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Emergency Issue of Blood Products - Blood Bank

Document Type: Procedure

I. PURPOSE AND OBJECTIVE:

This document will provide the Blood Bank staff with policies and instructions for preparing and dispensing blood and blood components in an emergency, before required compatibility testing is complete.

II. CLINICAL SIGNIFICANCE:

A. When blood is needed in an emergency, the patient's physician must weigh the risks of transfusing blood components before required compatibility testing is completed with the risks of delaying transfusion. Such a delay may deprive the patient of oxygen-carrying capacity.

III. DEFINITIONS/ACRONYMS:

A. **Current sample**: A sample that was collected no more than 3 days before the current date on the current admission. For example, if a sample is drawn on Monday (day 0), then the sample remains "current" all day Monday, Tuesday, Wednesday, and Thursday.

B. **CRYO**: Abbreviation for Cryoprecipitate.

C. **Dispense**: Process of issuing blood products for transfusion.

D. **Plasma**: Refer to any type of plasma product, including liquid plasma and thawed plasma.

E. **ABO-identical**: A component that is of the identical ABO blood group as the recipient.

F. **ABO-plasma-compatible**: Refers to platelets, plasma, or cryoprecipitate. A component that does not contain ABO antibodies corresponding to the recipient's ABO antigens.

G. **ABO compatible RBCs**: Donor RBCs that lack the ABO antigens corresponding to the recipient's ABO antibodies.

H. **Rh identical component**: A component that is of the identical Rh as the recipient.

I. **Rh compatible component**: A blood component of the following specificity:

1. For an Rh negative recipient, the component is Rh negative.
2. For an Rh positive recipient, the component is either Rh positive or Rh negative.
3. For a recipient with an Rh type that is undetermined for any reason, the component is Rh negative.

J. **Massive transfusion**: The administration of 8-10 RBC units within a 24 hour period, or the acute administration of 4-5 RBC units within a one-hour period to an adult patient.

K. **Trauma massive transfusion**: The acute administration of 4-5 red cell units within one hour.

L. **Compatibility testing**: Testing that must be completed prior to dispense in non-emergency situations. Includes sample labeling requirements, ABO and Rh testing, antibody screening, possible antibody investigations and crossmatching

M. **Emergency issue**: A bleeding event in which the attending physician determines that blood components must be dispensed/transfused prior to completion of required compatibility testing

N. **Standard Blood Bank cooler**: A temperature-monitored cooler used for inpatients that:

1. Has been validated for the transport of blood components.
2. Is intended for the transport of 1 - 6 blood components which require refrigeration.

O. **Massive transfusion cooler**: A large, temperature-monitored cooler that:

1. Is intended for use during the massive transfusion protocol for the transport of 6 RBCs and 6 plasma, or
2. Is intended for transport of up to 14 plasma during a therapeutic plasma exchange, and
3. Has been validated for the transport of blood components and is described in site specific Transfusion Medicine policy, *Providing Blood Components for Massive Transfusion*.

P. **Complete ABO/Rh typing**: ABO/Rh typing that includes both a forward and a reverse typing. Note that a neonatal typing is not considered a complete ABO/Rh type because a reverse typing is not performed. Refer to Transfusion Medicine policy, Forward Typing Determination of Neonatal ABO and Rh(D) by the Tube Method.

Q. **Neonates**: Patients less than 4 months old.

R. **Valid blood type:** An ABO/Rh interpretation for which no discrepancies are observed.

S. **Post-issue crossmatch**: Serologic compatibility testing of donor unit and recipient after the unit has been issued in an emergency situation.

IV. SPECIMEN COLLECTION AND HANDLING:

A specimen is not required to initially dispense components under the Emergency Issue Protocol. However, it is preferable to obtain a specimen that was collected prior to transfusion to avoid typing discrepancies. Specimens must meet the requirements of Transfusion Medicine policy, Triaging and Identifying Acceptable Blood Samples for Testing.

