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Blood Bank Mass Casualty Incident Plan - Troy

Document Type: Plan

I. PURPOSE AND OBJECTIVE:

This document provides guidelines for the Blood Bank technologists to follow during a mass casualty incident (MCI) or similar scenario. These guidelines are intended for those situations where the the Blood Bank staff, blood product supply and resources may become limited and the patient demand may become overwhelming.

II. SCOPE:

The scope of this document relates to the Troy Blood Bank's response to a mass casualty incident (MCI) or similar incident which involves a large influx of patients with the potential to overload or strain the Blood Bank.

III. CLINICAL SIGNIFICANCE:

A. GOALS OF THE MASS CASUALTY PLAN:

1. To enlist additional help to effectively manage the MCI.
2. To assess, categorize, and report the blood product inventory to the Emergency Operations Center (EOC).
3. To ensure that appropriate blood products can be located, processed, and administered in a timely manner.
4. To operate effectively under stressed circumstances for a short period of time, usually lasting no longer than 24-48 hours.
5. To prevent unnecessary or redundant work during the MCI.

IV. DEFINITIONS/ACRONYMS:

A. **MCI:** Mass Casualty Incident

B. **Hospital Incident Command System (HICS):** A management group that is formed in response to a variety of emergency situations that could affect the safety of patients, staff, and visitors, or that adversely impact the ability to provide health care services to the community.

C. **Emergency Operations Center (EOC):** The physical location where the Hospital Incident Command System (HICS) convenes.

D. **Designee:** Any Blood Bank technical director, or transfusion medicine fellow.

V. POLICIES:

A. Deviation from Standard Operating Procedures During an MCI

Unless directed in this procedure, Blood Bank staff should make every attempt to adhere to all Corewell Health Blood Bank procedures. If necessary, additional deviations may occur with the approval of the Blood Bank Medical Director or designee.

B. Patient Identification

1. Consistent with Blood Bank policies the patient's name, medical record number (MRN) and wristband number (BT#) must be presented in writing on a dispense form before blood products will be issued. In most cases form F-1566 *Urgent Request for Blood Products* will be used.
2. If the courier arrives without a form, provide a blank form and request the courier to call and obtain the patient identification and to document the form.
3. Specimen collection during an MCI may be difficult and limited. Patients requiring blood products will require emergency issue until an acceptable sample is collected and all necessary compatibility testing is complete.
4. The Blood Bank requires the following information in writing in order to dispense blood products:
    1. Patient’s name
    2. Patient’s medical record number (MRN)
    3. Patient’s wrist band number (“BT” number)
    4. Number and kind of blood products requested

C. Quantities and Requesting Blood Products Issued during an MCI

1. During an MCI, the massive transfusion protocol (MTP) will not automatically apply for every

level I trauma, like it does during normal operations. The reason for this policy is that the Blood Bank would quickly run out of blood products if coolers are automatically provided to all level I trauma cases, some who may not actually need to be transfused.

2. During an MCI, a deviation from standard operating procedure will allow for a runner from the EC to pick up one biohazard bag per patient that contains one unit of properly labeled O negative RBCs. Caregivers must thereafter request the specific quantities needed for transfusion.

D. Yellow Patient Folders with MCI Cover Sheets

1. As the Blood Bank becomes aware of patient identification during an MCI, a yellow folder will be made for each patient. These folders are in the MCI bin above the triage workstation. These folders will be prepared in advance with a blank "MCI cover sheet" and a plastic bag for segments. This cover sheet will be used to document the patient's identification, room number, phone number (i.e., any information that may be useful for this patient).
2. The purpose of these folders is to help organize the paperwork that may quickly accumulate and to help keep track of the coolers for each patient. All paperwork and segments for a given patient will be placed in the patient's folder; e.g., urgent request for blood forms, dispense forms, etc.

