Emergency Blood Product Release  
Department of Clinical Laboratories  
The Ohio State University Wexner Medical Center

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<td>Procedure</td>
<td>04/01/02</td>
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<th>Document Author:</th>
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<tr>
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<td>All UH and East Transfusion Services Testing personnel</td>
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**Approval***:
- Laboratory Manager: Manager, Transfusion Services
- Laboratory Compliance Officer: Compliance Officer, Transfusion Services
- Laboratory Division Director: Medical Director, Transfusion Services
- Laboratory Medical Director(s): Medical Director, University Hospital Clinical Laboratories
- Laboratory Medical Director(s): Medical Director, OSUWMC East Hospital Clinical Laboratories

**Approval and Acknowledgements***:
Refer to QPulse system and Document Details report for laboratory directors(s)* electronic signature approval, employee acknowledgment and effective date.

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Revision 8
1. **POLICY**

1.1. The Transfusion Service has instituted this policy to address the use of blood and/or blood components for transfusion in emergency situations when either blood components are needed immediately due to a trauma/life threatening situation or a patient’s specimen does not have complete testing performed.

2. **PURPOSE OF DOCUMENT**

2.1. Emergency blood release may occur when:

2.1.1. The Massive Transfusion Protocol is implemented.

2.1.2. Red blood cells stored in the remote refrigerators in some UH Operating Rooms (trauma units) are needed.

2.1.3. Red blood cells and/or Plasma stored in the remote refrigerators in the UH and East Emergency Departments (trauma units) are needed.

2.1.4. No current specimen is available: STAT request for uncrossmatched red blood cells and blood components.

2.1.5. A current specimen is available: ABO/Rh(D) typing is completed, antibody screen/workup/crossmatch not completed - STAT request for uncrossmatched red blood cells and other blood components.

2.1.6. A current specimen is available: ABO/Rh(D) discrepancy not completely resolved – STAT request for red blood cells and other blood components.

2.2. Crossmatch testing is performed on all red blood cell units that are transfused; when greater than 8 units of red blood cells are transfused within a 12 hour period or the patient has received an amount of blood approximating the total blood volume those units would also be crossmatched.

3. **SCOPE OF DOCUMENT**

3.1. This procedure applies to all personnel working in the Transfusion Service.

4. **RESPONSIBILITY**

4.1. It is the responsibility of the Medical Director, Transfusion Service to:

4.1.1. Establish a process for issuing blood and blood components in an emergency situation.

4.2. It is the responsibility of the Compliance Officer, Transfusion Service to:

4.2.1. Monitor for changes in the regulatory standards.

4.2.2. Propose any necessary changes to the process.

4.2.3. Compile all reported deviations from the process for follow up by appropriate personnel.

4.3. It is the responsibility of the Manager and Lead Technologists, Transfusion Service to:

4.3.1. Write the procedure for issuing blood and blood components in an emergency situation.

4.3.2. Ensure the procedure is followed as written.

4.4. It is the responsibility of all Transfusion Service personnel to:

4.4.1. Follow the procedure as written.

5. **PROCESS**

5.1. **GUIDELINES FOR ALL EMERGENCY RELEASE/MTP SITUATIONS:**

   a. **DO NOT DELAY PROVIDING RED BLOOD CELLS AND BLOOD COMPONENTS FOR ANY REASON INCLUDING NO CURRENT SAMPLE, NO WRITTEN ORDER OR PATIENT ANTIBODIES**

   b. When a call is received to activate the MTP or request uncrossmatched products, obtain the following information

      - Patient’s complete name
      - Patient’s medical record number
      - Gender and age (if known)

   c. Remind the physician/caller that a Blood and Blood Component Order Form must be completed, signed by the physician (or other approved clinical practitioner) and sent to the Transfusion Service as soon as possible. They can also place an electronic order for Initiate Massive Transfusion Protocol or for whichever uncrossmatched/emergency release products they need.
• If emergency release units are requested that are not part of an MTP, the Blood and Blood Component Order form must be filled out and signed by the physician, when time permits.

