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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. **BBIS:** Blood Bank Information System

B. **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.

C. **CRYO**: Abbreviation for Cryoprecipitate.

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

E. ERS: hospital event reporting system (RL Datix) where clinical and operational processes impacting patient care and general safety concerns are reported.

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

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

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

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

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

K. **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.

L. **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.

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

N. **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

O. **Emergency issue**: An urgent need for transfusion in which the attending physician determines that blood components must be dispensed/transfused prior to completion of required compatibility testing

P. **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.

Q. **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*.

R. **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.

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

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

U. **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 Written Documentation of Information

1. The blood bank requires the following information to dispense blood components under the emergency issue protocol:
    a. Patient's name.
    b. Medical record number (MRN).
    c. Number and kind of components requested.
    d. Patient wristband number (required for type specific blood products)
    e. Name of authorizing/requesting physician
2. 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. A patient sticker affixed to *the Blood Component Pickup Tag (X23480)* is usually used for this purpose but a dispense form electronically generated out of the Electronic Health Record (EPIC) can also be used.



## B. Authorization / Signature for Emergency Issue Blood Components

1. Written authorization for emergency issue of blood components is required on either *The Blood Component Pickup Tag (X23480) or in the designated section on the Electronic Dispense form generated from Epic*.
2. Verbal orders for blood are acceptable, provided that a signed release form is submitted; preferably within 24 hours of the verbal order.
3. The signature of the release must be from the patient's physician or a designated mid-level provider (e.g., physician, nurse practitioner, physician assistant ) per CLIA Regulation CFR 606.160.(3)(v) *Emergency release of blood, including signature of requesting physician obtained before or after release.*

## C. 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 Phone Notification 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 does occur, a blood dispense form with the required patient information is required to release the blood.

b. Presenting *The Blood Component Pickup Tag (X23480)* and *or Electronic Dispense form for blood.*
c. An order for up to 2 Emergent RBC and/or Plasma products is available in the HIS .

Option b and c are not preferred as both of these methods are less effective since the Blood Bank will have no advance notice of the request.

# D. Extenuating Circumstances / Unable to Provide Required Information



1. Extenuating circumstances may prevent the patient's caregivers from presenting the required information to the Blood Bank. In this case, **The Blood Bank shall never refuse to dispense components or unduly delay an emergency transfusion when the required information cannot be obtained**
2. 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. If the runner presents with only a patient label the runner can affix the label to t*he Blood Component Pickup Tag*
        ii. The runner may complete the tag with the patient's name, medical record number if that information is available. 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.
    c. Any time that the patient's caregivers do not provide the required information a hospital ERS or an internal variance report shall be completed.

# E. 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 may maintain an inventory of group A liquid plasma that may be used in certain massive transfusion. Refer to your site specific Transfusion Medicine policy, *Providing Blood Components to Massive Transfusion* for additional information.

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

1. If red blood cell products are requested:
    a. If a current blood specimen is available type-specific blood may be issued.
    b. If a blood specimen is not yet available or time does not permit typing, O negative packed cells will be issued to female patients less than 50 years old and male patients less than 15 years of age. O positive packed cells will be issued to all other patients.

    Refer to attached *Job Aid: Appropriate ABO and Rh of Emergency Issue RBCs* for specific guidelines for inventory concerns, degree of compatibility testing etc.
2. If plasma products are requested:
    a. Issue ABO type compatible plasma if blood type is known and time allows based on inventory availability.
    b. Group AB plasma is preferred when patient blood type is unknown.
    c. If AB plasma inventory is limited, group A plasma may be used as long as patient blood type is not known to be Group B or AB.
    d. If plasma is emergency issued as part of a massive transfusion protocol, group A liquid plasma may be used instead of group A or AB thawed plasma. Refer to site specific Transfusion Medicine policy, *Providing Blood Components in Massive Transfusion* policies.

    Refer to attached *Job Aid: Appropriate ABO and Rh of Emergency Issue Platelets, Plasma, and Cryoprecipitate* for specific guidelines based on inventory availability, age and sex of the patient, etc.
3. If platelet or cryoprecipitate products are requested then the age specific and inventory concern guidelines found in the attached *Job Aid: Appropriate ABO and Rh of Emergency Issue Platelets, Plasma, and Cryoprecipitate are* followed.
    a. If there is a confirmed blood type from the current admission available, tag any appropriate ABO-plasma compatible units if available.
    b. If there is no current blood type available any ABO units may be dispensed (Group O is least preferred).
    c. Rh Negative platelets must be used for women less than 50 years of age and males

less than 15 years of age if available.

# G. Rh Positive Blood to Rh Negative Patients

1. The Blood Bank will attempt to dispense RBC and platelet components that are Rh compatible.
2. However, Rh positive blood may occasionally be issued to Rh negative patients in situations where a substantial amount of blood is expected to be used and Rh negative blood compatible with the patient's type is not available or is in such limited supply that, in the judgment of the Blood Bank director or pathologist on call, further use of Rh negative blood would jeopardize the availability of such blood to patients at greater risk of Rh sensitization (such as females of childbearing potential).
3. If RBC or platelet components that are not Rh compatible must be dispensed, then the technologist must submit a internal variance for follow up by the Medical Director.
4. If a platelet component that is not Rh compatible must be dispensed to a female patient 50 years or younger with child bearing potential or a male 15 years old or younger than the technologist shall also:
    a. Suggest the use of Rh Immune Globulin by contacting the patient's caregiver. Note: 1 dose of Rh Immune Globulin will cover 7 units of Rh positive pheresis or pooled platelets products or 14 days, whichever comes first.
5. Any questions from physicians or nursing concerning use of Rh positive blood on known Rh negative patients should be referred to the Blood Bank director or pathologist on call.