E. Prioritization of Patient Testing

1. In a MCI situation, there may be a greater work load than there are technologists, resources, or time. In these cases, priority should be given to patients that have life-threatening needs. Patient's without these life-threatening needs are considered low priority during a MCI, and testing may be postponed if necessary. This information may be provided by the care providers.

F. Patient's Unexpected Antibodies during an MCI

1. During a MCI, there may not be time to perform tasks such as antibody identification, providing antigen negative RBCs, and irradiation of blood products. In this case, for a patient that does have a special requirement, deviation from these requirements may be permitted with Medical Director approval. Notification of the patient's caregiver and documentation of an internal variance should be performed when time permits.

G. ABORh Considerations during an MCI

During an MCI, every attempt should be made to obtain and test Blood Bank samples as soon as possible, so that the patients' blood types can be determined before they are transfused. This will help preserve the O-negative RBC and AB plasma inventory. In the interest of saving time, it may be advantageous to perform manual tube ABORh testing when possible.

1. **Red Blood Cells (RBCs)**
    a. Prior to determining a patient's blood type, group O-negative RBCs should be used. However, the O-negative RBC inventory may quickly become depleted.

b. As soon as the patient's ABORh is determined, RBCs should be ABORh identical, if possible.

c. It may be necessary to switch a Rh-negative patient from receiving Rh-negative RBCs to Rh-positive RBCs (unless the patient has Anti-D) to prevent depletion of the Rh-negative RBC inventory.

i. This switch should be done as a last resort on females 50-years old or less and males 18 years old or less.

2. **Plasma**

a. Prior to determining a patient's blood type, group AB plasma should be used. However, the AB plasma inventory may quickly become depleted so as soon as the patient's ABORh is determined, plasma should be ABO identical, if possible.

b. When the group AB plasma inventory is at risk of depletion it may become necessary to use group A plasma instead of group AB plasma.

i. Note: the computer will not allow for the selection of group A plasma when the patient's blood type is not yet determined, the Record of Dispense form and the crossmatch tags will need to be handwritten in these cases.

ii. An example showing how the crossmatch tags should be documented is in the MCI folder. The issue of these group A plasmas will need to be later recouped in the computer by the supervisor or designee.

3. **Platelets**

a. If possible, issue Rh-negative platelets to Rh-negative females 50-years old or less and males 18 years old or less. It may be necessary to issue Rh-positive platelets to these Rh-negative patients, a variance should be submitted later, when time permits, to ensure that Rh Immune Globulin is administered when appropriate.

4. See Transfusion Medicine policy, Selection of Platelets, Plasma, and Cryoprecipitate for Patients Greater Than Four Months Old.

H. Critical Inventory Levels

1. The Blood Bank will make every possible attempt to obtain additional products well before the following critical levels are reached.

a. When only 5 O-negative RBCs remain in inventory, all undetermined patients may receive O-positive RBCs (except patients with known Anti-D).

b. When only 5 group AB plasmas remain in inventory, all patients with undetermined blood types may receive group A plasma.

c. When only 3 platelets remain in inventory, all platelet orders should be approved by the Blood Bank Medical Director or designee.

I. Blood and Component Deliveries During an MCI

During an MCI, multiple boxes of RBC and blood component deliveries may arrive. If they are not immediately needed, and the Blood Bank does not have time to process the deliveries, the boxes may be

temporarily placed in Hematology's temperature-monitored walk-in refrigerator. The ice bags (including the one on the bottom of the products) should be removed before the boxes are placed in the Hematology refrigerator.

J. Thawing Plasma

The plasma baths should be used to thaw plasma during an MCI, however, they may reach full capacity during the event. If necessary, plasma may be thawed in an emergency white tub as follows. The Blood Bank maintains two emergency tubs for this purpose.

