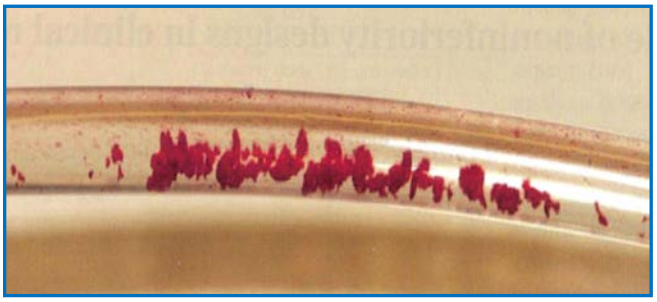
<table>
<tr><th>Patient's Blood Type</th><th>RBC</th><th>Platelets</th><th>PLASMA</th><th>CRYO</th></tr>
<tr><td>O Positive</td><td>O Positive
O Negative</td><td rowspan="2"><u>Preferred</u>:
O Positive
O Negative
<u>Acceptable</u>:
A Positive
A Negative
B Positive
B Negative
AB Positive
AB Negative</td><td rowspan="2">O Positive
O Negative
A Positive
A Negative
B Positive
B Negative
AB Positive
AB Negative</td><td rowspan="8">All ABO/Rh types are acceptable</td></tr>
<tr><td>O Negative</td><td>O Negative</td></tr>
<tr><td>A Positive</td><td>A Positive
A Negative
O Positive
O Negative</td><td rowspan="2"><u>Preferred</u>:
A Positive
A Negative
<u>Acceptable</u>:
AB Positive
AB Negative
B Positive
B Negative
O Positive
O Negative</td><td rowspan="2">A Positive
A Negative
AB Positive
AB Negative</td></tr>
<tr><td>A Negative</td><td>A Negative
O Negative</td></tr>
<tr><td>B Positive</td><td>B Positive
B Negative
O Positive
O Negative</td><td rowspan="2"><u>Preferred</u>:
B Positive
B Negative
<u>Acceptable</u>:
AB Positive
AB Negative
A Positive
A Negative
O Positive
O Negative</td><td rowspan="2">B Positive
B Negative
AB Positive
AB Negative</td></tr>
<tr><td>B Negative</td><td>B Negative
O Negative</td></tr>
<tr><td>AB Positive</td><td>AB Positive
AB Negative
A Positive
A Negative
B Positive
B Negative
O Positive
O Negative</td><td rowspan="2"><u>Preferred</u>:
AB Positive
AB Negative
<u>Acceptable</u>:
B Positive
B Negative
A Positive
A Negative
O Positive
O Negative</td><td rowspan="2">AB Positive
AB Negative</td></tr>
<tr><td>AB Negative</td><td>AB negative
A Negative
B Negative
O Negative</td></tr>
</table>

Pre-Transfusion

Step	Action	Comment
1	Verify the physician's order.	Order must be written to **transfuse** the component.
2	Verify that the *Informed Consent* is signed & dated.	If informed consent is not found in the chart, obtain prior to transfusion.
3	Verify that a blood bank armband is on the patient.	Do **NOT** transfuse patient or open storage box if the patient does not have an orange blood bank armband. If the armband is incorrect or missing, collect a new specimen and complete a new form following approved procedure.
4	Gather supplies in the patient's room.	See **Supplies for the Administration of Blood Components** section.
5	Establish patient IV access.	
6	Pre-medicate as ordered by physician.	
7	Remove the component from the transport box or refrigerator.	**CAUTION:** Is the component for the correct patient? Ask the patient to state his/her name. The transfusion must be started within 30 minutes of removing the unit from storage.
	Examine for leaks, clots, discoloration, etc.	Notify The Blood Center immediately if the component appears unsuitable, and return the component.
	A *Compatibility Tag* must be attached to each component.	STOP Do not REMOVE the *Compatibility Tag* during the transfusion.

RBCs may aggregate when D5W is administered through the same blood administration set. (Transfusion 2008, 48:1049)

Other solutions may cause hemolysis or clumping.



Pre-Transfusion Document Checklist

All items marked (X) should be identical.

Item to Check	*What to Check*			
	Armbands: Blood Bank & Facility	*Patient Result Report*	*Compatibility Tag*	*Blood Component*
Patient's first and last names	X	X	X	
Patient's date of birth	X	X	X	
Unit number		X	X	X
Blood type (ABO/Rh) of component and patient If the ABO/Rh of the component and the patient are not identical, consult the *Acceptable Component Blood Types* chart to determine if the component is acceptable.		X	X	X
Expiration date and time of component			X	X
Expiration date of crossmatch		X	X	
Name of blood component		X	X	X
Special needs: irradiated, sickle cell negative, etc.		X	X	X
Compatibility interpretation		X	X	

Special tags may be attached for:

- Autologous RBC (green tag). Always transfuse first.
- Directed Donor components (orange tag). Transfuse before random donor units.
- Additional antigens if required by patient tests.
- Uncrossmatched blood (red tag).

Important Information

- Always transfuse autologous RBC first.
- Transfuse directed RBC before random units.

Transfusion

Step	Action	Comment
1	At the time of transfusion, all blood components shall be verified by two licensed personnel in the presence of the recipient. Document the verification in writing. 	See *Pre-Transfusion Document Checklist* for a detailed checklist. If not in agreement, notify The Blood Center and return the unit immediately. **Important Information** • Always transfuse autologous RBC first. • Transfuse directed RBC before random units.
2	Obtain vital signs and record on the Transfusion Record.	If the patient is febrile, notify physician prior to starting the transfusion.
3	Prepare the unit for transfusion; prime the blood administration tubing with normal saline.	Normal saline may be used to flush the tubing before and after blood administration.
4	Document the date and time that the transfusion was started.	
5	Regulate the flow. Transfuse slowly.	Unless ordered otherwise, transfuse no more than 25-50 mL/hour for the first 15 minutes.
6	Observe the patient for the first 15 minutes for signs of adverse reaction to transfusion.	
7	After 15 minutes, take the vital signs again; record in the Transfusion Record. The rate of transfusion may be increased at this time.	If there is no evidence of adverse reaction, adjust the flow to the prescribed rate. The optimal rate of transfusion depends on the patient's clinical condition. • RBCs: Complete within 4 hours of removal from storage. • Plasma, platelets, CRYO: Complete as quickly as the patient can tolerate but within 4 hours.
8	At regular intervals, continue to monitor the patient. • Vital signs – record hourly on Transfusion Record. • Signs and symptoms of adverse reactions; • IV site for signs of infiltration.	

Step	Action	Comment
9	If there are any signs or symptoms of adverse reaction to transfusion: • **STOP the transfusion immediately.** • **Notify the patient's physician.**	See **Section X** for a more detailed discussion. Signs and symptoms of a transfusion reaction may include: • Urticaria • Chills • Dyspnea • Facial flushing • Fever (increase of 2°F or 1°C from the baseline temperature) • Hypotension or hypertension • Chest or back pain • Tachycardia • Hypoxia
		Transfusion of blood products is at the physician's discretion. However, if the temperature rises 2°F or 1°C above the pre-transfusion baseline, a reaction investigation form must be completed.
	• Document the suspected transfusion reaction in the patient's chart.	Complete a *Report of Suspected Transfusion Reaction* form; send to The Blood Center. See **Section X**.
10	Once the transfusion is completed, document on the Transfusion Record: • Vital signs. • Patient's condition, including presence or absence of a transfusion reaction. • Total amount transfused. • Date and time the transfusion is completed.	
11	Discard the empty blood bag and tubing in the appropriate biohazard waste container.	If a reaction occurred, return the blood bag, filter and IV solutions to The Blood Center in a biohazard bag. Remove needles.
12	Monitor the patient for one hour after completion of transfusion for signs and symptoms of a possible delayed reaction.	Obtain vital signs & record on Transfusion Record.
13	Educate appropriate patient/guardian about the signs of a possible delayed transfusion reaction.	See **Section IX** for a more detailed discussion.

This information is presented solely to assist the Transfusion Facility in the development of its institutional transfusion policies and is taken from the references listed below. Copies of the *Circular of Information for the Use of Human Blood and Blood Components* are available upon request. The Blood Center assumes no responsibility for the actual transfusion performed by personnel employed by the Transfusion Facility. Any decisions regarding medical treatment of a particular patient should be made solely by the appropriate members of the hospital staff and the treating physicians.

1. *Technical Manual*, current edition. AABB.
2. *Standards for Blood Banks and Transfusion Services*, current edition. AABB.
3. *Circular of Information for the Use of Human Blood and Blood Components*, current edition. AABB.