d. If no electronic order for products has been placed, request that an order be placed ASAP in the electronic health record.
  • If there is no time for the care team to order the appropriate products, order the LABPMTP in Beaker
    o This DOES NOT qualify as the official MTP/emergency release order and is for laboratory purposes ONLY. The physician will need to place the appropriate order in IHIS when time permits.
  • To place the LABPMTP in IHIS:
    o Access the IHIS gateway and type “Encounter” in the search bar at the top right of the screen
    o Enter the patient’s MRN and select the current encounter
    o Access the “Order Entry” tab towards the top of the screen.
    o Type “LABPMTP” in the search field and select.
    o Click on the “Providers” button and change from Order Mode to Per Protocol
    o Change the ordering provider to the Transfusion Service attending physician on service for the day.
    o Sign the order by pushing “Sign orders” at the top of the screen.

e. Look up the patient’s history in the LIS, noting relevant attributes and antibodies
  • Honor any attributes, as appropriate. See 5.2.3 for guidelines on massively bleeding patients.
  • Select antigen negative if appropriate and available.

f. Select the oldest red blood cells and blood components for transfusion

g. In the LIS:
  • PATIENT > ORDERS > UNITS > Em_Issue
  • Scan all blood components to be issued and accept.
  • Put “OK” for Condition
  • In the “Issued to” box, type “MTP” or badge number, as appropriate, and accept.
  • Labels will print, and the units have been issued in the LIS
  • Perform a Technical Label Check prior to the products being sent to the floor to ensure that the crossmatch labels are completed correctly and the units are labeled appropriately.

h. Physical preparation of uncrossmatched units:
  • Place an “Uncrossmatched Blood” sticker on red blood cells
  • Stamp “Crossmatch Not Done” on crossmatch labels of red blood cells
  • Remove a segment (which includes the complete segment number) from each red blood cell unit for crossmatching (and antigen typing, if needed).
    o Place the segment in a test tube labeled with:
      ➢ Donor Identification Number
      ➢ Component code when using apheresis products
  • Maintain proper identification of the blood components being used by keeping the retained segments for crossmatching (and antigen typing, if needed) together labeled with the patient’s name and medical record number and then with the sample after it arrives at the Transfusion Service.

i. When time does not permit selecting the units in the LIS, prepare hand-written crossmatch labels as follows:
  • Full name and MRN of patient
  • Donor identification number and component code of unit
  • ABO/RH of the unit and patient (if known)
  • Unit expiration date/time
  • “ND” in the crossmatch field
  • Your initials on the TLC line/Issued by lines, as appropriate
**5.2. Massive Transfusion Protocol**

1. At OSUWMC, four units of red blood cells and four units of thawed plasma are sent in a large Igloo style cooler when the MTP is implemented.
   a. At OSUWMC, a platelet component (dependent on inventory) is provided with the first cooler. Subsequent platelet components will only be provided upon request.
   b. At OSUWMC, if the patient’s name is “TRAUMA” a platelet component must be issued with each cooler.

2. At East, only two units of red blood cells and two units of thawed plasma are sent.
   a. A platelet component (dependent on inventory) is provided with the first cooler. Subsequent platelet components will only be provided upon request.
   b. If the patient’s name is “TRAUMA” a platelet component must be issued with each cooler.
   c. Refer to Attachment 2 following the procedure.