1. Clean the sink located next to the plasma baths with dish detergent. If necessary, the Vision sink may also be cleaned and used to thaw plasma.
2. Obtain an emergency white tub located on the shelf above triage.
3. Remove the calibrated thermometers that are stored in the tub.
4. Place the tub in the sink so that the sink drain is not covered.
5. Place a thermometer in each tub and turn on the hot and the cold water and adjust the flow until the tub is full and the temperature is 36ºC – 37ºC. Do not allow the temperature of the water to exceed 37ºC.
6. After the temperature of the water in the tub is stable, place the frozen plasma in overwraps, and place the plasma in the tub. Set timer for 20 minutes.
7. Check the plasma periodically to make sure that the water that overflows out of the tub is draining correctly out of the sink.
8. Document an internal variance, indicating that the emergency tub was used.

K. Cooler/Coolant

1. If the Blood Bank runs out of coolers or ice bricks during the MCI, then RBC and plasma may be transported using blood supplier boxes and wet ice.
    a. It may be necessary to obtain more small transport boxes from Versiti, Royal Oak or another hospital Blood Bank. The wet ice should be placed in a doubled plastic bag. The amount of wet ice should be equal to or exceed approximately 1/3 volume of products. Wet ice may be obtained from the ice machine, located to the left of the Trash Room.
        i. If the ice machine is unable to keep up with the high demand of ice for coolers, the Blood Bank may seek assistance from other departments for an ice supply (i.e. dietary services, nursing lounges, etc.).
        ii. Dispense of blood products should not be stopped due to lack of Blood Bank coolers or ice. If necessary, RBCs and plasma may be issued without a cooler, even if multiple products are being dispensed at once.
        iii. A variance report should be submitted later, when time permits.

L. Computer Downtime During an MCI

If the Blood Bank computer is not available for any reason, proceed as described in Transfusion Medicine policy, *Manual Operations When the Blood Bank Computer System is Unavailable*.

VI. SPECIMEN COLLECTION AND HANDLING:

Specimen collection during an MCI may be difficult and limited. 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. Patients requiring blood products will require emergency issue until an acceptable specimen is collected and all necessary compatibility testing is complete. Specimens must meet the requirements of Transfusion Medicine policy, *Triaging And Identifying Acceptable Samples For Testing*.

VII. EQUIPMENT/SUPPLIES:

A. Validated or National Institute of Standards and Technology (NIST)-Certified Thermometer
B. Running water
C. Plastic rack
D. Bin
E. Plasma overwrap sleeves
F. Timer
G. Sink
H. Rubber bands
I. Downtime Plasma Thawing Log

VIII. PROCEDURE:

A. Recognition and Assessment

1. The Emergency Center (EC) is notified of an incident and potential incoming patients that may result in a sudden influx of a large number of patients.
    a. Notification may be from Police, Fire, Emergency Medical Services (EMS), Region 2 North HCC, Oakland County Emergency Management, Hospital Security or Administration or others. Personnel may also be notified via patients arriving in the facility.
2. Upon notification on a mass casualty incident (MCI), obtain the attachment *Blood Bank Report for a Mass Casualty Incident (MCI).*
3. Notify the Blood Bank Medical Director and Supervisor immediately.
4. Assess current Blood Bank staffing levels.
    a. Use the Employee Call List found in the red Diaster folder located next to the "clean"

sink to call in additional technologists if needed.