V. POLICIES:

A. Required Information

1. The Blood Bank requires the following information to set up and dispense blood components under the emergency issue protocol:
   a. Patient's name.
   b. Medical record number (MRN).
   c. Wrist band number.

d. Number and kind of components requested.

B. Requirement for Written Documentation of the Required Information

1. In order to dispense components, the runner must present **written** documentation of the patient's name, MRN, wristband number, and number and kind of components requested. *The Urgent Request for Blood Product Form (*F-1565) is usually used for this purpose.
2. All attempts will be made to obtain the required written information; i.e. the runner can complete F-1565 or the *Blood Product Dispense* (F-1564) if they have the patient's name, medical record number, and wristband number. The runner may also call to the patient's location to acquire the required information.

C. Extenuating Circumstances / Unable to Obtain the Required Information

1. Extenuating circumstances may prevent the patient's caregivers from providing the required information to the Blood Bank. In this case, the technologist will weigh the amount of time needed to obtain the required information, versus the patient's need for an immediate transfusion. After weighing these factors, the technologist will proceed as described below:
   a. Obtain the required information; i.e. the runner can complete F-1565 or F-1564 if they have the patient's name, medical record number. The runner may also call to the patient's location to acquire the required information or
   b. Immediately dispense products as per the attached job aids using downtime issue process. **The Blood Bank shall never refuse to dispense components or unduly delay an emergency transfusion when the required information cannot be obtained.**
   c. Any time that the patient's caregivers do not provide the required information a hospital safety incident (RL) report or an internal variance report shall be completed.

D. Notification to the Blood Bank of a Request for Uncrossmatched Blood Components

1. The following are acceptable means of notifying the Blood Bank of a request for emergency issue components:
   a. Advance notice by a phone call to the Blood Bank.
      i. If applicable, the Blood Bank staff will obtain the required information and will document the information on the form *Blood Bank Communication Form for Massive Transfusion or Emergency Issue*.
      ii. The Blood Bank will attempt to prepare and dispense the component(s) while the runner is en route to the Blood Bank. Note that even if such communication occurs, the *Requirement for Written Documentation of the Required Information* still applies.
   b. Presenting an *Urgent Request for Blood Product Form (F-1565).* This method is less time effective, as the Blood Bank will have no advance notice of the request.

E. Authorization / Signature for Emergency Issue

Blood Components

1. The clinician's authorization for emergency issue of blood components must be documented by a written signature on the *Urgent Request for Blood Product Form- F1565*. This form may be signed before or after the incident; the signature is not required at the time of issue. The signature of the release must be from the clinical provider (e.g., physician) per CLIA Regulation CFR 606.160.(3)(v) *Emergency release of blood, including signature of requesting physician obtained before or after release.*

F. Plasma Inventory

1. In anticipation of an activation of the massive transfusion protocol or an emergency issue event, the Blood Bank may have an available inventory of thawed plasma.
2. The Blood Bank will maintain an inventory of group A liquid plasma that may be used in certain massive transfusion or emergent situations. Refer to your site specific Transfusion Medicine policy, *Providing Blood Components to Massive Transfusion* for additional information.

G. General ABO and Rh Requirements for Components Dispensed under the Emergency Issue Protocol

1. In general:
    a. RBCs dispensed under the emergency issue protocol should be type O negative. Type O Positive RBCs may be used at the discretion of the Medical Director due to inventory management.
    b. Plasma dispensed under the emergency issue protocol should be AB except if plasma is emergency issued as part of a massive transfusion protocol where group A liquid plasma may be used instead of group AB thawed plasma. Group A thawed plasma may be used at the discretion of the Medical Director due to inventory management.
    c. Platelet components should be Rh negative, if possible. See the section *Transfusion of Rh Components that are not Rh Compatible*, below.
    d. More specific guidelines account for inventory concerns, the age and sex of the patient, the degree of completed/required compatibility testing, the kind of component requested, etc. These guidelines are located in the following attachments:
        i. *Job Aid: Appropriate ABO and Rh of Emergency Issue RBCs*
        ii. *Job Aid: Appropriate ABO and Rh of Emergency Issue Platelets, Plasma, and Cryoprecipitate*