Section IX: *Post-Transfusion Instructions*

Healthcare Provider

Inform patients and/or their caregivers of the signs and symptoms that might indicate a reaction to the transfusion of a blood component. This is especially important in an outpatient setting or if the patient will be discharged soon after a transfusion.

- See **Section X** for the signs and symptoms of both immediate and delayed reactions.
- Delayed reactions may occur up to 10 days post-transfusion.
- Instruct the patient to notify his or her physician if any of the following occur:
    - Jaundice
    - Red or brown colored urine
    - Persistent low grade fever
    - Lower back pain
    - Unexplained decrease in hemoglobin / hematocrit
- An example of patient instructions is included. Photocopies may be made.
- Both immediate and delayed transfusion reactions should be investigated.

Patient Post-Transfusion Instructions

If your symptoms are severe, call 911 for immediate medical assistance.

Delayed transfusion reactions can occur within hours or days of transfusion. The following signs and symptoms may indicate a possible delayed transfusion reaction:

- Jaundice (a yellow skin color).
- Red or tea colored urine.
- Persistent low grade fever.
- Chest or back pain.
- Difficulty breathing.
- Hives or rash.
- Chills.

Notify your doctor as soon as possible if these signs or symptoms occur. Be sure to tell your doctor that you have had a recent blood transfusion. If your symptoms are severe, call 911 or go to the nearest Emergency Room for immediate medical assistance.

Doctor's Name and Phone Number: _____

I have read and understand the information on this form. I have had the opportunity to ask questions and discuss this information with my doctor or nurse.

_____ _____

Signature of Patient or Legally Authorized Representative Date

_____

Printed Name of Legally Authorized Representative

SECTION X: *Suspected Transfusion Reactions*

Procedure

Step	Action	Comment
1	**CRITICAL STEP** **If a transfusion reaction is suspected, immediately STOP the transfusion.**	Possible signs/symptoms of a transfusion reaction: • Urticaria and/or wheals • Chills • Temperature elevation >1°C or >2°F from the baseline temperature • Dyspnea • Tachycardia • Hypotension or hypertension • Facial flushing • Nausea, vomiting • Hemoglobinuria • Back pain • Chest pain/tightness • Hypoxia • Untoward oozing of wounds or IV sites in anesthetized patients. See chart for additional symptoms and discussion.
2	**Notify the attending physician. Treat as directed.**	Allergic reactions only (urticaria, wheals): • If symptoms resolve following treatment, the transfusion may be resumed as directed by the physician. • No further laboratory testing is necessary. • Document the information in the patient's chart. Pre-medication with antihistamines may avert future reactions.  • **NEVER** restart a transfusion if symptoms other than urticaria or wheals are present. • Do **NOT** transfuse additional blood components until The Blood Center completes additional testing.

Step	Action	Comment
3	Change the IV tubing. Keep the intravenous line open with a slow infusion of normal saline. Avoid transfusing any blood remaining in the line.	
4	Check all documents and patient identification.	Confirm that the correct unit of blood was transfused to the correct patient.
5	Carefully collect an EDTA (purple-top) specimen.	Avoid introducing phlebotomy-induced hemolysis.
	Properly label the blood specimen.	 See the procedure for collecting and labeling a blood specimen in **Section IV**.
6	Complete the *Report of Suspected Transfusion Reaction*.	If **TRALI (Transfusion Related Acute Lung Injury)** is suspected, The Blood Center may require additional forms and data. TRALI symptoms include: • Hypoxemia • Respiratory failure • Hypotension • Fever • Bilateral pulmonary edema.
7	Notify The Blood Center.	 All suspected transfusion reactions must be reported to The Blood Center.
		A physician's order is not required to investigate a suspected transfusion reaction.
8	Request a QUICK specimen pickup.	
9	Send the following to The Blood Center:	
	• Properly labeled blood specimen.	A urine specimen is not required by The Blood Center.
	• All components that have not been transfused.	
	• Completed *Report of Suspected Transfusion Reaction.*	
	• Component involved in the reaction, administration set, and attached IV solution(s).	Remove needles. Clamp off the tubing. Place in a leak-proof biohazard bag.

*Return the component, administration set with attached IV solutions, **unused components**, completed report of suspected transfusion form, and post-transfusion blood specimen.*

Report of Suspected Transfusion Reaction

Gulf Coast Regional Blood Center

CR SOP 783.05

Page 1 of 1

Address: 1400 La Concha Houston TX 77054 **CLIA #:** 45D00660146
Phone: 713-791-6286 **Fax:** 713-791-6242

GCRBC use only; Case #

Report of Suspected Transfusion Reaction

Instructions

- STOP the transfusion. Change IV tubing; keep line open with normal saline. Confirm identity of patient and component(s).
- Notify the attending physician.
- Collect specimen: 1 9-mL or 2 5-7 mL purple-top tubes; labeled with full name, DOB, date, time, phlebotomist's initials.
- Complete this report. Notify designated provider to pick up specimen, transfused component with attached administration set and solutions, **unused components**, and this report.

Jane Smith
DOB 12/6/1946

Affix patient registration label with full name and DOB here. *Must match specimen label!*

Date: 5/11/16

Facility
Name: City Hospital
24-hr RN Phone/ext: 713-111-1111
24-hr RN Fax: 713-111-1112

Patient Location: 3 south ☐ Male ☒ Female

Ordering Physician: Dr. Doctor

Diagnosis: Acute respiratory failure

W044611261359
Unit identification number:

Date of reaction: 5/11/16
Time of reaction: 0720 (a.m) p.m.

Transfusion started: 5/11/16 Date: Time: 0700 (a.m) p.m.
Transfusion stopped: 5/11/16 Date: Time: 0725 (a.m) p.m.

Component: ☒ RBCs ☐ Platelets ☐ Plasma ☐ Cryo

Approximate amount transfused: 100 mL

Type of solution with unit, if any: Normal Saline

Clinical signs and symptoms (check appropriate items):

☒ Chills ☐ Nausea/vomiting ☐ Dyspnea ☐ Tachycardia ☐ Chest tightness
☐ Urticaria ☒ Temp elevation >1°C or 2°F ☐ Hemoglobinuria ☐ Back pain ☐ Hypoxia
☐ Other:

Vital signs	Blood Pressure	Temperature	Pulse	Respiratory Rate
Pre-transfusion	130/68	98.4	84	24
Post-Transfusion	140/70	101.2	98	20

Previous transfusion history including reactions: None

Nurse completing report: AJones Date: 5/11/16 Time: 0725

GCRBC Use Only: ST-Tx Patient ID_____ ST-TX Order _____

GC160v6 *Commit for Life.*

Adverse Reactions to Transfusion

Type	Etiology	Presentation	Therapeutic/ Prophylactic Approach
Acute (<24 hours)			
Hemolytic	Red cell incompatibility	Chills, fever, hemoglobinuria, hypotension, renal failure with oliguria, DIC (oozing from IV sites), back pain, chest pain, pain along infusion vein	• Keep urine output >1 mL/kg/hr with IV fluids and diuretics (furosemide) • Pressors for hypotension (low-dose dopamine) • Hemostatic components (platelets, cryo, plasma) for bleeding
Febrile, non-hemolytic (FNHTR)	• Antibody to donor WBCs • Accumulated cytokines in platelet unit	Fever >1ºC or 2ºF, chills/rigors, headache, vomiting	• Antipyretic, treatment or premedication (acetaminophen, no aspirin) • Leukocyte-reduced cellular blood components
Allergic	Antibody to donor plasma proteins	Urticaria, pruritis, flushing	• Antihistamine, treatment or premedication (PO, IM or IV) • May restart unit slowly after antihistamine if symptoms resolve
Anaphylactic	• Antibody to donor plasma proteins (includes IgA, haptoglobin, C4) • Cytokines	Hypotension, urticaria, bronchospasm (respiratory distress, wheezing), local edema, anxiety	• Trendelenberg position • Fluids • Epinephrine 0.2-0.5 mL of 1:1000 solution SC or IM; in severe cases, 1:10,000 IV; initial rate 1 mg/min • Antihistamines, corticosteroids, beta-2 agonists • IgA-deficient blood components
Transfusion-related acute lung injury (TRALI)	• WBC antibodies in donor • Other WBC-activating agents in unit	Hypoxemia, respiratory failure, hypotension, fever, bilateral pulmonary edema	• Supportive care until recovery
Transfusion – associated sepsis	Bacterial contamination of blood component	Fever (102^0 F or greater), chills, hypotension	• Broad spectrum antibiotics (until sensitivities available) • Treat complications (eg, shock)
Transfusion – associated circulatory overload (TACO)	Volume overload	Dyspnea, orthopnea, cough, tachycardia, hypertension, headache	• Upright posture • Oxygen • IV diuretic (furosemide) • Phlebotomy (250-mL increments)

