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Beaumont

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Transporting Blood Products in a Cooler - Dearborn Blood Bank

Document Type: Procedure

I. PURPOSE AND OBJECTIVE:

This document will provide the Blood Bank staff with policies that apply to the transport of blood products in a cooler.

II. SCOPE:

Coolers are used to transport blood products when a transfusion is either anticipated to not begin immediately from the dispense time or for patients who may require rapid multiple transfusions. Coolers are most frequently issued for patients who are in surgery, patients receiving a therapeutic apheresis procedure, or who require a massive transfusion.

III. DEFINITIONS:

A. Standard Cooler: a temperature-monitored cooler used for inpatients that has been validated for the transport of blood products, and is intended for the transport of 1 – 6 blood products which require refrigeration.

B. Massive Transfusion Cooler: a large, temperature-monitored cooler that is intended for use during the massive transfusion protocol for the transport of 6 RBCs and 6 FFP, or that is intended for transport of up to 12 FFP during a therapeutic plasma exchange, and that has been validated for the transport of blood components.

C. FFP: Thawed Fresh Frozen Plasma

D. MTP: Massive Transfusion Protocol

IV. POLICIES:

A. Coolers used to transport blood components that are dispensed for transfusion shall be qualified and the process validated for the appropriate transport temperature.

B. Transported red blood cells (RBCs) and thawed plasma (FFP) shall be placed in a qualified cooler having sufficient refrigeration capacity to cool the blood continuously in a temperature range of 1 – 10 °C until transfusion or return back to the blood bank.

C. Transported Platelets (PLT) and thawed cryoprecipitate (CRY) shall be placed in a qualified cooler housed with a plastic or net pouch designed to maintain the products between 20 – 24 °C.

D. The coolers have been validated to maintain the temperatures of blood components for the length of time indicated in the table below.

Type of Cooler	Manufacturer	Number of Blood Products	Transport Temperature	Validated Length of Time
Standard Cooler (White)	MarketLab	1-6 units of RBC/and or FFP in any combination	1° – 10 °C	6 hours
Massive Transfusion (Red)	MaxQ	1 – 6 units of RBCs and 1-6 units of FFP	1° – 10 °C	6 hours
		1-2 unit of PLT/CRY in any combination	20° – 24 °C	6 hours
Massive Transfusion (Red)	Thermosafe	1 – 6 units of RBCs and 1-6 units of FFP	1° – 10 °C	6 hours
		1-2 unit of PLT/CRY in any combination	20° – 24 °C	6 hours

E. Appropriate Coolants/Packing the Coolers

F. Wet ice packed in a plastic bag is used as the coolant in the standard (white) coolers. The ice is placed on the bottom of the cooler, and the units are placed on the sides of the ice along the edges of the cooler. The wet ice should be replenished every four hours that the cooler remains outside of the Blood Bank; refer to the policy *Ice Replenishment of Coolers after 4 Hours*.

G. All coolants used in the packing of the coolers will be stored and maintained at their designated temperatures for a minimum of 12hours before they will be used to assemble and pack the coolers.

H. A thermometer is placed in all coolers before dispensing so that the temperature of the cooler may be monitored.

I. Each cooler must be used to transport blood components for only a single patient. In emergency situations, two coolers may be issued for the same patient if requested, so that blood components will always be available during the emergency.

J. Each cooler must be labeled with the patient's name and medical record number (MRN). This information is documented on *Transfusion Services Cooler Insert Form* that is placed in the

outside pocket of the cooler.

K. **Training of Blood Product Transporters**.

1. Hospital staff members whose duties will include the handling and transport of blood products will be assigned an annual on-line education module.
2. Each cooler will be affixed with written instructions on Blood Bank coolers for proper transport and prompt delivery. These written instructions will include information on:
    a. How long blood products may be stored in the designated transport cooler.
    b. The limitations for which blood products must be stored in the designated transport cooler.
    c. Transport cooler-specific instructions, if applicable.
    d. Contact information for the Blood Bank should any questions arise.