H. Transfusion of Components that are not Rh Compatible

1. The Blood Bank will attempt to dispense RBC and platelet components that are Rh compatible. However, if RBC or platelet components that are not Rh compatible must be dispensed, then the patient's physician must be notified after the event if the patient is:
    a. a female 50 years old or younger, or
    b. a male 18 years old or younger.
    c. In this case, then the technologist shall:

i. Submit an internal variance.

ii. Suggest the use of WinRho or Rh Immune Globulin by contacting the patient's caregiver. Note: 1 dose of WinRho / Rh Immune Globulin will cover 7 units of Rh positive pheresis or pooled platelets products or 14 days, whichever comes first.

I. Use of Coolers

1. In many cases, components dispensed under the emergency issue protocol will be dispensed in coolers. The policies of site specific Transfusion Medicine policy, *Transporting Blood Components in a Cooler* apply during an emergency issue event.

J. Post-Issue Crossmatch

1. The Blood Bank is required to document the completion of compatibility testing for all units that were uncrossmatched at the time of issue. Note that the term is post-issue, not post-transfusion.
2. The post-issue crossmatch must be performed regardless of whether the unit was transfused or returned to the Blood Bank. It should be performed as soon as possible.
3. A serologic post-issue crossmatch must be performed for the first 12 RBC units issued under the massive transfusion protocol as described in your sites Transfusion Medicine policy, *Providing Blood Components for Massive Transfusion.*
4. It is not necessary to perform a post-issue crossmatch for units dispensed after the first 12 under the massive transfusion protocol, unless the patient has a historical or current indication of unexpected antibodies. In these cases, post-issue gel crossmatches must be performed on every RBC that is emergency issued, if possible.
5. All post-issue crossmatches are documented in the Blood Bank computer as described in the Blood Bank CDM, *Post Issue Crossmatch.*

K. Unable to Obtain a Sample

1. If unable to obtain a Blood Bank sample for compatibility testing (e.g., patient expired), then the compatibility testing / post-issue crossmatch may be performed using a CBC sample. If a sample cannot be obtained after the emergency issue, then an internal variance should be submitted.
2. If unable to obtain a sample for compatibility, and products have been emergency issued, the requested crossmatches may be canceled. Do not cancel any requested tests (e.g., the Type & Screen) until it has been reviewed by the Supervisor, Lead Technologist or Medical Director. Canceling tests prior to this may cause the transfused products and Medical Director consult to not interface to EPIC properly.

L. Incompatible Post-Issue Crossmatches

1. Incompatible crossmatches are investigated as described in Transfusion Medicine policy, *Investigation of Incompatible Crossmatches.*
2. If an incompatibility is discovered on completion of a post-issue crossmatch, the responsible physician must be notified in as soon as possible.
3. The Blood Bank Medical Director or other Blood Bank pathologist or fellow should be consulted immediately in the following cases:
    a. If the cause of an incompatible post-issue crossmatch cannot be determined.

b. If the investigation reveals that the patient who has a clinically significant antibody received red cells that are positive for the antigen corresponding to the clinically significant antibody.

M. Post-Issue Crossmatches for Neonates

1. Post-issue crossmatches are performed (or cancelled) as described below. Refer also to the Blood Bank CDM, *Recouping Data from a Downtime Emergency Issue to a Baby who was not yet Assigned a MRN (Medical Record Number).*
2. If there are no maternal / neonatal antibodies, then a serologic crossmatch is not required post-issue. The crossmatch that reflexes in Soft may be canceled.
3. If the neonate's ABO/Rh must be interpreted as GND (group not determined) or RND (Rh not determined), then a serologic crossmatch is not required post-issue as long as group O, Rh compatible (Rh negative for RND patients) RBCs were emergency issued. The crossmatch that reflexes in Soft may be canceled.
4. If there are maternal or neonatal antibodies, then serologic crossmatches are performed as described in Transfusion Medicine policy, *Newborn Compatibility Testing Guidelines*. The crossmatch should automatically reflex in Soft.