3. Look up the patient’s history in the Laboratory Information System (LIS).
   a. Determine if the patient has any relevant comments or special attribute requirements like irradiated or CMV negative products.
   b. If the patient has CMV negative in their history, this can be IMMEDIATELY waived for an MTP.
      - Remove CMV Negative requirement from the patient’s blood bank history and add a comment to add CMV negative back in when MTP is over.
      - Notify the pathologist and complete a Release From Standard Procedure form when time permits
   c. If the patient has irradiated in their history, at least the first 4 red cells provided should be irradiated.
      - Determine if the patient could potentially require several rounds of the MTP. If so, the irradiation requirement can be removed.
      - The irradiated attribute may be removed from the patient’s blood bank history if the patient is expected to take large amounts of red cells.
      - Enter a comment in the patient’s blood bank history stating that the irradiated attribute needs put back in when the MTP is over.
      - Notify the pathologist and complete a Release From Standard Procedure form when time permits

4. Select/issue units in the LIS as described in 5.1.f-k.

5. Place the tagged red blood cell units and thawed plasma units in the MTP cooler.
   - Document on the TIC Shipment Log.
   - Refer to Use of Igloo coolers.
   - Do a read back of the patient’s full name, MRN, and the products being picked up with the courier.

6. Continue preparing coolers of products until the MTP is over.

7. As time permits, document the following on the MTP log:
   a. Patient’s complete name
   b. Patient’s medical record number
   c. Gender and age (if known)
   d. Name of physician initiating the MTP
   e. Patient’s location
Use the following situations to determine the type of products to be given:

1. If the patient has a current specimen, AND THAT PATIENT IS ELIGIBLE FOR ELECTRONIC CROSSMATCH: Then ABO/Rh(D) compatible red blood cells should be used in place of the uncrossmatched group O red blood cells.
   - When the laboratory computer system is non-operational and electronic crossmatches cannot be done:
     - Remove a segment from each red blood cell unit for crossmatching.
     - Place the segment in a test tube labeled with:
       - Donor Identification Number
       - Indicate the component code when using apheresis products
     - Perform an Immediate Spin Crossmatch.
   - Any ABO compatible thawed plasma may be used in these cases.

2. If the patient has a current specimen but no second blood type has been performed at an OSU facility:
   - ABO type-specific non red blood cell components can be issued
   - “O” red cells must be selected and an I.S. crossmatch performed
     - Honor the Rh type of the original blood type performed.
     - Using professional judgement, decide if time permits to complete the I.S. crossmatch for the first cooler being issued.
     - Issue the first cooler uncrossmatched if time is not permitted
     - Subsequent rounds of red cells should be crossmatched
   - Order the TypeC as soon as possible in Beaker, and call the nurse to request the sample be drawn ASAP.

3. If the patient has a current specimen but the antibody screen is positive:
   - Issue any previously crossmatched units first, if available.
   - If units are currently being crossmatched, new units must be selected for immediate issue.
   - Select the oldest ABO/Rh(D) compatible red blood cells that are antigen negative, when available, for all allo-antibodies that have been identified.
     - Exception: If this is the first blood type done at an OSU facility, group “O” red cells must be used
     - Refer to Selection of Blood Components for Transfusion.
   - Notify the pathologist when time permits when there is no time to complete the serological crossmatch, if antigen negative units are not available, or if the patient has an auto-antibody that is demonstrable.
     - Always follow the pathologist’s instructions.
   - ABO type-specific non red blood cell components can be issued
   - Perform an IS or IS-AHG (when necessary) serological crossmatch with the retained segments on all uncrossmatched red blood cell units that were selected and/or issued, including units that were transfused from the remote refrigerators, even if the units are ultimately returned to the Transfusion Service.
     - Refer to Crossmatch.
     - If the units are crossmatch compatible, enter results and interpret as COMP.
     - If the units are crossmatch incompatible, enter results and interpret as INCOMP.
     - Notify the pathologist immediately if any clerical or serological issue (positive antibody screen, incompatible crossmatch, etc.) occurs during testing.
     - Add a comment and result Critical Value Notification.
       - Refer to Transfusion Service Critical Values.
   - Obtain a second specimen when additional units require a serological crossmatch and the first specimen is used up.
• Perform an IS or IS-AHG (when necessary) serological crossmatch on any red blood cell units that had been issued prior to testing with the second specimen if they had not already been tested.
• Perform step 5.4.11 when there is not sufficient specimen to crossmatch units issued uncrossmatched and a second specimen cannot be collected.

