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Downtime Emergency Issue - Blood Bank

Document Type: Procedure

I. PURPOSE AND OBJECTIVE:

This document will provide the Blood Bank staff with policies and procedures for dispensing components before a patient's compatibility testing is complete, without the use of the Blood Bank computer.

II. INTRODUCTION:

A. If the Blood Bank is unable to rapidly issue blood via the standard Emergency Issue or Massive Transfusion Protocol for any reason (i.e. power outage, computer issues, etc.) the Blood Bank will physically dispense blood components using this downtime procedure.

B. Red Blood Cells (RBCs) collected from group O, Rh negative donors (O negative), considered to be universal donors, will be used when RBCs are needed urgently.

C. Thawed plasma collected from group AB donors, considered to be universal donors, will be used when plasma is needed urgently.

1. The Blood Bank will keep the following supply of O negative RBCs and AB thawed plasma ready for immediate issue:

a. A minimum of two (2) O negative units in the Downtime RBC Emergency Issue Bucket, intended for adult

b. A minimum of two (2) AB thawed plasma units in the Downtime Plasma Emergency Issue Bucket, intended for adult, pediatric or neonatal transfusion

D. One (1) neonatal unit in the Neonatal Downtime Emergency Issue Bucket

E. The O negative RBCs will be prepared in advance with an attached, partially completed crossmatch tag (F-1566, Record of Transfusion) as per the *Advance Preparation of O Negative Units for the Downtime Emergency Issue Protocol below*. This will allow the Blood Bank to rapidly document the patient's information at the time of dispense, as described in the *Physical Dispense of O Negative RBCs for the Downtime Emergency Issue Protocol*.

III. SCOPE:

A. The policies and procedures in this document shall only be applied when:

1. the Blood Bank computer is unavailable, for any reason, and components are requested in an emergency.
2. the Blood Bank staff determines that taking the time required to dispense components in the Blood Bank computer would be detrimental to the patient.

IV. DEFINITIONS/ACRONYMS:

A. **Universal Donor**: A donor who is group O, Rh negative, whose RBCs can be transfused to most blood types.

B. **CDM**: Computer Documentation Manual, computer documentation work flow.

C. **Standard Neonatal RBC Unit:** An RBC unit intended for neonatal transfusion meeting the following minimal requirements:

1. Group O
2. Rh compatible with the neonate (must be Rh negative for the Downtime Emergency Issue protocol)
3. Leukocyte Reduced
4. CMV negative
5. Hemoglobin S (sickle cell) negative
6. Irradiated
7. Fresh

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

E. **Rh compatible component**: A component of the following specificity:

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

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

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

V. SPECIMEN COLLECTION AND HANDLING:

A 6 ml EDTA sample labeled in accordance with Transfusion Medicine policy, Triaging and Identifying Acceptable Samples for Testing is preferred to be collected but not required before the issue of Emergency Issue products.

VI. EQUIPMENT:

A. Cooler packed with coolants

B. Downtime Emergency Issue Buckets

C. Tach It Gun/Plastic fasteners

VII. POLICIES:

The downtime emergency issue protocol contains elements of both an emergency issue event and a Blood Bank computer downtime. As such the following policies from Transfusion Medicine policies, Emergency Issue of Blood Products and Manual Operations when the Blood Bank Computer System is Unavailable apply.

A. Required Information

1. The Blood Bank requires the following information to set up and dispense blood components under the downtime emergency issue protocol:
2. Patient's name.
3. Medical record number (MRN).
4. Wrist band number.
5. 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 the *Urgent Request for Blood Form* 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.
3. 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.

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 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.

D. 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.*

E. Plasma Inventory

1. In anticipation of an activation of the massive transfusion protocol or an emergency issue event, the Blood Bank will 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.

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

1. RBCs dispensed under the downtime emergency issue protocol must be type O negative.
2. Plasma dispensed under the downtime emergency issue protocol must 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.
3. Platelet components dispensed under the downtime emergency issue protocol should be:

a. Neonates and pediatric patients <12 years:
    i. Group AB if available. If group AB is unavailable, then any group, but group O is least preferred
    ii. Rh Negative if available
b. Adults:
    i. Any ABO group, but group O is least preferred.
    ii. Platelets should be Rh Negative for females 50 years old or less

4. Cryoprecipitate components dispensed under the downtime emergency issue protocol should be:
    a. Neonates and pediatric patients <12 years: Group AB if available. If group AB is unavailable, then any group, but group O is least preferred.
    b. Adults: Any ABO group, but group O is least preferred.