Type	Etiology	Presentation	Therapeutic/ Prophylactic Approach
Acute (<24 hours)			
Nonimmune hemolysis	Physical or chemical destruction of blood (heating, freezing, hemolytic drug or solution added to blood)	Hemoglobinuria, Hemoglobinemia	• Identify and eliminate cause
Hypothermia	Rapid infusion of cold blood	Cardiac arrhythmia	• Use blood warmer
Delayed (>24 hours)			
Hemolytic	Anamnestic immune response to red cell antigens	Fever, decreasing hemoglobin, new positive antibody screening test or DAT, mild jaundice	• Identify antibody • Transfuse compatible red cells as needed
Graft-vs-host disease	Donor lymphocytes engraft in recipient and mount attack on host tissues	Erythroderma, maculopapular rash, anorexia, nausea, vomiting, diarrhea, hepatitis, pancytopenia, fever	• Corticosteroids, cytotoxic agents • Irradiation of blood components for patients at risk (including related donors and HLA-selected components)
Post transfusion purpura	Recipient platelet antibodies (apparent alloantibody, usually anti-HPA-1a) destroy autologous platelets	Thrombocytopenic purpura, bleeding, 8-10 days after transfusion	• Intravenous immunoglobulin (IVIG) • HPA-1a-negative platelets • Plasmapheresis
Iron overload	Multiple transfusions with obligate iron load in transfusion-dependent patient	Diabetes, cirrhosis, cardiomyopathy	• Iron chelators

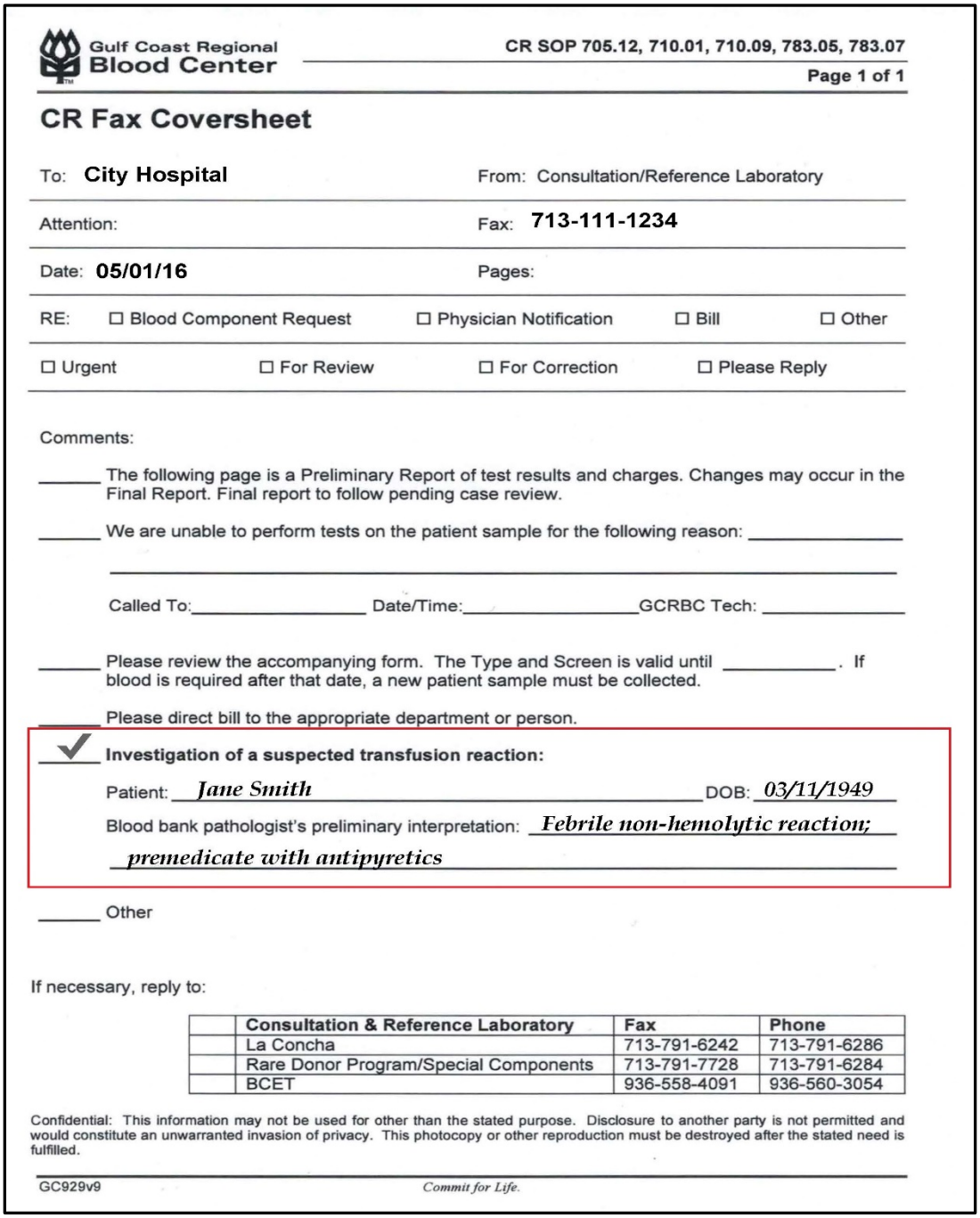
*Adapted from AABB *Technical Manual*, current edition

Investigation of a Suspected Transfusion Reaction

The Blood Center performs a preliminary investigation. Following the preliminary investigation:

- The Blood Center will telephone the initial interpretation to the transfusion facility and fax a preliminary report.
- The patient's physician should be notified of the results.
- The preliminary report should be placed in the patient's chart.

Preliminary Report



Gulf Coast Regional Blood Center

CR SOP 705.12, 710.01, 710.09, 783.05, 783.07

Page 1 of 1

CR Fax Coversheet

To: **City Hospital** From: Consultation/Reference Laboratory

Attention: Fax: **713-111-1234**

Date: **05/01/16** Pages:

RE: ☐ Blood Component Request ☐ Physician Notification ☐ Bill ☐ Other

☐ Urgent ☐ For Review ☐ For Correction ☐ Please Reply

Comments:

_____ The following page is a Preliminary Report of test results and charges. Changes may occur in the Final Report. Final report to follow pending case review.

_____ We are unable to perform tests on the patient sample for the following reason: _____

_____

Called To:_____ Date/Time:_____GCRBC Tech: _____

_____ Please review the accompanying form. The Type and Screen is valid until _____. If blood is required after that date, a new patient sample must be collected.

_____ Please direct bill to the appropriate department or person.

✓ **Investigation of a suspected transfusion reaction:**

Patient: *Jane Smith* DOB: *03/11/1949*

Blood bank pathologist's preliminary interpretation: *Febrile non-hemolytic reaction; premedicate with antipyretics*

_____ Other

If necessary, reply to:

	Consultation & Reference Laboratory	Fax	Phone
	La Concha	713-791-6242	713-791-6286
	Rare Donor Program/Special Components	713-791-7728	713-791-6284
	BCET	936-558-4091	936-560-3054

Confidential: This information may not be used for other than the stated purpose. Disclosure to another party is not permitted and would constitute an unwarranted invasion of privacy. This photocopy or other reproduction must be destroyed after the stated need is fulfilled.

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At the conclusion of the investigation, The Blood Center will send a final written report to the transfusion facility.

Final written report

Important Information

Place the final report on the patient's chart.

Commit for Life®

Gulf Coast Regional Blood Center

April 1, 2016

City Hospital
12345 Main St.
Houston, TX 77000

ATTENTION: Nursing Supervisor
Dr. Doctor Doctor

RE:	**SMITH, JANE**
DATE OF BIRTH:	12-06-1946
CASE NO:	12345678

Clinical Evaluation: The patient is an 85-year-old woman admitted 01-31-11 with cellulitis. She has not been transfused previously at this hospital. On 03-25-11, two RBCs were requested for transfusion (Hgb 7.2 g/dL; Hct 21.5%). On 03-26-11, after approximately 50 mL of the first RBC was transfused, the patient developed an increase in temperature. There were no associated chills, chest pain, dyspnea, hypoxia, or urticaria. Pre-transfusion vital signs were as follows: BP 113/51 mmHg, HR 95, RR 30, T 98.8F. Vital signs at the time of the reaction were BP 115/50 mmHg, HR 99, RR 26, T 101.1F. The transfusion was discontinued and a suspected transfusion reaction investigation initiated.