L. **Use of Blood Product Storage Bags to Prevent Contamination with Infectious Material**
The Blood Bank may use additional blood product storage bags to prevent contamination of blood products during instances of increased disease transmission risk (e.g. highly-infectious patients, pandemics, etc.). If a situation is determined by the Blood Bank Medical Director to be of an increased disease transmission risk, all blood products must be placed into a blood product storage bag and individually sealed prior to being placed into a Blood Bank cooler. Upon return to the Blood Bank, any unused blood products will have the blood product storage bag wiped down with an approved disinfectant (i.e. 70% isopropyl alcohol, Sparquat, etc.) prior to removing the blood product from the storage bag. If a blood product is returned to the Blood Bank and is not inside a sealed blood product storage bag when indicated, the blood product will be placed into quarantine to be reviewed by the Blood Bank Medical Director or designee.

M. **Determination of Whether a Product Returned in a Cooler is Acceptable for Reissue**
The technologist returning the cooler must determine whether each of the products in the cooler is acceptable for reissue. This determination includes the following: assessment of the length of time that the cooler was outside of the Blood Bank; assessment of the blood product and cooler temperatures; the visual inspection; verification that the product was not spiked; for RBCs, verification that an integral segment remains attached. Refer to Transfusion Medicine policy, Return of Blood Products from Issue.

1. The cooler should be returned within the acceptable, validated length of time, as indicated in table above.
2. The technologist returning the cooler must verify that the policy to replenish coolants after 4 hours has been adhered to. For example, if a cooler has been returned after 5 hours, the returning technologist must verify that the coolants were replenished within 4 hours.
3. The temperature of each RBC and plasma unit should be taken with the infrared thermometer. In addition, the temperature of the cooler should be taken (from the thermometer that was packed inside of the cooler at the time of issue). The temperature of each product and the temperature of the cooler must be within the acceptable transport temperature range of 1 - 10°C.
4. All products issued in a cooler must be transfused or returned to the blood bank

within four hours.

5. The technologist returning the cooler must verify that the cooler was returned within 4 hours.
6. The temperature of each RBC unit should be taken with the infrared thermometer. The temperature of each unit must be within the acceptable transport temperature range of 1-10°C.
7. The temperature of each thawed plasma unit should be taken with the infrared thermometer. The temperature of each refrigerated unit must be within the acceptable transport temperature range of 1-10°C. Temperature of plasma recently thawed (less than 6 hours from thaw) with temperatures between should be quarantined in refrigerator if the temperature is not within acceptable limits.
8. All units must be visually inspected upon return to the Blood Bank in a cooler. Refer to Transfusion Medicine policy, Visual Inspection of Blood Products.
9. Blood products should be placed in quarantine or discarded, as appropriate, if any of these conditions have not been met.
10. The return of the product must be documented in the Blood bank computer system. Upon return of a cooler to the Blood Bank, the unit crossmatch tag should be removed, and the unit temperature should be immediately taken with the infrared thermometer. The reason for the product return should also be documented in the system if possible.
11. If the computer system is unavailable the corresponding copy of the bag tag should be retained and documented with the following information:
    a. Unit Temperature (taken with the infrared thermometer)
    b. Cooler Temperature
    c. The date and time the blood product was returned to the Blood Bank
    d. The determination of whether the product is "OK to reissue." Circle Y or N.
    e. The reason returning
    f. Returning technologist's initials.
    g. The date and time the blood product was returned to the blood bank.

N. **Blood Products Dispensed in a Cooler must be Returned in a Cooler**
Returned blood products that were dispensed in a cooler must be returned in the same cooler in which they were dispensed. If a blood product is returned in a different cooler, or is not in a cooler at all, quarantine or discard the blood product as described in the Discard or Quarantine of Blood Products section of this document.

O. **Discard or Quarantine of Blood Products**
Any blood product that is not suitable for transfusion or that has an unsatisfactory visual appearance must be discarded. If a technologist has any concerns about whether a blood product is suitable for transfusion, then the blood product should be placed into quarantine. Refer to Transfusion Medicine Policy, Blood Product - Quarantine or Discard.

P. **Tracking of Coolers**

1. The Blood Bank will track each cooler. The location to where every cooler is issued should be determined. For example, when coolers are dispensed to the operating room (OR) the OR room number is documented on the lab copy of the crossmatch tag. In addition, all Blood Bank coolers are identified with a letter. When a cooler is issued, the cooler letter is documented on the lab copy of the crossmatch tag. The lab copy is then placed in the slot of the hanging tray with the timer corresponding to the cooler number, located at product issue desk.
2. Coolers should not be transported with a patient as the patient is transported to a new location in the hospital, except due to medical necessity.