    Refer to attached JOB AIDS: *Appropriate ABO and Rh of Emergency Issue RBCs* and *Appropriate ABO and Rh of Emergency Issue Platelets, Plasma, or Cryoprecipitate* for a summary of requirements.

G. Initiation of the Downtime Emergency Issue Protocol

1. The Blood Bank technologist, and not the patient's caregiver, has the discretion to initiate this protocol. In making this decision, the technologist may assess the following information:
    a. information provided by the patient's caregiver,
    b. the availability of the Blood Bank computer,
    c. the degree of required compatibility testing that is incomplete.

H. Expiration Dates of the Units Used for the Downtime Emergency Issue Protocol

1. On a daily basis, the day shift shift will verify that the O negative units in the *Downtime Emergency Issue Bucket* do not expire within the next 10 days and will replace these units if they do expire within 10 days.
2. On a daily basis, the day shift will replace the O negative standard neonatal RBC unit for the *Neonatal Downtime Emergency Bucket*. The freshest available unit will be placed in this bucket. Refer to procedure, *Advance Preparation of O Negative Units for the Downtime Emergency Issue Protocol*.

I. Polices for the Emergency Issue of products for Neonates and Unborn Fetuses

1. Standard downtime procedures apply to the emergency request of blood components for neonates or unborn fetuses.

2. Babies who are not yet born are typically not assigned an MRN (Medical Record Number) until the time of delivery. If blood products are needed for the baby before the birth, the products are issued using downtime crossmatch tags to the mother, stating the name on the crossmatch tag as "Baby of" then mother's name. After the birth and after an MRN has been assigned, all data must be recouped in the Blood Bank computer system. Refer to Blood Bank CDM - Recouping Data from a Downtime Emergency Issue to a Baby who was not yet Assigned a Medical Record Number.
3. During a downtime emergency issue, components will not be aliquoted in bags or syringes. The patient's caregivers will determine the volume to infuse from the entire component.

J. Computer Downtime Dispense and Recovery

1. A *Record of Transfusion, F-1566* (crossmatch tag) form must be documented and affixed to all components dispensed during a computer downtime. For additional information, refer to Transfusion Medicine policy, *Tagging Blood Components*.
2. When the Blood Bank computer system's functionality is restored, all data that was documented on downtime forms must be recouped into the system.
3. For all components issued during the computer downtime, the unit's face label will be photocopied. The patient's name and MRN will be documented to this copy using a HIS (Hospital Information System) label if available, or by handwriting this information (if a HIS label is not available).
   This copy will be stapled to the *Urgent Request for Blood Products* F-1565 form and to the eventual recovered Blood Bank copy of the *Record of Transfusion*.

K. Dispensing O Negative RBCs for the Downtime Emergency Issue Protocol to Multiple Neonates at Once

1. If multiple downtime emergency issue neonate O negative units are needed at the same time (i.e. for twins), additional neonate O negative units must be acquired and prepared as described in the *Procedure* of this policy.
2. Each neonate must have a separate unit of RBCs with an individual *Record of Transfusion* attached.
3. The *Record of Transfusion* for each neonate's RBC should include an additional identifier (e.g. "Baby A" or "Baby B") to differentiate the intended recipients.

L. Post Issue Crossmatches

1. An appropriate post-issue crossmatch must be performed on RBCs dispensed under this downtime emergency issue protocol. Refer to Transfusion Medicine policy, Serological Crossmatching: Crossmatching Red Blood Cells Post-Issue.

VIII. QUALITY CONTROL (QC):

A. All components must be visually inspected before dispensing to confirm suitability for transfusion. Do not dispense a component if the visual inspection fails. Refer to Transfusion Medicine policy, Visual Inspection of Blood Products. If any component is of questionable purity or quality then the component must not be dispensed and must be placed into quarantine or discarded, as appropriate. Document the occurrence as a variance. See Transfusion Medicine policy, Blood Product - Quarantine or Discard.

B. If the expiration date or time of the component has passed, then the component must not be dispensed and must be discarded.