Laboratory Evaluation: The post-transfusion blood sample was received on 03-26-11. The patient typed as A Positive on the pre- and post-transfusion blood samples. The donor RBC unit implicated in the reaction was A Positive as well and, therefore, ABO compatible with the patient. There was no visible evidence of hemolysis in the post-transfusion sample. The direct antiglobulin test was weakly positive on both the pre- and post-transfusion patient samples; however, eluates prepared from both samples were nonreactive, indicating nonspecific protein adherence. No clerical errors were detected. These results were called to the patient's nurse (Chris) at 0540 on 03-26-11.

Impression: There is no evidence of an acute hemolytic transfusion reaction. In the absence of other significant signs or symptoms, an elevation of temperature occurring in the setting of transfusion is most suggestive of a febrile nonhemolytic transfusion reaction (FNHTR). Typically such reactions occur due to presence of leukocytes in the transfused blood component, however with the current use of leukocyte-reduced RBCs, FNHTRs are more likely to occur in response to the accumulation of biologic response modifiers (cytokines, complement fragments) during storage. The patient's underlying medical condition may also be considered as a possible contributory factor. Premedication with antipyretics prior to future transfusions may be beneficial. The patient was subsequently transfused 2 RBCs on 03-26-11 without reported complications.

Should you have any questions regarding this information, please do not hesitate to contact us.

Susan N. Rossmann, MD, PhD
Chief Medical Officer

Cindy B. Sapp, MT(ASCP)SBB
Manager, Consultation and Reference Laboratory

1400 La Concha Lane, Houston, Texas 77054 • 713-790-1200 • 1-888-482-5663 • www.giveblood.org

A Nonprofit Community Blood Center and Member of America's Blood Centers, aaBB and the Texas Medical Center.

Report of Transfusion-Associated Fatalities

When the death of a patient results from a transfusion reaction or complication of transfusion, The Blood Center must submit a written report to the FDA **within 7 days** of the death. The following items must be included:

- Discharge summary;
- Death certificate;
- Autopsy report, if performed;
- Patient reports including laboratory results, radiology, nurse's notes and physician consults and opinions;
- Replacement fluids given during the transfusion (name, amount, lot number);
- Minutes or reports from oversight groups, such as Transfusion Committee or Quality Assurance Committee.
- The Blood Center will coordinate sending the necessary documents to the FDA with the Facility.

FDA Contact Information

- Email: fatalities2@fda.hhs.gov
- Telephone/voice-mail number: 240-402-9160
- Fax number: 301-595-1304, Attn: CBER Fatality Program Manager
- Express mail address:

  U.S. Food and Drug Administration
  Center for Biologics Evaluation and Research
  Document Control Center
  10903 New Hampshire Avenue
  WO71, G112
  Silver Spring, MD 20993-0002

SECTION XI: *Post-Transfusion Infections*

Although the risk of disease transmission from transfusion is lower than ever, it still persists. Unexplained infectious disease in a transfusion recipient should be investigated for the possibility of transfusion-transmitted infection.

Following transfusion, the transfusion facility should:

1. Notify Risk Management at The Blood Center of:
    - Any patient who develops viral hepatitis (HBV or HCV);
    - Any patient who develops of acute liver dysfunction;
    - Any patient who is diagnosed with HIV;
    - Any patient found to be infected with malaria, Chagas disease, babesiosis, Zika, West Nile virus or any other bacterial, viral or parasitic diseases.
2. Complete forms as requested and return to The Blood Center in a timely manner.

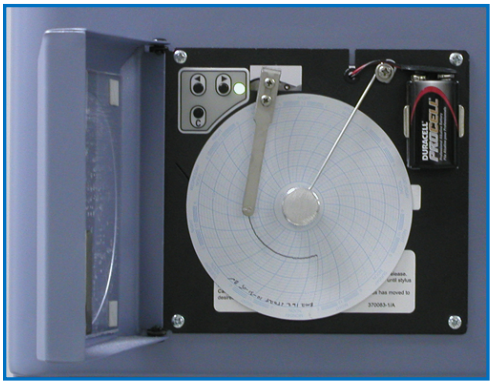
A final report will be sent following the investigation by The Blood Center.

SECTION XII: *Facilities with Blood Center Approved Refrigerators*

The Blood Center must approve the storage conditions and practices at the facility prior to the refrigerator storage of Blood Center-crossmatched RBCs. Storage requirements are mandated by the FDA to preserve the safety, purity and potency of blood components.

Conditions

1. The refrigerator must be manufactured for the purpose of storing RBCs and maintaining temperatures between 1-6ºC. Such refrigerators have:
   - A graph that continuously records the interior temperature.
   - An alarm system that sounds:
     - Before the temperature is out of range;
     - In an area that is staffed 24 hours/day.



Approved Blood Bank Refrigerator Graph

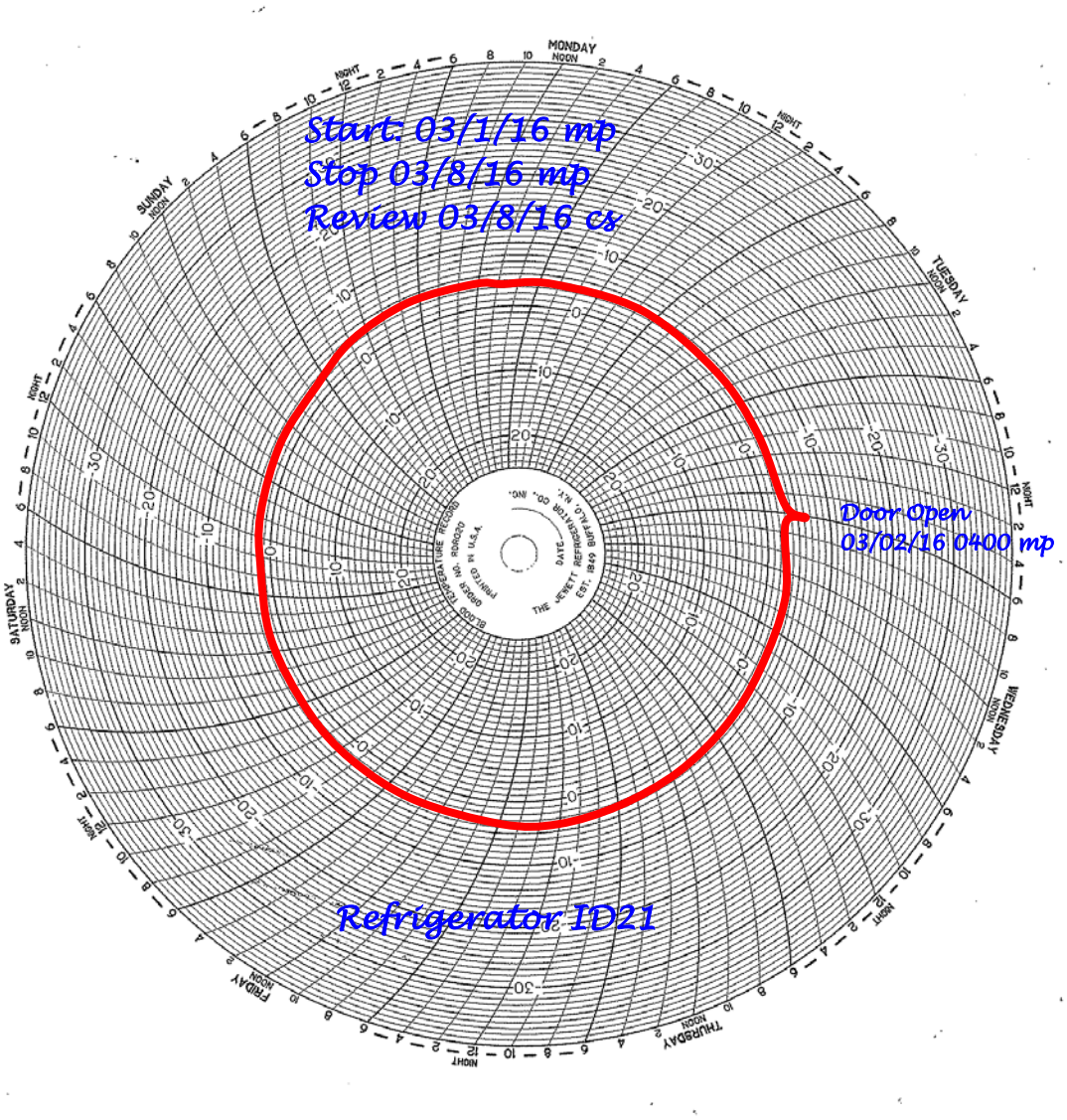
2. An independent thermometer manufactured for use in blood bank refrigerators must be placed in the refrigerator. The thermometer must be replaced or calibrated annually.
   - Replacement: Retain documentation of NIST-traceable current manufacturer's certificate.
   - Calibration: Calibrate annually against an NIST-traceable thermometer. The NIST-traceable thermometer must have been calibrated within the past year.
3. The Blood Center will review the facility's policies and procedures before a refrigerator is approved, and when policies and procedures are revised. The elements in the table on the following page must be incorporated into the facility's policies and procedures.