4. **If the patient DOES NOT have a current specimen:**
   o Remind the physician and/or caregiver that a type and crossmatch specimen should be collected prior to transfusion and sent to the Transfusion Service as soon as possible.
   o Group O red blood cells and AB thawed plasma must be issued until an ABO/Rh(D) type is completed on a current specimen, regardless of the patient’s historical blood type or antibody history.
   o The first uncrossmatched red blood cells may be either O Rh(D) negative or in certain cases O Rh(D) positive:
     • If the patient is a male of any age, or a female 51 years of age or greater, O Rh(D) positive red blood cells should be used during the MTP. Notify the pathologist, when time permits, of the switch to Rh(D) positive red blood cells if the patient types as Rh(D) negative.
     • If the patient is a female who is 50 years of age or younger and is Rh(D) negative and massively bleeding, provide O Rh(D) positive red blood cells only until the emergent situation has ceased, then switch back to Rh(D) negative red blood cells. If the patient is not massively bleeding, provide Rh(D) negative red blood cells. The switch to Rh(D) positive red blood cells should be made as early as possible in the MTP and requires permission from the pathologist or the MTP physician. If unable to contact the pathologist, follow up with them as soon as possible.
     • Always follow the pathologist’s instructions.
     • Refer to Attachment 2 following the procedure to determine how many and what type of blood components are prepared for the next set of blood components for the MTP.
   • Perform the above steps repeatedly until ABO/Rh(D) compatible red blood cells and ABO compatible thawed plasma can be provided.
     • If there is difficulty in obtaining a patient specimen and eight units of AB thawed plasma have been issued, contact the pathologist and explain the situation. The switch to group A thawed plasma can be made by the pathologist depending on the situation. This is to avoid depleting our AB thawed plasma inventory.
       o Always follow the pathologist’s instructions.
     • Continue to periodically request a type and crossmatch specimen if one has not been received. Contact the pathologist if help is needed in obtaining a specimen from the unit.
   • **Perform an IS or IS-AHG (when necessary) serological crossmatch with the retained segments on all uncrossmatched red blood cell units that were selected and/or issued, including units that were transfused from the remote refrigerators, even if the units are ultimately returned to the Transfusion Service.**
     • Refer to Crossmatch.
     • If the units are crossmatch compatible, enter results and interpret as COMP.
     • If the units are crossmatch incompatible, enter results and interpret as INCOMP.
     • Notify the pathologist immediately if any clerical or serological issue (positive antibody screen, incompatible crossmatch, etc.) occurs during testing.
     • Add a comment and result Critical Value Notification.
       o Refer to Transfusion Service Critical Values.
• Obtain a second specimen when additional units require a serological crossmatch and the first specimen is used up.
• Perform an IS or IS-AHG (when necessary) serological crossmatch on any red blood cell units that had been issued prior to testing with the second specimen if they had not already been tested.

5.3 Use of the Emergency Release uncorrectmatched units stored in remote refrigerators:

5.3.1 The Emergency Department or Operating Room is to perform the following:
   a. Immediately notify the Transfusion Service each time uncorrectmatched units are transfused.
   b. Document the following on the crossmatch label prior to transfusing uncorrectmatched units:
      • Patient’s complete name
      • Patient’s medical record number
      • The date and time the units were transfused
   c. Complete the patient information section of the Blood and Blood Component Order form with the following:
      • Patient’s complete name
      • Patient’s medical record number
   d. Complete the emergency release section of the Blood and Blood Component Order form with the following:
      • Date and time
      • Physician’s name (printed)
      • Physician’s signature
   e. Fax, send via the tube system, or hand deliver the Blood and Blood Component Order form to the Transfusion Service as soon as possible.
   f. If the patient is not current, collect a specimen on the patient as soon as possible and send it to the Transfusion Service so ABO/Rh(D) compatible blood components and crossmatch compatible red blood cell units can be provided.