N. Special Messages and Transfusion Requirements

1. The Blood Bank will attempt to supply components that meet patients' special messages / transfusion requirements.
2. The first priority, however, will be to dispense components expeditiously; it may not always be possible to dispense components that meet the patient's special messages / transfusion requirements.
3. The Blood Bank will attempt to notify the requesting physician, if appropriate; this notification shall be documented in a variance. For example:
    a. A request for emergency issue RBCs is received for a patient with clinically significant antibodies. Antigen negative RBCs are unavailable. The Blood Bank notifies the requesting physician, and RBCs that are not tested for the applicable antigen are dispensed.
    b. A request for emergency issue RBCs is received for a patient with a special message for irradiated components. The Blood Bank may dispense non-irradiated RBCs if irradiated RBCs are unavailable.
    c. Note: *SoftBank will not warn you when emergency issuing non-irradiated components to a patient with the irradiated components required special message. The patient's caution window should be reviewed for this special message prior to product dispense.*
    d. Royal Oak Only: The first 3 emergency issue RBCs will be irradiated. Non-irradiated products can be issued only if it is verified in the SoftBank caution window that the patient does not require irradiation. This must be documented (e.g. NO IRR) on the blood release form at the time of issue. All emergency issue RBCs will be reviewed for proper irradiation status.

VI. PROCEDURE:

A. Upon notification, obtain the following required information:
    1. Patient name
    2. Medical record number (MRN)

3. Wristband number
4. Number and kind of components request

   Note: this information will usually be presented on the *Urgent Request for Blood Product Form (F-1565)* and can also be documented on the Blood Bank Communication for Massive Transfusion or Emergency Issue form. See policy C. *Extenuating Circumstances / Unable to Obtain the Required Information.*

B. Review the caution window for any special transfusion requirements for the patient.

C. Determine the appropriate ABO and Rh for the requested components.

   1. Packed RBCs.
      a. If there is a current sample with confirmed blood type, negative antibody screen and history of no antibodies, give type specific blood.
      b. If there is a current sample with confirmed blood type, antibody screen is not yet complete, do not wait to complete the current antibody screen, give type specific or ABO/Rh compatible blood.
      c. If no current sample or ABO/Rh testing is not complete on current sample, then group O RBC must be used. Rh Negative units must be used for women less than 50 years of age and males less than 18 years of age. If the sex of the patient is unknown Group O Negative blood must be used.
   2. Plasma
      a. If there is a confirmed blood type from the current admission available review available thawed plasma inventory and tag any appropriate ABO-plasma compatible units. If no current blood type on file, then Group AB plasma must be used. A sample should be obtained as soon as possible and type specific plasma may be issued once the blood type is complete.
   3. Platelets
      a. If there is a confirmed blood type from the current admission available review platelet inventory and tag any appropriate ABO-plasma compatible units if available. In emergency situations and when no current blood type is available any ABO units may be dispensed (Group O is least preferred). A sample should be obtained as soon as possible and type specific platelets should be issued if possible. Rh Negative units must be used for women less than 50 years of age and males less than 18 years of age if available. Refer to policy H. *Transfusion of Components that are not Rh Compatible.*

D. Cryoprecipitate

   1. If there is a confirmed blood type from the current admission available review inventory, thaw and tag any appropriate ABO-plasma compatible units if available. In emergency situations and when no current blood type is available any ABO units may be dispensed (Group O is least preferred). A sample should be obtained as soon as possible.

      Refer to attachments, *Job Aid: Appropriate ABO and Rh of Emergency Issue RBCs* and *Job Aid: Appropriate ABO and Rh of Emergency Issue Platelets, Plasma, and Cryoprecipitate.*

E. In the Blood Bank computer, select components of the appropriate ABO and Rh and generate transfusion record with integrated crossmatch tag. If necessary component tags may be prepared manually.