Q. **Coolant Replenishment in Coolers after 4 Hours**
The coolants will be replenished every 4 hours that the cooler remains outside of the Blood Bank. Note that there is a label on all Blood Bank coolers stating cooler must return within 4 hours.

V. EQUIPMENT:

A. MarketLab Standard Transport Cooler
   1. 2 bags wet ice

B. Thermosafe® Sonoco Blood Transport Cooler
   1. 2 completely frozen green PureTemp® bottles located on the bottom shelf of the plasma freezer
   2. 3 refrigerated orange PureTemp® bottles located on the bottom shelf of the unprocessed blood refrigerator (BB 2)
   3. 1 wire product basket complete with 2 white plastic sheets stored inside of the coolers

C. MaxPlus MTP Cooler®
   1. 2 refrigerated blue S6 gel pack stored on the bottom shelf of the unprocessed blood refrigerator (BB2)
   2. 3 frozen BP0P gel pack (white bottle with white cap) located on the bottom shelf of the plasma freezer
   3. 1 room temperature PCM22 gel pack (white bottle with red cap)

D. Thermometer obtained from fridge # 2 (stored inside the cooler)
Infrared thermometer (to take temperature of each returned component, stored in communication bench area)

E. Timers

VI. PROCEDURE:

A. **Packing the Coolers**
When notified of the need for a cooler, the *Transfusion Cooler Log* will be completed with the required information. If the need is immediate, request assistance to begin to pack the cooler

so it will be ready for issue.

B. Obtain the appropriate cooler type dependent on number of units being issued and assemble the coolants accordingly.

1. **Standard Cooler**
    a. Place three (3) scoops of ice in a plastic bag and seal.
    b. Place the ice on the bottom of the cooler.
    c. The units are placed on the sides of the ice along the edges of the cooler.

2. **MaxQ Max Plus MTP2.0 Cooler**
    a. Place one (1) frozen white BPOP gel pack in the designated lid pouch.
    b. Place two (2) frozen white BPOP gel packs against the two opposite walls of the cooler.
    c. Place two (2) refrigerated blue S6 gel packs against the two opposite walls of the container making sure to place them on the inside face of the frozen gel packs to avoid putting blood components in close contact with frozen coolant.
    d. Place one (1) ambient white SG22 gel pack and place it inside of the platelet pouch.
    Refer to the packing illustration on attachment *Packing MaxQ MTP2.0 Cooler* posted in the department.

3. **Thermosafe Sonoco MTP Cooler**
    a. Center (1) refrigerated orange PureTemp® bottle at the bottom of the cooler
    b. Place the wire product basket lined with one (1) plastic white sheet on the bottom on top of the f the orange PureTemp® bottle
    c. Place one (1) frozen green PureTemp bottle between the wire basket and the back of the cooler
    d. Place another plastic white sheet between the green PureTemp® bottle and the back of the cooler
    e. Place three (3) refrigerated orange PureTemp® bottles along the remaining outside edges of the wire basket in the cooler.
    f. Place one (1) frozen green PureTemp® bottle on top of the wire basket.
    Refer to the packing illustration on attachment *Packing Thermosafe® Sonoco MTP Cooler* posted in the department.

C. The runner picking up the product will provide the appropriate product dispense form as per policy.
Refer to Transfusion Medicine policies, Dispensing Blood Products, Emergency Issue of Blood Products, and Providing Blood Components for a Massive Transfusion.

D. Complete the *Transfusion Services Cooler Insert* form with the patient name, medical record number, location where the cooler will be issued.

E. Obtain the cooler and pack with the appropriate coolants. See Packing the coolers

F. Place the thermometer on the bottom of the cooler.

G. Place each product in sealed plastic bag if appropriate.

H. Pack the blood in the cooler.

I. Document the time packed on the *Transfusion Services Cooler Log* and set a timer for 4 hours.

J. Issue the units in the computer as usual, record the individual who picked up the cooler in the picked up by field.

    1. If pre-dispensing the cooler, the cooler letter will be recorded in the Blood Bank Computer. (The actual signature of the runner picking up the units will be recorded on lab copy of the record of transfusion form once cooler is physically issued.)