5.3.2 The Transfusion Service personnel will:
   • Issue the uncorrectmatched units in the laboratory computer system when it’s been confirmed the patient has been transfused the units stored in the remote refrigerators.
   • Type “UXM” (Issued uncorrectmatched at the request of physician) in the issuing comment area (where the badge is usually scanned).
   • Perform a serologic crossmatch, as necessary
   b. Prepare replacement uncorrectmatched units as describe in Preparation and Replacement of Emergency Release Blood Components

5.4 Stat request for uncorrectmatched red blood cells and blood components: no sample, not MTP

5.4.1 Remind the physician and/or caregiver that a type and crossmatch specimen should be collected prior to transfusion and sent to the Transfusion Service as soon as possible

5.4.2 Select group O red blood cells, AB plasma/platelets, and any ABO cryo until an ABO/Rh(D) type is completed on a current specimen, regardless of the patient’s historical blood type or antibody history.

5.4.3 The first uncorrectmatched red blood cells may be either O Rh(D) negative or in certain cases O Rh(D) positive.
   • If the patient is a male of any age, or a female 51 years of age or greater, O Rh(D) positive red blood cells should be used. Notify the pathologist, when time permits, of the switch to Rh(D) positive red blood cells if the patient types as Rh(D) negative
   • If the patient is a female who is 50 years of age or younger and is Rh(D) negative and massively bleeding, provide O Rh(D) positive red blood cells only until the emergent situation has ceased, then switch back to Rh(D) negative red blood cells. If the patient is not massively bleeding, provide Rh(D) negative red blood cells. The switch to Rh(D) positive red blood cells should be made as early as possible and requires permission from the
pathologist or the physician requesting the uncrossmatched red cells. If unable to contact the
pathologist, follow up with them as soon as possible.

5.4.4 If there is difficulty in obtaining a patient specimen and eight units of AB thawed plasma have been issued,
contact the pathologist and explain the situation. The switch to group A thawed plasma can be made by the
pathologist depending on the situation. This is to avoid depleting our AB thawed plasma inventory.

5.4.5 Prepare emergency release units as described in 5.1.a-k.

5.4.6 If more than two blood components are being sent at one time, prepare a large Igloo style cooler.
- No more than four red blood cell units should be sent at one time.
- Refer to Use of Igloo Coolers.

5.4.7 Continue to periodically request a type and crossmatch specimen if one has not been received. Explain to
the floor that a specimen must be obtained so type ABO/Rh(D) compatible red blood cells and thawed
plasma can be transfused.
- Contact the pathologist if help is needed in obtaining a specimen from the unit.

5.4.8 Process the specimen as soon as it arrives.

5.4.9 Continue providing group O red blood cells/AB plasma if there is a problem with the patient’s ABO blood
typing
- If a second blood type has never been performed on the patient at an OSU facility, continue
  providing group O red blood cells

5.4.10 Perform an IS or IS-AHG (when necessary) serological crossmatch with the retained segments on all
uncrossmatched red blood cell units that were selected and/or issued, including units that were
transfused from the remote refrigerators, even if the units are ultimately returned to the
Transfusion Service.
- Refer to Crossmatch.
- If the units are crossmatch compatible, enter results and interpret as COMP.
- If the units are crossmatch incompatible, enter results and interpret as INCOMP.
- Notify the pathologist immediately if any clerical or serological issue (positive antibody
  screen, incompatible crossmatch, etc.) occurs during testing.
- Add a comment and result Critical Value Notification.
  - Refer to Transfusion Service Critical Values.
- Obtain a second specimen when additional units require a serological crossmatch and the
  first specimen is used up.
- Perform an IS or IS-AHG (when necessary) serological crossmatch on any red blood cell
  units that had been issued prior to testing with the second specimen if they had not already
  been tested.