5. Obtain the most recent Blood Bank Current Inventory – Troy report.
    a. If the most recent Blood Bank Current Inventory – Troy report cannot be located, or it is believed that the most recent report is not accurate anymore due to the length of time elapsed since it last printed, a new Blood Bank Current Inventory – Troy report can be printed using the attachment *Printing Blood Bank Current Inventory Report*.
    b. Using the Blood Bank Current Inventory – Troy report, document the number of products for each blood product listed on the Blood Bank Report for a Mass Casualty Incident (MCI).
6. Notify our blood suppliers of the MCI occurring at Corewell Troy and request additional blood products in order to bring the inventory of each product into the desired inventory level. Refer to Transfusion Medicine Policies, Inventory and Ordering Blood Products from Established Suppliers for more information.
    a. If Versiti Michigan cannot provide the required number of blood products, it may be necessary to contact other hospitals in the area (both internal and external to Corewell Health) as well as the American Red Cross for additional blood products.
    b. In some cases, blood products may be requested from the Royal Oak (RO) and/or Dearborn (DBN) Blood Bank during an MCI. However, when requesting blood products from please consider that other hospitals may also be involved in the same MCI and that some Troy patients may later be transferred to RO or Dearborn hospitals.
7. Security should be notified at 248-964-0911 of any incoming taxis or couriers that may be delivering blood products to limit potential problems upon arrival.
8. Place the *Blood Bank Report for a Mass Casualty Incident (MCI)* on the Communication Bench. This will be used as reference for inventory levels and situation updates if the EOC contacts the Blood Bank.
9. Obtain the MCI bin, located above the triage workstation.
10. Retrieve and MCI radio from the EOC and turn it on to the correct channel.

B. Preparation of Additional Plasma Thawing System

1. During a mass casualty incident, thawing plasma will be one of the limiting factors of efficiently dispensing blood products. In order to maximize the Blood Bank's thawing potential, a manual thawing system may be set up.
    a. Place the bin in the sink with the water running.
    b. Place the validated thermometer in the bin under the running water.
    c. Take the temperature of the water. When the water reaches the temperature of 30°C, the bin is ready to defrost plasma. The temperature range is 30-37°C, no hotter.
    d. Obtain a Downtime Plasma Thawing log from the downtime forms file.
    e. Record on the Downtime Plasma Thawing log:
        i. Date

ii. Validated thermometer Serial Number

iii. For each batch:

1. Temperature
2. Unit number
3. Time in
4. Time out

f. Place the frozen plasma and slide into a plasma overwrap sleeve. Use a rubber band to close the bag to prevent water entering the sleeve.

g. Place the frozen plasma into the bin under the running water. To avoid the plasma from floating, place a plastic rack upon the plasma to submerged them but still be under the “agitating” water.

h. Set the timer for 30 minutes, taking the temperature intermittently to monitor that the temperature does not go above 37°C.

i. If temperature is below 30°C, remove product from the water bath.

ii. increase the hot water to stabilize the bath water temperature to 30-37°C and then return product to the water bath to continue thawing once water temperature has stabilized.

iii. If temperature is above 37°C, remove product from the water bath until water temperature is below 37°C.

iv. Increase the cold water to stabilize the bath water temperature to 30-37°C and then return product to the water bath to continue thawing once water temperature has stabilized.

i. When the 30 minute timer alarms, check the plasma.

i. If the plasma is completely thawed, remove it and perform the product modification in the blood bank computer system. If the system is unavailable label the product with the appropriate International Standards Blood Transfusion (ISBT) downtime labels. Refer to Transfusion Medicine Policy, Thawing Fresh Frozen Plasma and Cryoprecipitate.

ii. If the plasma is partially frozen, return it to the water bath and set the timer for 10 minutes.

j. Continue until plasma is completely thawed and the product can be modified in the Blood Bank computer system. If the system is unavailable label the product with the appropriate ISBT downtime label. Refer to Transfusion Medicine Policy, Thawing Fresh Frozen Plasma and Cryoprecipitate.

k. When the thawing process is over and the downtime log is no longer needed, submit form to review for supervisor review.

IX. REFERENCES:

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

2. AABB, *Standards for Blood Banks and Transfusion Services*, current edition.

Attachments

Downtime Thawing Log.pdf

MCI Cover Sheet.pdf

Approval Signatures

Step Description	Approver	Date
	Masood Siddiqui: Staff Pathologist	5/23/2024
	Ryan Johnson: OUWB Clinical Faculty	5/21/2024
Policy and Forms Steering Committe (if needed)	Teresa Lovins: Supv, Laboratory	5/16/2024
	Teresa Lovins: Supv, Laboratory	5/16/2024

Applicability

Troy