K. Complete the Time Picked Up/ Issued to columns on the *Transfusion Services Cooler Log*.

L. Place the lab copies of the Record of Transfusion forms on the cooler clipboard.

M. If the timer sounds indicating that 4 hours have elapsed since the cooler was dispensed, call the patient's caregivers and request cooler/products be immediately returned to the blood bank and document on the Cooler Tracking Sticker. This sticker will be affixed to the dispense form.

    1. If cooler is returned within 6 hrs (the validated length of time for the cooler) and product is still required, take the temperature of the cooler and document it on the Cooler Tracking Sticker.
    2. If the cooler temperature is in the acceptable range of 1° – 6 °C:
        a. Remove the ice packs and replace with fresh ice packs.
        b. Return the cooler to the runner.
        c. The timer should be reset to start a new 4-hour time period.
    3. If the cooler temperature is not in the acceptable range of 1° – 6 °C:
        a. Take the temperature of each returned blood product and document on the lab copy of the crossmatch tag.
        b. Submit a variance and quarantine the returned blood products.
        c. Pack a brand-new cooler (different cooler number) with fresh coolants, and new blood products.
        d. Notify the caregivers that the products have been replaced. This step is very important, especially for those surgical cases in which the blood donor information may have been previously documented.
    4. Multiple ice replenishments may occur on the same cooler, if it is performed every 4 hours as described in this policy. If the traceability/trackability of the cooler is in question, the Blood Bank may request the cooler be returned, and re-issue a new cooler with new blood products.
    5. If a cooler was not returned after 4 hours, despite the Blood Bank's request to do so, the blood products are not automatically discarded; refer to the policy *Determination of Whether a Product Returned in a Cooler is Acceptable for Reissue.* When the cooler

is returned to the Blood Bank for the final time, proceed as described in that policy.

N. Document the cooler return time and the disposition of the units on the *Transfusion Services Cooler Log*.

VII. REFERENCES:

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

Attachments

Cooler Tracking Sticker

Transfusion Cooler Insert

Transfusion Services Cooler Log

Approval Signatures

Step Description	Approver	Date
	Jeremy Powers: Chief, Pathology	6/7/2022
Policy and Forms Steering Committe (if needed)	Kelly Sartor: Supv, Laboratory	5/31/2022
Policy and Forms Steering Committe (if needed)	Gail Juleff: Project Mgr Policy	5/31/2022
	Kimberly Geck: Dir, Lab Operations B	5/30/2022
	Kelly Sartor: Supv, Laboratory	5/27/2022
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Tech: ______ called employee __________
in location _________ to return cooler # ______
to BB at [D/T] _______________.

Cooler # _____ returned. Temp of cooler: ____
Ice replenished by tech _____ at D/T__________.

Cooler Replenishment Sticker

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Cooler Replenishment Sticker

Beaumont HEALTH

Beaumont Laboratory, Dearborn

Transfusion Service Cooler Log

DATE	PATIENT NAME	TIME CALLED CALLER	B BAND ID MR#	LOCATION	COOLER ID	TIME PACKED TIMER CHANNEL#	TIME PICKED UP ISSUED TO	TIME RETURNED	COMMENTS

Beaumont HEALTH

Beaumont Laboratory
Dearborn

Transfusion Services Cooler Insert

Products **must** remain in this cooler until they are transfused.

Patient Name: _____

Medical Record Number : _____Location: _____

Time Packed: _____ Time Returned: _____

Please call Blood Bank at 1-313-593-7915 if cooler/product exchange is required.
Cooler and any unused blood product must be returned within 4 hours of issue.

Re: Transporting Blood Products in a Cooler 5/24/2022

Beaumont HEALTH

Beaumont Laboratory
Dearborn

Transfusion Services Cooler Insert

Products **must** remain in this cooler until they are transfused.

Patient Name: _____

Medical Record Number : _____Location: _____

Time Packed: _____ Time Returned: _____

Please call Blood Bank at 1-313-593-7915 if cooler/product exchange is required.
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Re: Transporting Blood Products in a Cooler 5/24/2022

Beaumont HEALTH

Beaumont Laboratory
Dearborn

Transfusion Services Cooler Insert

Products **must** remain in this cooler until they are transfused.

Patient Name: _____

Medical Record Number : _____Location: _____

Time Packed: _____ Time Returned : _____

Please call Blood Bank at 1-313-593-7915 if cooler/product exchange is required.
Cooler and any unused blood product must be returned within 4 hours of issue.

Re: Transporting Blood Products in a Cooler 5/24/2022