5.4.11 Perform the following when a specimen is never received for testing OR the first specimen is used up and a
second specimen cannot be collected:
- Cancel the requested crossmatches in the LIS:
  PATIENT > ORDERS > CANCEL
- Double click the unit/crossmatch you want to cancel
- Cancel the crossmatch and explain why the testing was not performed in the comment
  box that generates

5.5 Stat request for red blood cells and other blood components: current specimen available – ABO/Rh(D)
completed but antibody screen/workup/crossmatch not completed

5.5.1 Issue any previously crossmatched units first, if available.

5.5.2 If units are currently being crossmatched, new units must be selected for immediate issue.

5.5.3 If the patient has previously had a blood type done at an OSU facility, type-specific red blood cells can be
given uncrossmatched.
  - If this is the first time the patient’s blood type has been done, group O red cells must be given until a
    TypeC/second blood type has been completed.
  - Select antigen negative units if the patient has known antibodies and if available.

5.5.4 Select other blood components:
- ABO compatible thawed plasma units
- Platelet products dependent on the inventory available
- Any ABO/Rh(D) cryoprecipitate
• Issue these products as normal.

5.5.5 Continue processing the specimen.
5.5.6 Perform step 5.4.10 once testing is complete and crossmatches can be performed.
5.5.7 Perform step 5.4.11 when there is not sufficient specimen to crossmatch units issued uncrossmatched and a second specimen cannot be collected

5.6 Stat request for red blood cells and other blood components: current specimen available – ABO/Rh(D) discrepancy not completely resolved
5.6.1 Provide uncrossmatched group O, Rh(D) negative red blood cells.
5.6.2 Provide group AB plasma/platelets
5.6.3 Perform step 5.4.10 once testing is complete and crossmatches can be performed
5.6.4 Refer to step 5.4.11 if there is not sufficient specimen to crossmatch units issued uncrossmatched and a second specimen cannot be collected

6. REFERENCES
6.4. FDA. Code of Federal Regulations. Rockville, MD: FDA, Title 21, Parts 200 and 600, Current Version

7. RELATED DOCUMENTS
7.1. Refer to QPulse System or Document Detail Report for related Laboratory Policies, Procedures, and Master Forms
ATTACHMENT 1

<table>
<thead>
<tr>
<th>Situations for: Emergency Release of Uncrossmatched Blood Products or a MTP</th>
<th>Red Blood Cell Product ABO</th>
<th>Additional Information</th>
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| No ABO/Rh or Antibody Screen completed | O Negative | ✓ For all men and women over 50 years of age give O Positive
✓ >2 units use Igloo Cooler
✓ > 8-10 units switch to Rh(D) Pos, when massively bleeding |
| ABO/Rh completed but Antibody Screen not completed | ABO Compatible | ✓ >2 units use Igloo Cooler
✓ > 8-10 units switch to Rh(D) Pos, when massively bleeding
✓ Give group “O” red cells if this is the first blood type ever done on the patient |
| ABO/Rh and Negative Antibody Screen | ABO Compatible | ✓ >2 units use Igloo Cooler
✓ > 8-10 units switch to Rh(D) Pos, when massively bleeding
✓ Give group “O” red cells if this is the first blood type ever done on the patient |
| ABO/Rh and Positive Antibody Screen | ABO Compatible | ✓ Consult pathologist when time permits
✓ Give group “O” red cells if this is the first blood type ever done on the patient |

ATTACHMENT 2

| MASSIVE TRANSFUSION PROTOCOL PACK (MTP) |
|---|---|---|---|
| Product | Number of Units UH/East | Container Type/Temperature | Time before discard required |
| Red Blood Cells | 4/2 | *Igloo Cooler | Use of Igloo Coolers |
| Plasma | 4/2 | *Igloo Cooler | Use of Igloo Coolers |
| Platelets** | 1 pool or pheresis | Room Temperature | 60 minutes and within acceptable temperature range. If the component is out greater than 60 minutes and meets all the reissue criteria, quarantine the component and contact a pathologist. |

*4 units of red blood cells and 4 units of plasma may be put into one large Igloo Cooler (UH)

*2 units of red blood cells and 2 units of plasma may be put into 2 small Igloo Coolers (East)

**Platelets may need to be specifically requested to be part of the MTP pack.