Element	*Content*
Temperature Monitoring	• Record the temperature of the thermometer, digital probe, and graph daily. • The temperature of the thermometer, digital probe, and graph must be within 1-6°C and cannot vary more than 2°C from each other. • Provide written explanation and corrective action for temperature deviations outside of 1 – 6°C or variations of more than 2°C.
Thermometer	• Calibrate annually against an NIST-traceable thermometer.
Graph	• Change the graph weekly, aligning the correct date and time. • Document the equipment identification, start and stop dates and initials. • Document reasons for temperature deviations outside of 1 – 6°C. • Date and initial the final review.
Alarm Response / Refrigerator Malfunction	Define the appropriate response when an alarm sounds or the refrigerator malfunctions. • Investigate and document any alarm response or equipment malfunction. • Notify The Blood Center **immediately**. • If required, remove the refrigerator from service. • Notify The Blood Center upon completion of repairs or corrective actions.

4. When a refrigerator is out of service, The Blood Center will ship components in transport boxes. Depending on the nature of the malfunction and/or repair, The Blood Center may make additional suggestions, request documentation, or require a post-repair audit before returning a refrigerator to service.
5. On a quarterly basis, The Blood Center will perform an audit to include:
   - High/low alarm activation
   - Review of refrigerator graphs and temperature logs.

   Facilities not in compliance must remove the refrigerator from service. The Blood Center may review the facility's policies and procedures as well as corrective actions before reinstating a refrigerator that has failed an audit. A re-audit may be required.

Refrigerator Graph



In the event of a refrigerator malfunction, notify The Blood Center, phone number 713-791-6286.

Refrigerator Audit Form

Gulf Coast Regional Blood Center

SOP 790.08

Page 1 of 2

Facility Refrigerator Compliance Audit

☐Quarterly Audit ☐Corrective Action ☐Qualification

Facility: _____ Refrigerator ID: _____

		Acceptable?
Recording Graph	Are the graphs changed weekly?	☐ Yes ☐ No
	Is the current graph aligned properly?	☐ Yes ☐ No
	Are recorded temperatures consistently between 1 – 6ºC?	☐ Yes ☐ No
	Does documentation exist for temperature deviations outside of 1 – 6°C?	☐ Yes ☐ No ☐ None to report
	Do graphs include the following documentation? • Equipment Id • Start date, initials • End date, initials • Review date, initials	☐ Yes ☐ No
Temperature Monitoring	Are the thermometer, digital probe, and graph temperatures recorded daily?	☐ Yes ☐ No
	Are the temperatures of the thermometer, digital probe, and graph within 1 – 6°C, and vary no more than 2°C?	☐ Yes ☐ No
	Are corrective actions documented for temperature deviations outside of acceptable limits?	☐ Yes ☐ No ☐ None to report
Thermometer	Has the independent thermometer been calibrated against a NIST-traceable thermometer within the past year? **Facility Thermometer Id:** **Calibration Due:**	☐ Yes ☐ No
Alarm	Quarterly Alarm — *Therm = Digital = Graph ± 1°C* **High** *Acceptable digital < 6°C* **Low** *Acceptable digital > 1°C* **ReferenceThermometer ID:** **Cal Due:**	Therm / Digital / Graph ☐ Yes ☐ No
	Is the remote alarm audible?	☐ Yes ☐ No
	Is the internal refrigerator alarm audible?	☐ Yes ☐ No
	Did the facility staff investigate the reason for the alarm?	☐ Yes ☐ No

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SECTION XIII: *Elements of Informed Consent*

Whenever there is a reasonable possibility that a blood transfusion may be necessary, written consent is required from the patient. The Texas Medical Disclosure Panel classifies transfusion of blood and blood components as a procedure requiring full disclosure.

To ensure that patients have the information they need to make an informed choice, the following are required to be discussed with the patient or appropriate legal guardian and appropriately documented according to the standard operating procedures and policies of the hospital/facility:

1. **Description and purpose** of the recommended treatment; i.e., a blood transfusion.
2. **Risks** of blood transfusion. The Texas Medical Disclosure Panel has identified the following specific risks and hazards associated with blood transfusion:
    - Fever
    - Transfusion reaction which may include kidney failure or anemia
    - Heart failure
    - Hepatitis
    - AIDS (Acquired Immune Deficiency Syndrome)
    - Other infections
3. Potential **benefits** of receiving the blood transfusion.
4. Practical **alternatives** to transfusion, if applicable. Alternatives may include the use of autologous or directed (designated) donor units, erythropoietin therapy, perioperative blood salvage, or receiving no blood transfusion.
5. **Option to refuse** blood transfusion.

The following are additional items that should be on the informed consent and are subject to review by The Blood Center:

- Patient's initials appear in the appropriate boxes, if applicable;
- Signature of the patient/guardian and the date signed;
- Witness or two witnesses for telephone consents;
- Annotated consent is on the patient's chart;
- Signed consent is obtained prior to transfusion. Refer to the facility's policy on whether consent must be obtained before each transfusion.

SECTION XIV: *Glossary*

AABB	AABB writes standards for blood banks and transfusion services and inspects participants for adherence to these standards. *AABB Standards* are considered to be best practices. The Blood Center is inspected by AABB and adheres to *AABB Standards*.
Autologous donation	The patient donates blood to be used for himself/ herself only.
CBER	Center for Biologics Evaluation and Research, a division of the FDA.
CLIA	Clinical Laboratory Improvement Amendments; rules issued by The Centers for Medicare & Medicaid Services (CMS) that govern medical laboratories.
Compatibility testing, crossmatching	Pre-transfusion tests. Includes history check, ABO/Rh type, antibody screen for unexpected red cell antibodies, and the crossmatch between a specific donor and the patient. Additional time is required to provide RBCs for a patient who has a positive antibody screen. In some cases, Group O RBCs may be the only antigen-negative RBC available for transfusion.
Corrective action plan	In the event of a serious error or a refrigerator malfunction, The Blood Center will request a corrective action plan. Corrective action plans typically state the problem, analyze the cause of the problem, and detail steps for correcting the problem and monitoring the situation so that the problem does not recur.
Crossmatch-incompatible RBC	Serologically incompatible RBC. Compatible RBC may not be found when a patient has an autoantibody or a clinically insignificant antibody to a high-incidence antigen.
CPT	Current Procedural Terminology. The Blood Center does not bill Medicare or insurance companies. CPT coding is the responsibility of facilities.
Consultation and Reference Laboratory (CR)	CR performs pre-transfusion testing.
Critical value	Critical values are those which immediately impact patient care. EXAMPLE: There will be a delay in providing platelets for a critically ill patient.
CRYO	Cryoprecipitated Antihemophilic Factor (AHF). Contains 150 mg of fibrinogen and a minimum of 80 IU of coagulation Factor VIII. CRYO orders will be filled with pools of five units of CRYO whenever possible.
DAT	Direct antiglobulin (Coombs) test.
Directed donor donation	Friends and relatives donate blood to be used specifically by the patient.
DOB	Date of birth.

