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Blood Bank Mass Casualty Incident (MCI) Plan- Royal Oak

Document Type: Plan

I. PURPOSE AND OBJECTIVE:

The purpose of this document is to provide guidelines for the Blood Bank technologist during a mass casualty incident (MCI) or similar scenario. In these situations, the supply of blood products and resources may become limited, and the patient demand may become overwhelming.

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II. SCOPE:

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

B. For emergency situations that are internal to Beaumont, or specific to the Blood Bank, refer to site Transfusion Medicine policy, Blood Bank Emergency Management Plan- Royal Oak.

III. GOALS OF THE MASS CASUALTY INCIDENT PLAN:

A. To enlist additional help to effectively manage the MCI.

B. To assess, categorize, and report the blood product inventory to the Emergency Operations Center (EOC).

C. To ensure that appropriate blood products can be located, processed, and administered in a timely manner.

D. To operate effectively under stressed circumstances for a short period of time, usually lasting no longer than 24-48 hours.

E. To prevent unnecessary or redundant work during the MCI.

IV. DEFINITIONS/ACRONYMS:

A. **Designee:** Blood Bank Associate Medical Director, Blood Bank Fellow.

B. **HICS: Hospital Incident Command System,** 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 healthcare services to the community.

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

D. **MCI:** Mass Casualty Incident

E. **MRN:** Medical Record Number

F. **RBC**: Red Blood Cell

V. GUIDELINES:

A. Deviation of Policies During an MCI

1. Unless directed in this procedure or your sites Transfusion Medicine policy *Blood Bank Emergency Management Plan*, Blood Bank staff should make every attempt to adhere to all Beaumont Health Transfusion Medicine policies. If necessary, additional deviations may occur with the approval of the Blood Bank Medical Director or Designee.

B. Use of the *Disaster Call List* and Employee Information Binder

1. If an MCI or similar event has occurred and additional staff is needed, the *Disaster Call List* should be utilized to contact additional staff. In addition, the employee information binder may also be used to call in more staff. The *Disaster Call List* is located inside the employee information binder.

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C. Hospital Incident Command System (HICS) and Emergency Operations Center (EOC)

1. In some emergency situations, Beaumont Royal Oak will establish a Hospital Incident Command System (HICS). This management model is designed to provide a coordinated response for all types and situations of varying magnitudes. When this is done, the Blood Bank needs to be prepared to report blood and component inventory to the Emergency Operations Center (EOC). Contact information is available in the Beaumont Emergency Response Procedures Quick Reference Guide if necessary.

D. Specimen Collection and Compatibility Testing

1. 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. Refer to Transfusion Medicine policies Triaging and Identifying Acceptable Samples for Testing and *Emergency Issue* for additional information.

E. Patient Information Required for Dispense of Blood Products

1. The Blood Bank requires the following information in writing in order to dispense blood products:
    a. Patient's name

b. Patient's medical record number (MRN)

c. Patient's wrist band number ("BR" number)

d. Number and kind of blood products requested

2. If the blood products require emergency issue, a clinician signature is also required giving authorization for the emergency issue. This signature is normally documented on F-1565, *Request for Emergency Dispense of Uncrossmatched Blood Products* and can be obtained before or after the product is emergency issued.

F. Prioritization of Patient Testing During a MCI

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.

G. ABO/Rh Considerations During a MCI

1. The blood type should be determined on all patients as quickly as possible during a MCI in order to give type-specific blood products. If the blood type is not determined and type-specific transfusions are not possible, the following should occur based on the type of blood product:

   a. **RBCs (Red Blood Cells):** Patients must receive type O RBCs if the blood type has not been determined on a current sample.

      i. If the patient is a female over 50 years old or a male over 18 years old, they may be transfused O positive RBCs.

      ii. If the patient is a female 50 years old or younger or a male 18 years old or younger, they should be transfused O negative RBCs unless the O negative inventory is critically low. If the O negative inventory is critically low and they receive O positive RBCs, their physician should be notified and WinRho/RhIG should be recommended. A variance should be documented when time permits if this occurs.

      iii. If the patient has a current or historical indication of an Anti-D, they should always receive Rh negative RBCs.

   b. **Plasma:** Patients should receive type AB plasma if the blood type has not been determined on a current sample. If the AB plasma inventory is critically low, group A thawed plasma may be used.

   c. **Platelets:** If possible, all patients 12 years old or less should receive ABO plasma-compatible platelets. Rh negative platelets should be issued to Rh negative females 50 years old or less and males 18 years old or less.

      i. If it is necessary to issue Rh positive platelets to these Rh negative patients, WinRho/RhIG should be recommended and a variance should be documented when time permits.

      ii. The Blood Bank should attempt to retain Rh negative platelets for these Rh negative patients, even if they expire sooner than other Rh positive platelets.

H. Critical Inventory Levels

1. When the available **O negative RBC inventory drops below 20 units**, all undetermined patients may

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receive O positive RBCs, except patients with known Anti-D.

2. When the **AB plasma inventory drops below 10 units**, all undetermined patients may receive group A thawed plasma, except for patients that are historically known to be type AB.
3. When the **platelet inventory drops below 5 units**, all platelet orders should be approved by the Blood Bank Medical Director or Designee.