# H. 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.

# I. Post-Issue Crossmatch

1. Post issue crossmatches must be performed as soon as possible.
2. The Blood Bank is required to document the completion of compatibility testing for all units that were uncrossmatched at the time of issue and transfused to the patient.
3. A serologic post-issue crossmatch must be performed for the first 12 RBC units issued under the massive transfusion protocol as described in site specific 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 BBIS as described in the Blood Bank Transfusion Medicine policy, SafeTrace (Blood Bank) Application.

6. Post Issue crossmatches should not be ordered unless there is an available specimen in hand.

# J. Unable to Obtain a Sample

1. If a blood bank sample is not received for compatibility testing (e.g., patient expired), then it is the compatibility testing / post-issue crossmatch may be performed using a CBC sample. If a sample cannot be obtained after the emergency issue, then post issue crossmatches should not be ordered and an internal variance should be submitted.

# K. 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.



# L. Post-Issue Crossmatches for Neonates

1. Post-issue crossmatches are not required unless there is history of maternal or neonatal antibodies.
    a. If there are no maternal / neonatal antibodies, then a serologic crossmatch is not required post-issue. The NEO crossmatch is added to the crossmatch order that reflexes in the BBIS.
    b. If there are maternal or neonatal antibodies, then both immediate spin and AHG crossmatches are performed as described in Transfusion Medicine policy, Newborn Compatibility Testing Guidelines.

# M. 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.

# VI. PROCEDURE:

A. Upon phone notification or electronic order for Emergent Blood Products, obtain the following required information and complete the *Blood Bank Communication for Massive Transfusion or Emergency Issue Form (attached):*

1. Patient name
2. Medical record number (MRN)
3. Number and kind of components request
4. Patient wristband (if available)
5. Name of Authorizing Physician

Note: The patient wrist band is preferred but not required to release blood product. If patient wristband is not available proceed as if the patient blood type is not on file and issue Group O products.

B. Access the BBIS and search the patient history

1. Review the patient at a glance bar to determine the status of any current specimen/ compatibility testing.
2. Determine if there are 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 15 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 blood type available, review available thawed plasma inventory and tag any appropriate ABO-plasma compatible units. If necessary immediately begin thawing products.
    b. In emergency situations when no current blood type is on file, then issue

Group AB plasma. If AB plasma inventory is limited, group A thawed plasma may be used.

c. Liquid Plasma should be utilized only in accordance with the Transfusion Medicine policy, *Providing Components for Massive Transfusion.*

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 15 years of age if available. Refer to policy G. *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. If compatibility testing is complete, select and issue components of the appropriate ABO and Rh in the BBIS using standard selection of blood product and issue procedures. Refer to Transfusion Medicine Policy, Safetrace (Blood Bank Application) Procedure.

F. If compatibility testing is not yet complete select components of the appropriate ABO and Rh and generate product transfusion tags (PTAGS) in the BBIS using the Emergency Issue function. Refer to Transfusion Medicine Policy, Safetrace (Blood Bank Application) Procedure.

1. Attach PTAGs to the component(s).
2. Attach the *Emergency Blood* Tag or *Uncrossmatched Label* to the component to signify that compatibility testing was not completed at the time of dispense.
3. 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.

G. The runner picking up blood should have a completed *The Blood Component Pickup Tag (X23480)* or an electronic generated dispense form.

1. If the runner presents with only a patient label or no information provide the the runner with a *Blood Component Pickup Tag* (X23480) and request the runner complete the required information. If time permits the runner should call to the

patient's location to acquire any missing information.

a. If wristband information is missing or in disagreement with current specimens investigate if time permits

b. If there is no time to obtain required information proceed to issue products as if there is no blood type on filed for for the patient. Immediately dispense products using Transfusion Medicine Policy, Downtime Emergency Issue Procedure.

H. Complete the form with the date /time and the identification of the technologist dispensing the units.

I. Confirm whether the form has been signed by the individual authorizing the emergency issue. If the form is not signed return the form with the runner for signature.

J. Request person picking up blood to read patient's name and medical record number from pick-up slip.

K. Complete the product dispense and attach the paper copy of the transfusion tag to the *Blood Bank Communication for Massive Transfusion or Emergency Issue Form* and the signed *Blood/ Component Pick up Slip* (if not returned to the unit for signature).

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

M. Request person picking up blood to read patient's name and medical record number from pick-up slip. Hand out unit(s).

N. 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.

O. 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 on call.



# VII. REFERENCES:

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

## Attachments

Appropriate ABO and Rh of Emergency Issue Plasma, Platelets and Cryoprecipitate Job Aid (rev. 08/08/2024)

Appropriate ABO and Rh of Emergency Issue RBC Job Aid (rev. 08/08/2024)

## Approval Signatures

| Step Description | Approver | Date |
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## Applicability

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