If necessary, refer to the Blood Bank CDM - Emergency Issue

F. Attach crossmatch tags to the component(s).

G. Attach the *Emergency Blood* Tag or *Uncrossmatched Label* to the component to signify that compatibility testing was not completed at the time of dispense.

H. For RBCs, remove two segments and attach a sticker with the donor unit number to the segments. These segments will be used to perform post issue crossmatches; Refer to Transfusion Medicine policy; Serological Crossmatching of Red Blood Cells.

I. Dispense components in the Blood Bank computer if not already dispensed. If necessary refer to Transfusion Medicine policy, Dispensing Blood Products.

J. The runner picking up blood should have a completed *Urgent Request for Blood Product Form (F-1565).*

1. If the runner does not have the appropriate documentation, the technologist will weigh the amount of time needed to obtain all of the required information.
    a. If time permits have the runner complete the *Urgent Request for Blood Product Form* (F-1565) with the patient's name, medical record number, ID Band# and the name of the requesting physician. They can call the unit to obtain the information or
    b. Immediately dispense products as per the attached job aids using downtime issue process.

    The Blood Bank shall never refuse to dispense components or unduly delay an emergency transfusion when the required information cannot be obtained.

    c. Any time that the patient's caregivers do not provide the required information a hospital safety incident (RL) report or an internal variance report shall be completed.
2. Complete Section 6 of the form with the date /time and the identification of the technologist dispensing the units.
3. Confirm whether the form has been signed by the individual authorizing the emergency issue in Section 5 of the form. If the form is not signed return the top 2 copies (white/yellow) of the form with the runner for signature. See *Authorization Signature for Emergency Issue Blood Components*.
4. Retain dispense copy with the Blood Bank copy of the record of transfusion.

K. As soon as possible, complete the type and screen and perform an immediate spin crossmatch on all RBCs. Perform a full crossmatch if indicated. Refer to *Post-Issue Crossmatch* in the Transfusion Medicine policy, Serological Crossmatching of Red Blood Cells.

L. If incompatibility is detected at any stage of the testing, immediately notify the patient's physician and the Blood Bank Medical Director or other Blood Bank pathologist or fellow.

VII. REFERENCES:

1. AABB, *Technical Manual*, current edition.

Attachments

Appropriate ABO and Rh of Emergency Issue Plasma, Platelets and Cryoprecipitate Job Aid
Appropriate ABO and Rh of Emergency Issue RBC Job Aid

Approval Signatures

Step Description	Approver	Date
	Jeremy Powers: Chief, Pathology	2/3/2022
	Ann Marie Blenc: System Med Dir, Hematopath	2/1/2022
	Vaishali Pansare: Chief, Pathology	2/1/2022
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	Ryan Johnson: OUWB Clinical Faculty	2/1/2022
	John Pui: Chief, Pathology	2/1/2022
Policy and Forms Steering Committe (if needed)	Kelly Sartor: Supv, Laboratory	2/1/2022
Policy and Forms Steering Committe (if needed)	Gail Juleff: Project Mgr Policy	2/1/2022
	Craig Fletcher: System Med Dir, Blood Bank	2/1/2022
	Michael Rasmussen: Supv, Laboratory	1/26/2022
	Rebecca Thompson: Medical Technologist Lead	1/25/2022
	Karrie Torgerson: Supv, Laboratory	1/24/2022
	Brooke Klapatch: Medical Technologist	1/21/2022
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	Teresa Lovins: Supv, Laboratory	1/21/2022
	Kelly Sartor: Supv, Laboratory	1/20/2022
	Kelly Sartor: Supv, Laboratory	1/20/2022

Applicability

Dearborn, Farmington Hills, Grosse Pointe, Royal Oak, Taylor, Trenton, Troy, Wayne