I. Antibody and Special Patient Requirements

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. If this is the 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.

J. Blood Product Coolers / Coolants

1. If the Blood Bank runs out of coolers to transport blood products, blood supplier boxes may be packed with ice and used. If the Blood Bank's 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.).
2. 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.

K. Specimen Collection and Handling

1. Refer to Transfusion Medicine policy, Triaging and Identifying Acceptable Samples for Testing for specimen collection requirements.

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VI. EQUIPMENT/SUPPLIES:

1. Helmer DH8 Plasma Thawing System (backup)
2. Precision Circulating Water Bath
3. NIST-Certified Thermometer
4. Distilled water
5. Helmer Clearbath (plasma bath additive)

VII. PROCEDURE:

1. The procedure of this document is separated into multiple sections, as described below:
    a. Section A: Inventory and Staff Assessment
    b. Section B: Preparation of Additional Plasma Thawing Systems

A. Inventory and Staff Assessment

1. Notified the Blood Bank Medical Director and Manager immediately.
2. Assess current Blood Bank staffing levels. Use the *Disaster Call List* to call in additional technologists if

needed. It may be necessary to use the employee information binder to call in technologists in addition to the *Disaster Call List*.

3. Obtain the most recent *Blood Bank Current Inventory* report. Using the *Blood Bank Current Inventory*, document the number of products and the assigned color category for each blood product listed in Table 1. This is documented on the *Blood Bank Report for a Mass Casualty Incident (MCI) form.*

    a. If the most recent *Blood Bank Current Inventory* report cannot be located, or it is believed that the most recent *Blood Bank Current Inventory* report is not accurate anymore due to the length of time elapsed since it last printed, a new *Blood Bank Current Inventory* report can be printed as described in *BBCDM Printing the Blood Bank Current Inventory Report Using Soft Report Launcher*.

    b. **Table 1**

Inventory Category	O Positive RBCs	O Negative RBCs	AB Plasma	A Plasma	Platelets
Green (Optimal Inventory Level)	250 – 320	70 – 130	> 25	> 30	> 12
Yellow (Strained Inventory Level)	100 – 250	20 – 70	10 – 25	10 – 30	5-12
Red (Critically Low Inventory Level)	< 100	< 20	< 10	< 10	< 5

4. Notify our blood suppliers of the MCI occurring at your Beaumont site, and request additional blood products in order to bring the inventory of each product into the green inventory level stated above in Table 1.

    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 Beaumont Health) as well as the American Red Cross for additional blood products.

    b. Security should be notified at 248-898-0911 of any incoming taxis or couriers that may be delivering blood products to limit potential problems upon arrival.

B. Preparation of Additional Plasma Thawing Systems

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, additional systems may be set up. The Precision Circulating Water Bath in the processing room is monitored daily and may be used to thaw plasma. Additionally, the backup Helmer plasma bath may be set up and used. The backup Helmer plasma bath should be set up as follows:

    a. Obtain the backup plasma bath from storage in the processing room and place it on an open counter top. If possible, place it in close proximity to a sink for easier draining later on.

    b. Fill the chamber of the plasma bath with distilled water to the level of the slotted lines (= = =) on the inside back wall of the plasma bath. Add 3cc of *Helmer Clearbath* inhibitor to the water in the bath to prevent any microbial growth in the water.

    c. Plug the plasma bath into an electrical outlet and ensure the temperature is set to 36.0°C.

    d. Once the plasma bath reaches 36.0°C, verify the temperature of the water using a NIST-certified thermometer. The plasma bath and NIST-certified thermometer should be within 1.0°C of each other.

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e. Perform an alarm check on the plasma bath as described in Transfusion Medicine policy, *Helmer DH8 Plasma Thawing System Quality Control and Maintenance*. Once the temperature set-point is temporarily set to 37.5°C, ensure that the plasma bath alarms and raises the basket assemblies out of the water when the temperature reaches 37.1°C. Return the temperature set-point to 36.0°C following the alarm check.

f. The backup plasma bath is now ready for standard use of thawing plasma. When time permits, document this use of the backup plasma bath, the temperature verification, and the alarm check on an internal Blood Bank variance.

g. Once the backup plasma bath is no longer required for the MCI, unplug the device and empty the water into a sink using a plastic drain tube. Ensure the plasma bath is clean and dry, and then return it to storage in the processing room.

VIII. REFERENCES:

1. Standards 1.4 an 1.4.1, AABB, *Standards for Blood Banks and Transfusion Services*, current edition

Attachments

Blood Bank Royal Oak MCI Form

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Approval Signatures

Step Description	Approver	Date
	Ann Marie Blenc: System Med Dir, Hematopath	9/2/2021
	Craig Fletcher: System Med Dir, Blood Bank	8/27/2021
Policy and Forms Steering Committe (if needed)	Gail Juleff: Project Mgr Policy	8/13/2021
Policy and Forms Steering Committe (if needed)	Billie Ketelsen: Mgr Laboratory	8/13/2021
	Billie Ketelsen: Mgr Laboratory	8/13/2021
	Billie Ketelsen: Mgr Laboratory	8/12/2021

Applicability

Royal Oak