EDTA	Anticoagulant (ethlenediaminetetraacetic acid) used in test tubes (usually pink or purple tops) for blood bank and hematology tests.
Equipment identification	The serial number or other facility-designated identification of a blood bank refrigerator.
Extended crossmatch	If the patient has not been transfused or pregnant within the last three months, the patient specimen may be used for compatibility testing up to seven days. The standard expiration date of the crossmatch specimen is three days.
FDA	Food and Drug Administration. FDA publishes the *Code of Federal Regulations* that establishes rules for blood banks. The FDA inspects blood banks and transfusion services. FDA regulations are legally binding. The Blood Center is inspected by FDA.
Final disposition	The record of the blood component whether it was ultimately transfused, discarded or returned to The Blood Center.
FRBC	Frozen-deglycerolized leukocyte reduced RBC. Prior to transfusion, frozen RBC must be thawed and the cryoprotective agent must be removed. FRBC may be the only RBC available for patients with complex compatibility problems. FRBC are more costly.
Irradiated RBC	RBC from relatives of the patient are irradiated to minimize immunological complications. RBC may also be irradiated to prevent graft-vs-host disease (GVHD) in severely immunocompromised patients.
JFFP	Jumbo Fresh Frozen Plasma collected by apheresis. Equivalent to 2-3 single units of fresh frozen plasma. Contains all of the coagulation factors.
Look-Back	Examination of prior donations from donors who are newly identified as infected with HIV or HCV.
LRBC	Leukocyte-reduced Red Blood Cells. Leukocytes have been reduced to less than 5×10^6 per unit. The Blood Center's standard practice is to provide only LRBC.
NIST	National Institute of Standards and Technology. Thermometers in refrigerators used for blood storage must be NIST-certified or validated against an NIST-certified thermometer.
Phenotype-matched RBC	RBCs negative for the same major blood group antigens as the patient.
Plasma	Fresh frozen plasma or plasma frozen within 24 hours of collection. Contains all of the coagulation factors.
PPLT	Platelets collected by apheresis. Both apheresis and pooled platelets have 3.0×10^{11} or more platelets per unit.

Read back	The Blood Center will request the nurse to "read back" critical values to ensure that an important message has been received correctly.
Recall	The Blood Center infrequently issues a recall for blood components that may not comply with regulations. If in inventory, the component should be immediately returned to The Blood Center.
Refrigerator facility	Hospital which has been approved for a blood bank refrigerator.
Rh/K phenotype match	Patient and donor RBCs are negative for the same common Rh and Kell blood group system antigens. It is standard practice to use Rh/K phenotype-matched RBC for patients with Sickle Cell Disease.
Root cause analysis (RCA)	A process for identifying the factors that underlie variation in performance, including the occurrence or possible occurrence of a sentinel event. An RCA focuses primarily on systems and processes, not on individual performance.
Sentinel event	An unexpected occurrence involving death or serious injury, or the risk thereof. Such events are called "sentinel" because they signal the need for immediate investigation and response.
SOP	Standard Operating Procedure.
Special need	Special requirement for blood components based on the patient's diagnosis. The Blood Center has defined special needs. EXAMPLE: Patients with Sickle Cell Disease will receive Rh/K phenotype-matched RBC.
TACO	Transfusion-Associated Circulatory Overload.
TJC	The Joint Commission.
TRALI	Transfusion-Related Acute Lung Injury.
Transfusion Safety Program (TSP)	A program established by The Blood Center to ensure that facility policies and procedures related to transfusion meet TJC guidelines.
Type & Crossmatch	See compatibility testing. Request a Type & Crossmatch for patients when transfusion is anticipated.
Type & Screen	Also called TNS. Includes an ABO/Rh group, antibody screen, and history check. The Type & Screen is suitable for patients when transfusion is unlikely.
Washed RBC (WRBC)	RBC washed with normal saline to remove most of the plasma. IgA-deficient patients require WRBC.

SECTION XV: *Frequently Asked Questions*

How long can a patient's blood specimen be used?

The patient blood specimen expires at midnight on the third day following collection. EXAMPLE: A specimen that was drawn on 5/10/16 expires at midnight on 5/13/16. Specimens should be transported as soon as possible following collection. If a delay is anticipated, store the specimen between 1-10^{o}C.

Do I need to send another blood specimen if my patient has a blood bank armband?

Call The Blood Center to see if a valid specimen is available for compatibility testing. Transport the specimen as soon as possible following collection. If a delay is anticipated, store the specimen between 1-10^{o}C.

Do I need to send another blood specimen if my patient does NOT have a blood bank armband?

If the patient does not have an orange blood bank armband, attach a new blood bank armband; collect a new blood specimen. Transport the specimens as soon as possible following collection. If a delay is anticipated, store the specimen between 1-10^{o}C.

How long before platelets expire in the box? How long can a platelet last in a box?

Platelets must be returned for credit within the time indicated on the box.

How long can I keep the unit in the unopened box before it must be used or returned?

The maximum return time is on the box label.

I opened the box, but the physician decided to cancel the transfusion. Can I still return the units for a credit?

Once the box is opened, the component cannot be returned for credit. If the unit is discarded, record the final disposition in the disposition log.

Both RBC have the same unit identification number. Is this an error?

The Blood Center may collect two RBC from the donor at the same donation. The RBC will have the same unit identification number but different numerical product codes.

What should I do if I think that my patient is having a transfusion reaction?

Stop the transfusion. Notify the patient's physician. Notify The Blood Center. Suspected transfusion reactions **must** be reported and investigated. A physician's order is not required to investigate a reaction. See **Section X**.

Can I transfuse plasma with the same administration set that I used for RBC?

No; change to a new administration set if a new kind of component is transfused.

The doctor ordered 10 platelets and we received one big bag. Is this the same as 10 platelets?

The Blood Center will substitute one unit of apheresis or pooled platelets for each 6-10 random donor (whole blood-derived) platelets.

How fast can I transfuse platelets? Plasma?

Platelets and Plasma can be infused as rapidly as the patient's condition permits. The transfusion must be completed within four hours.

How are Plasma and CRYO prepared for transfusion?

The Blood Center must thaw Plasma and CRYO before it can be transfused. Thawing requires approximately 20 minutes. Once thawed, Plasma and CRYO cannot be returned for credit.

Why did I receive O Positive plasma when my patient's blood type is O Negative?

The Rh factor (Rh positive or negative) is not significant when transfusing platelets, Plasma or CRYO. For additional information, see the *Acceptable Component Blood Types* chart.

Why does the physician have to give permission to transfuse incompatible blood? Can't you find compatible blood?

The presence of certain diseases or clinically insignificant blood group antibodies may cause all RBC to appear incompatible in tests. In such cases, compatibility tests may not reflect what will actually happen when the patient is transfused.

How can I get more Transfusion Manuals?

Contact the Transfusion Safety Program at 713-791-6212 or TSP@giveblood.org. Complete the *Transfusion Manual Order Form* and fax to The Blood Center.

Who can I contact for in-service training for our staff?

Contact the Transfusion Safety Program at 713-791-6212 or TSP@giveblood.org.

Who can I contact for questions about charges on the monthly billing statement?

Contact the Business Office at 713-791-6383.

Where can I get a current fee schedule?

Contact the Business Office at 713-791-6383.

Our facility plans on opening another facility and will need compatibility services for the new location. Who can we contact? What is the estimated timeframe for establishing compatibility testing?

Contact Medical Services at 713-791-6212. It takes approximately 4-6 weeks, depending on how quickly The Blood Center receives the required documents.

Our facility will be moving to a new building. Does The Blood Center need the new address before we move?

Yes. Notify Consultation and Reference at 713-791-6286.

Why must our facility notify The Blood Center that the facility name has been changed?

The contract must be updated with the new name in order to be valid. Delays in service can occur if The Blood Center is not notified in a timely manner.

SECTION XVI: *Directory*

Laboratories

Department/Person	Description/Title	E-Mail	Phone	Fax
MAIN Laboratory	Open 24 hours daily, including weekends and holidays		713-791-6286	713-791-6242

Consultation & Reference Management

Department/Person	Description/Title	E-Mail	Phone	Fax
Cindy Sapp, MT(ASCP)SBB	Manager	csapp@giveblood.org	713-791-6343	713-791-6242
Carla Collins, MT(ASCP)	Assistant Manager	ccollins@giveblood.org	713-791-6661	713-791-6242

Transfusion Safety Program

Department/Person	Description/Title	E-Mail	Phone	Fax
Transfusion Safety Program		TSP@giveblood.org	713-791-6212	713-791-7729
Kimberly Gomez	Administrative Assistant	kgomez@giveblood.org	713-791-6212	713-791-7729
Hope Guidry-Groves	Director, Cellular, Apheresis and Transfusion Services	hgroves@giveblood.org	713-791-6364	713-791-6327
Susan Rossmann, M.D., Ph.D.	Chief Medical Officer	srossmann@giveblood.org	713-791-6275	713-791-6603

Other

Department/Person	Description/Title	E-Mail	Phone	Fax
Business Office/ Eboni Ingram	For invoice payment questions; fee schedule	eingram@giveblood.org	713-791-6383	713-791-6611
Risk Management/ Portia Schwehr	Contracts; Liability Insurance	pschwehr@giveblood.org	713-791-6257	713-791-1615
Donor Services/ Robin Fuller	For Lookback / Recall / Transfusion Transmitted Infections	rfuller@giveblood.org	713-791-6608	713-791-6607

SECTION XVII: *Forms and Miscellaneous*

If your facility needs additional Transfusion Manuals, please complete the Transfusion Manual Order Form. A copy of the Transfusion Manual should be available at all nursing stations and areas involved in transfusion practice procedures.