IX. PROCEDURE:

A. Advance Preparation of O Negative Units for the Downtime Emergency Issue Protocol

Prepare the supply of O negative RBC units for the Downtime Emergency Issue Buckets, as directed in the steps below:

1. Verify that the expiration dates of the adult units in the Downtime Emergency Issue Buckets are acceptable (greater than 10 days from expiration).
    a. If the expiration date is unacceptable, then return the unit to inventory and obtain a suitable replacement unit from the inventory.
    b. Proceed to step 3.
2. Verify that the neonatal unit is freshest (less than 10 days from collection) and that it is confirmed Irradiated and CMV negative.
    a. If the unit is unacceptable then return the unit to general inventory and obtain a suitable replacement unit from inventory.
3. Tag each unit with an UNCROSSMATCHED BLOOD label.
4. Make a copy of the face label of each unit. Attach face label copy directly to the unit with a rubber band.
5. Remove two segments from each unit. Label them with a unit number sticker from the back of the unit and place them into a plastic bag.
6. Obtain a blank *Record of Transfusion* form (F-1566) and document the following for each unit on that unit so that is legible and can not be misinterpreted:
    a. Donor unit number
    b. Donor blood type
    c. Component product code
    d. Component description
7. Document the corresponding laminated plastic blood product tag with the donor unit number,

donor blood type, and component product code.

8. Verify that the information on the both the plastic blood product tag and the paper crossmatch tag (*Record of Transfusion*) match the component face label.
9. Initial the bottom of the *Record of Transfusion* on the line next to the words "Tagged by" .
10. Detach the laminated blood product hang tag that is located on the lower-left part of the *Record of Transfusion*.
11. Attach the laminated transfusion blood product hang tag to the blood component with a tach-it gun or plastic fastener through the hole provided on the plastic blood product hang tag.
12. Fold the paper portion of the *Record of Transformation* form and attach it with a rubber band (along with the photocopy of the unit face label).
13. Return the plastic bag and the unit(s) to the appropriate container, either the *Downtime RBC Emergency Issue Bucket* or the *Neonatal Downtime Emergency Issue Bucket*.

B. Physical Dispense of O Negative RBCs for the Downtime Emergency Issue Protocol

This protocol is initiated at the Blood Bank technologist's discretion when the time required to dispense components in the Blood Bank computer would be detrimental to the patient.

1. Depending on the patient's age,
    a. If the patient is greater than 4 months old, then select the necessary O negative units from the Downtime RBC Emergency Issue Bucket.
    b. If the patient is less than 4 months old, select the necessary O negative unit from the Downtime Neonatal Emergency Issue Bucket.
2. Transcribe the following patient information onto the *Record of Transfusion* that was attached to the unit:
    a. **Patient name** (on the paper section and the plastic product tag section of the Record of Transfusion)
    b. **Patient's MRN** (on the paper section and the plastic product tag section of the Record of Transfusion)
    c. **Patient's wristband number** (if provided document on the paper section of the Record of Transfusion)
    d. **Patient's blood type** (document on paper section of the Record of Transfusion and the plastic product section of the Record of Transfusion only if the ABO/Rh has been performed on the current sample; i.e. the antibody screen is not complete).

        Note: This step may be performed as soon as a phone call is received using the information of *Blood Bank Communication for Massive Transfusion or Emergency Issue*, or when the runner arrives at the Blood Bank if no phone call is received.
3. Visually inspect the units and confirm that the Quality Control requirements above are met.
4. Initial next to the "*Inspected/Issued by*:" section of the tag.

5. In the spaces provided on the *Record of Transfusion*, document the employee number of the person to whom the component was issued, the cooler used, the date and time issued, and the operating room (OR; if applicable) in which the unit is being issued to.
6. Photocopy the *Record of Transfusion* or transcribe all the documented information from steps 3 – 5 onto the face copy of the unit. This should be done immediately if time permits or recouped following the issue of the unit using the information from *Urgent Request for Blood Products Form (F-1565)*.
7. Retain the plastic bag containing the unit segments *Urgent Request for Blood Products* form and the copies of the face labels of the units.
8. Give the unit(s) to the runner.
    a. If applicable refer to site specific Transfusion Medicine policies, *Transporting Blood Components in a Cooler.*
9. Request a specimen and complete compatibility testing as soon as possible, if the patient does not have a current sample.
10. Once the computer is available, update the computer record as follows:
11. Perform the Emergency Issue function in the computer, using the copies of the copies of the unit face labels, the photocopied *Record of Transfusion* (if available) and the *Urgent Request for Blood Products Form.*
12. Perform the appropriate post-issue crossmatches on all issued units, using the segments in the plastic bag. Refer to Transfusion Medicine policy, Serological Crossmatching: Crossmatching Red Blood Cells Post-Issue.
13. When time permits replace the unit(s) in the buckets as described in *Advanced Preparation of O Negative Units for the Downtime Emergency Issue Protocol.*

X. REFERENCES:

1. AABB, *Technical Manual*, current edition.
2. AABB, *Standards for Blood Banks and Transfusion Medicine*, current edition.
3. College of American Pathologists, *Transfusion Medicine Checklist*, current edition.