Any forms provided by The Blood Center should not be altered in any way by the facility since forms are subject to change. The facility will be notified and updated forms will be provided as needed. The forms listed can be photocopied by the facility.

- Blood Component Request
- Report of Suspected Transfusion Reaction
- Emergency Release of Uncrossmatched Blood

The following transfusion guideline cards provided in this section can be used to assist with appropriate utilization of blood components.

- Red Blood Cells
- Plasma
- Platelets

Transfusion Manual Order Form

The *Transfusion Manual* is provided by The Blood Center to assist clients with practices and procedures related to blood transfusion. The Blood Center recommends placing a copy of the manual at each nursing station. One manual is provided at no cost. Additional copies may be ordered using this form. The cost will be added to the facility's monthly bill.

Ship to: _____

Facility Name:_____

Address: _____

_____

Email: _____ Phone: _____

Signature of Requestor: _____ Date:_____

I want to order _____ copies of the *Transfusion Manual*. I understand that the cost of the manuals will be added to the facility's bill.

Fax completed form to (713) 791-7729

For questions, call (713) 791-6212

Gulf Coast Regional Blood Center

Address: 1400 La Concha Houston TX 77054 **Ph**: 713-791-6286
Fax: 713-791-6242 **CLIA #:** 45D0660146

GCRBC use only; Case #

Blood Component Request

☐ Male ☐ Female **Affix PATIENT registration label with full name and DOB here.** *Information must match specimen label.*	Order Date:	**Add-on Request:** ordered by (initials)/date/time
	FACILITY:	
	RN Phone:	
	Facility Fax:	
	Patient Location:	
	Ordering Physician:	
	Admitting Diagnosis:	

Component	# of Units	Laboratory Results	SPECIAL NEEDS
☐ RBCs		Hgb (g/dL): Hct (%):	☐ Irradiated
☐ Platelets		Plt count (/uL):	☐ Sickle Cell Negative
☐ Plasma		PT (sec): INR: PTT (sec):	☐ CMV Negative
☐ Cryoprecipitate		Fibrinogen (mg/dL):	
☐ Type &Screen only ☐ Direct Antiglobulin (Coombs) Test (DAT)			☐ Auto/Designated Donors

Delivery Date	**Time**	**HOLD**	Special Delivery Instructions
	a.m. p.m.	☐	

For Extended Crossmatch Only:
The patient/legal representative affirms that he/she has **not** been transfused or pregnant within the past three months.

Signature of nurse verifying history (first and last name**)**

Specimen Requirements	Purple-top/EDTA tube(s) (one 9-10 mL or two 5-7 mL tubes). Label tube(s) with: Patient's Full Name Date of Birth (DOB) (mm/dd/yy) Initials of Phlebotomist Date/Time of Collection *Incorrect, illegible, incomplete or discrepant samples and/or forms will be rejected.*	***I certify that the patient's name and DOB are identical on the patient's wristband, the specimen label, and the request form.*** Signature of Phlebotomist Date (mm/dd/yy) & Time of Specimen Collection 2nd Signature Verifying Patient Data

Blood Center Use Only: ST-Tx Patient ID : _____ ST-TX Order : _____

Gulf Coast Regional Blood Center

Address: 1400 La Concha Houston TX 77054 **CLIA #:** 45D00660146

Phone: 713-791-6286 **Fax:** 713-791-6242

GCRBC use only; Case #

Report of Suspected Transfusion Reaction

Instructions

- STOP the transfusion. Change IV tubing; keep line open with normal saline. Confirm identity of patient and component(s).
- Notify the attending physician.
- Collect specimen: 1 9-mL or 2 5-7 mL purple-top tubes; labeled with full name, DOB, date, time, phlebotomist's initials.
- Complete this report. Notify designated provider to pick up specimen, transfused component with attached administration set and solutions, **unused components**, and this report.

Affix patient registration label with full name and DOB here. *Must match specimen label!*

Date:

Facility

Name:

24-hr RN Phone/ext:

24-hr RN Fax:

Patient Location: ☐ Male ☐ Female

Ordering Physician:

Diagnosis:

Unit identification number:

Date of reaction:

Time of reaction: a.m. p.m.

Transfusion started: Date: Time: a.m. p.m.

Transfusion stopped: Date: Time: a.m. p.m.

Component: ☐ RBCs ☐ Platelets ☐ Plasma ☐ Cryo

Approximate amount transfused: mL

Type of solution with unit, if any:

Clinical signs and symptoms (check appropriate items):

☐ Chills ☐ Nausea/vomiting ☐ Dyspnea ☐ Tachycardia ☐ Chest tightness
☐ Urticaria ☐ Temp elevation >1°C or 2°F ☐ Hemoglobinuria ☐ Back pain ☐ Hypoxia
☐ Other:

Vital signs

	Blood Pressure	Temperature	Pulse	Respiratory Rate
Pre-transfusion				
Post-Transfusion				

Previous transfusion history including reactions:

Nurse completing report: Date: Time:

GCRBC Use Only: ST-Tx Patient ID_____ ST-TX Order _____

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Emergency Release of Uncrossmatched Blood

Physician	In consideration of the clinical condition of this patient, I request the immediate release of RBCs for transfusion without compatibility testing. **Ordering physician's signature:**
	Ordering physician's name (print):

	Order Date:
	FACILITY:
	RN Phone:
	Patient Location:
☐ Male ☐ Female **Affix PATIENT registration label with full name and DOB here.** *Information must match specimen label.*	Admitting Diagnosis:

Specimen & Request	1	Telephone The Blood Center to request emergency release of uncrossmatched blood. Immediately fax signed emergency release to designated service provider. ***IMPORTANT: The Blood Center will ship two units only upon receiving the faxed emergency release.***
	2	Collect and label one 9-mL or two 5-7 mL EDTA (purple-top) tube(s). The label **MUST** include: • Patient's full name • Date of birth (mm/dd/yy) • Phlebotomist's initials • Date of collection
	3	Complete the *Blood Component Request* form.
	4	Give specimen and *Blood Component Request* form to Blood Center personnel upon delivery of uncrossmatched blood.

GCRBC Use Only: ST-Tx Patient ID _____ ST-TX Order _____

TRANSFUSION GUIDELINES (ADULT)
RED BLOOD CELLS (RBCs)

Components

- Leukocyte-Reduced RBCs – leukocyte reduction is performed shortly after collection (prestorage filtration); contain <5 x 10^6 leukocytes/unit.
  - Standard 170-micron blood administration filter does not remove leukocytes.
  - Clinical studies indicate that leukocyte-reduced RBCs are of equivalent efficacy as RBCs from CMV-seronegative donors in preventing CMV transmission.
- Anticoagulant-preservative solution used will determine hematocrit (HCT) and shelf life:
  - Additive solutions (AS-1, AS-3): HCT 55%-65%; 42-day shelf life
  - CPDA-1: HCT 65%-80%; 35-day shelf life
  - CPD: HCT 65-80%; 21-day shelf life
- Washed RBCs – RBCs washed with and resuspended in normal saline.
  - Hct 70%-80%; 24-hour shelf life.
- Frozen-Deglycerolized RBCs – cryoprotective solution (glycerol) removed by saline-glucose washing; RBCs are resuspended in normal saline.
  - HCT 70%-80%; 24-hour shelf life (14-day shelf life if closed system).
- RBCs contain no functional platelets, granulocytes, or coagulation factors.
- Must be stored at 1-6 C.

Indications

- Acute hemorrhage and hemodynamic instability or inadequate oxygen delivery.
- Massive blood loss (hemorrhagic shock).
- Treatment of symptomatic anemia.
- Transfusion should be based on clinical status rather than a predetermined hemoglobin/ hematocrit threshold:
  - Lower limit for general medical & surgical patients is typically 7.0 g/dL /21%.
  - Patients with acute myocardial ischemia may benefit from transfusion at higher values.
  - Transfusion is rarely indicated if Hgb > 10g/dL.
- Red blood cell exchange transfusion (sickle cell disease; overwhelming parasitic infections with malaria or babesia).