Attachments

Appropriate ABO and Rh of Emergency Issue RBC Job Aid

Appropriate ABO and Rh of Plasma, Platelets and Cryoprecipitate Job Aid

Approval Signatures

Step Description	Approver	Date

	Jeremy Powers: Chief, Pathology	Pending
	Vaishali Pansare: Chief, Pathology	6/28/2022
	John Pui: Chief, Pathology	6/28/2022
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Policy and Forms Steering Committe (if needed)	Gail Juleff: Project Mgr Policy	6/27/2022
Policy and Forms Steering Committe (if needed)	Kelly Sartor: Supv, Laboratory	6/26/2022
	Teresa Lovins: Supv, Laboratory	6/25/2022
	Karrie Torgerson: Supv, Laboratory	6/24/2022
	Kelly Sartor: Supv, Laboratory	6/24/2022
	Kelly Sartor: Supv, Laboratory	6/24/2022

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JOB AID: Appropriate ABO and Rh of Emergency Issue RBCs

Degree of Compatibility Testing Performed	RBCs shall be:		Notes
	ABO Type	Rh	
Required ABO/Rh testing requirements are **incomplete** for any reason. For example: • no current sample • sample mislabeled • sample received, but not yet tested	O	Negative	• RBCs must be group O. • The first twelve (12) RBCs dispensed should be Rh negative if possible. After 12 units are dispensed, Rh negative RBCs are preferred, but if inventory concerns exist then Rh-positive RBCs may be issued If applicable, see policy, *Transfusion of Components that are not Rh(D) Compatible*. • If a patient has a history of clinically significant antibodies, then antigen negative RBCs should be issued, if available. • Rh(D) positive RBCs may be issued if patient has a history of anti-c (little-c) or anti-e (little-e).
Required ABO/Rh testing requirements are complete, But: • **antibody screen is incomplete**, or • antibody identification, unit antigen typing, or gel crossmatches are incomplete (when indicated)	ABO identical or ABO compatible	Rh(D) identical or Rh(D) compatible	These ABO/Rh-related terms are defined in the *Definitions* section.
All compatibility testing requirements are met	See Transfusion Medicine Policy, *RBC Crossmatch Guidelines;* emergency issue blood components not required.		

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JOB AID: Appropriate ABO and Rh of Emergency Issue Platelets, Plasma, or Cryoprecipitate[1]

Component	Age/sex of Patient	Appropriate ABO and Rh(D) of platelets, plasma, or cryoprecipitate that is dispensed before completion of required compatibility testing	
		ABO	Rh
Plasma	4 months old or greater	Group AB[4]	Any Rh(D) type
	Less than 4 months old	Group AB [2,4]	Any Rh(D) type
Cryo-precipitate	Less than 12 years old	Group AB, if available. If group AB is unavailable, then any group, but group O is least preferred	Any Rh(D) type.
	12 years old or greater	any ABO group	Any Rh(D) type
Platelets (ABO consid-erations)	Less than 12 years	Group AB, if available. If group AB is unavailable, then any group, but group O is least preferred.	See *Platelets- Rh(D) Considerations*, below.
	12 years old or greater	Any ABO group, but group O is least preferred.	
Platelets (Rh consid-erations)	Females 50 years old or less, and males 18 years old or less	See *Platelets- ABO Considerations*, above.	Rh(D) negative, if available [3]
	Females greater than 50 years old and males greater than 18 years old		Rh(D) neg or Rh(D) pos

Notes

1. It is not necessary to consider or to wait for antibody screen results when dispensing platelets, plasma, or cryoprecipitate. Once the patient's required ABO/Rh testing is complete, then platelets, plasma, or cryoprecipitate of the appropriate ABO/Rh may be dispensed.
2. *If possible*, neonates should be transfused with plasma that has been thawed in the 24 hours preceding the time of dispense. For additional information, refer to Transfusion Medicine Policy, *Policies for the Selection of Blood Components for Neonatal transfusion.*
3. If it is necessary to transfuse platelets that are not Rh(D) compatible to an Rh(D) negative female 50 years old or less, or to a male 18 years old or less, then the use of Rh Immune Globulin or WinRho should be considered. See the policy *Transfusion of Components that are not Rh(D) Compatible* in the Transfusion Medicine Policy, *Emergency Issue* for further information.
4. If plasma is emergency issued as part of a massive transfusion protocol, group A liquid plasma may be used instead of group AB thawed plasma. Refer to site specific Transfusion Medicine Policy, *Providing Blood Components to Massive Transfusion* for additional information.