TRANSFUSION GUIDELINES - RBCs

Contraindications

- Anemia that can be corrected with non-transfusion therapy (iron, folic acid, vitamin B12, erythropoietin).
- Volume expansion alone.
- To improve wound healing.

Administration/Dosage

- Must be ABO-compatible with the recipient's plasma. Rh compatibility typically indicated as well, particularly for females of child-bearing potential.
- Serologic compatibility between recipient and donor must be established. Exceptions include life-threatening emergencies when uncrossmatched blood must be issued.
- One RBC unit increases hemoglobin in 70-kg adult by approximately 1 g/dL (hematocrit by 3%).

Risks

- Hemolytic transfusion reaction, acute or delayed
- Allergic reaction - Wheezing, urticaria, angioedema
- Febrile nonhemolytic reaction
- Anaphylactoid reaction – Dyspnea, laryngeal and/or pulmonary edema, bronchospasm
  - Reported in IgA-deficient patients who have anti-IgA antibodies
- Transfusion-Related Acute Lung Injury (TRALI)
  - Occurs during or within 6 hours of transfusion
  - Dyspnea, hypoxia, hypotension, fever, bilateral pulmonary infiltrates
- Transfusion-Associated Circulatory Overload (TACO)
- Iron overload (long-term complication in multiply transfused patient)
- Bacterial contamination of blood product
  - Onset of high fever (>2 C or >3.5 F rise in temperature), severe chills, hypotension, or circulatory collapse during or immediately following transfusion
- Transmission of infectious diseases, due to known or unknown pathogens

References

- *King K (ed.). Blood Transfusion Therapy: A Physician's Handbook, 9th Ed. AABB, Bethesda, MD, 2008.*
- *Roback JD, Combs MR, Grossman BJ, Hillyer CD (ed.). Technical Manual, 16th Ed. AABB, Bethesda, MD, 2008.*
- *Napolitano LM, et al. Clinical practice guideline: Red blood cell transfusion in adult trauma and critical care. Crit Care Med 2009;37:3124-3157.*
- *Corwin HL, Carson JL. Blood transfusion – When is more really less? NEJM 2007;356:1667-1669.*

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TRANSFUSION GUIDELINES – PLASMA

Components

- Fresh Frozen Plasma (FFP)
- Plasma Frozen Within 24 Hours After Phlebotomy (FP24) – equivalent to FFP with regard to clinical efficacy and is used interchangeably with FFP
- Thawed Plasma – thawed FFP or FP24 stored for 1 to 5 days. All clinically important coag factors remain stable for 5 days, with exception of Factors V/VIII (which do not fall below hemostatic levels of 35 percent)
- Plasma, Cryoprecipitate Reduced – indicated only for use in patients with Thrombotic Thrombocytopenic Purpura (TTP)

Indications

- Active bleeding, surgery or invasive procedure in patient with prolonged PT/INR and/or aPTT due to a deficiency in one or more coagulation factors.
  - o The degree of coagulopathy requiring FFP replacement is controversial. Each institution should establish its own levels using an evidence-based medicine approach.
- Rapid reversal of warfarin effect in patient with bleeding or emergency surgery
- Congenital or acquired factor deficiencies for which there is no commercial concentrate available
- Plasma replacement for apheresis procedures performed for Thrombotic Thrombocytopenic Purpura (TTP) and other medical conditions

Contraindications

- Volume expansion or replacement
- Correction of a coagulopathy treated more effectively with specific therapy, such as Vitamin K, cryoprecipitate or factor concentrates

References

- *O'Shaughnessy DF, Atterbury C, Bolton Maggs P, et al. Guidelines for the use of fresh-frozen plasma, cryoprecipitate and cryosupernatant. Br J Haematol 2004;126:11-28.*

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TRANSFUSION GUIDELINES – PLASMA

Administration/Dosage

- ABO-compatible with the recipient's red cells; Rh typing and compatibility testing not required.
- One mL of plasma contains one IU of each coagulation factor.
- For coagulopathy secondary to a factor deficiency, the dose is 10 to 20 mL/kg (3 to 6 units in an adult). Expected to increase factor levels by 20 percent immediately after infusion.

Risks

- Allergic reaction - Wheezing, urticaria, angioedema
  - Due to IgE-mediated response to various plasma proteins
- Transfusion-Related Acute Lung Injury (TRALI)
  - Occurs during or within 6 hours of transfusion
  - Dyspnea, hypoxia, hypotension, fever, bilateral pulmonary infiltrates
- Anaphylactoid reaction – Dyspnea, laryngeal and/or pulmonary edema, bronchospasm
  - Reported in IgA-deficient patients who have anti-IgA antibodies
- Transmission of infectious diseases, due to known or unknown pathogens
- Bacterial contamination of blood product
  - Onset of high fever (>2 C or >3.5 F rise in temperature), severe chills, hypotension, or circulatory collapse during or immediately following transfusion
- Transfusion-Associated Circulatory Overload (TACO)
  - Risk population includes elderly and patients with chronic severe anemia.

References

- *Practice guidelines for blood component therapy: A report by the American Society of Anesthesiologists Task Force on Blood Component Therapy. Anesthesiology 1996; 84(3):732-47.*
- *Gottschall J (ed.). Blood Transfusion Therapy: A Physician's Handbook, 8th Ed. AABB Press, Bethesda, MD, 2005.*

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TRANSFUSION GUIDELINES (ADULT)
PLATELETS

Components

- Platelets (Whole-Blood-Derived or Random-Donor) – prepared from a single unit of Whole Blood.
    - Each unit contains $\geq 5.5 \times 10^{10}$ platelets in approximately 50mL of plasma. Typically transfused as a pool of 4-6 units to achieve a therapeutic dose. If prepared in an open system, a platelet pool must be transfused within 4 hrs. of preparation.
- Apheresis Platelets – prepared by apheresis collection from a single donor.
    - Each unit contains $\geq 3 \times 10^{11}$ platelets in approximately 300-400 mL of plasma. One Apheresis Platelet is equivalent to a pool of approximately 6 Whole-Blood-Derived platelets.
- Must be stored at room temperature (20 to 24° C).

Indications

- Plt <5,000-10,000/μL in nonbleeding patient with failure of platelet production.
- Plt <50,000/μL and impending surgery, invasive procedure, or active bleeding.
- Plt <100,000/μL and life-threatening hemorrhage, intracerebral bleeding, or during/following neurosurgical procedures.
- Documented platelet dysfunction and clinical bleeding or impending surgery.
- Massive transfusion.

Relative Contraindications

- Thrombocytopenia secondary to thrombotic thrombocytopenic purpura (TTP), heparin-induced thrombocytopenia (HIT), idiopathic thrombocytopenic purpura (ITP), septicemia, or hypersplenism unless active bleeding.

TRANSFUSION GUIDELINES - PLATELETS

Administration/Dosage

- ABO-compatible with the recipient's red cells is preferable; Rh compatibility typically indicated due to a small number of RBCs in the unit.
- One Whole-Blood-Derived Platelet unit increases platelet count in 70-kg adult by 5,000-10,000/μL; therefore, usually transfused as a pool of 4-6 units.
- One Apheresis Platelet unit increases platelet count in 70-kg adult by 30,000-60,000/μL.
- Either product can be leukocyte-reduced, if needed.

Risks

- Allergic reaction - Wheezing, urticaria, angioedema.
- Anaphylactoid reaction – Dyspnea, laryngeal and/or pulmonary edema, bronchospasm.
  - Reported in severely IgA-deficient patients who have anti-IgA antibodies.
- Transfusion-Related Acute Lung Injury (TRALI).
  - Occurs during or within 6 hours of transfusion.
  - Dyspnea, hypoxia, hypotension, fever, bilateral pulmonary infiltrates.
- Transfusion-Associated Circulatory Overload (TACO).
- Bacterial contamination of blood product.
  - Onset of high fever (≥2 C or ≥3.5 F rise in temperature), severe chills, hypotension, or circulatory collapse during or immediately following transfusion.
- Transmission of infectious diseases, due to known or unknown pathogens.

References

- *King K (ed.). Blood Transfusion Therapy: A Physician's Handbook, 9th Ed. AABB, Bethesda, MD, 2008.*
- *Roback JD, Combs MR, Grossman BJ, Hillyer CD (ed.). Technical Manual, 16th Ed. AABB, Bethesda, MD, 2008.*
- *Stroncek DF, Rebulla P. Platelet transfusions. Lancet 2007;370:427-438.*

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