University of Washington Medical Center 1959 NE Pacific Street. Seattle, WA 98195 Transfusion Services Laboratory Policies and Procedures Manual	Original Effective Date: 02-09-2022 Revision Effective Date:	Number: PC-0100.01

TITLE: **MaxPlus MTP Coolers Operation**

PURPOSE:
To provide instructions for the operation of MaxPlus MTP Coolers for blood components at UWMC Montlake campus

PRINCIPLE & CLINICAL SIGNIFICANCE:
MaxPlus MTP coolers maintain the required storage temperature for specific blood components inside the box chambers for extended period of time and can be used at the patient bed site during massive transfusion (MTP) and obstetrics (OB) bleeding emergencies, therapeutic exchanges and surgical cases requiring multiple blood components

POLICIES:
- MaxPlus MTP coolers are
    - Valid for 4 hours maximum for storage and transport of blood components during bleeding emergencies
    - Valid for transport of blood components within UW Medical Center only

- MaxPlus MTP cooler can hold a maximum of the following in appropriately labeled compartments
    - 6 units of packed red blood cells (RBC)
    - 6 units of thawed plasma
    - 2 units of platelets

Cooler Issue
- UW Montlake TSL Massive Transfusion and OB Bleed protocol must be followed for the number and type of blood components to issue during MTP and OB emergencies. Refer to SOPs ***Massive Transfusion and OB Hemorrhage Protocols*** and ***Emergency Release of Blood Products***
- Cooler can be issued for MTP, OB Bleed, emergencies, exchange transfusions and surgical cases requesting multiple blood components. Subsequent requests for blood can be facilitated using portable blood refrigerators or issue of a second cooler as needed.
- Crossmatched blood component must be issued in LIS prior to packing component in cooler-Refer to SOP: ***Issuing Blood Components***. Uncrossmatched blood component must be documented on the ***Downtime Issue Log***
- Cooler is for single patient use only. Do not place blood components for multiple patients in one cooler
- Blood components from one cooler cannot be interchanged and placed in a different cooler
- Do not mix freshly thawed plasma with refrigerated plasma in same cooler
- Do not mix red cells and plasma in the same compartment of the cooler
- Do not issue cryoprecipitate in cooler

Cooler Return

- TSL staff are responsible to retrieve coolers from clinical location in a timely manner
- Blood products returned to the Transfusion Services Lab would be evaluated for acceptability based on visual inspection, time and temperature

Cooler Function Checks

- Cooler function checks will be performed annually
- Any cooler with visible damage must be removed from service

SPECIMEN REQUIREMENTS: NA

REAGENTS/SUPPLIES/EQUIPMENT:

Reagents:	Supplies:	Equipment:
NA	• MaxPlus MTP 14" Cooler (MTP14) • S6 gel packs • MTP payload insert	Digital timers

QUALITY CONTROL: NA

INSTRUCTIONS:

TABLE of CONTENTS (only if there are multiple sections)

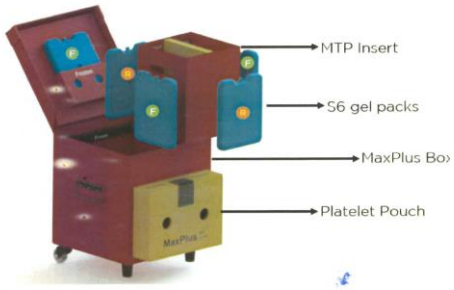
Preparation of S6 gel packs

STEP	ACTION
	Each MaxPlus MTP Cooler requires the following • 3 S6 gel packs frozen • 2 S6 gel packs refrigerated

1	• Charge 3 S6 gel packs in designated freezer at -18^{0}C or colder for minimum of 24 hours
	• Document the following on *S6 Gel Pack* card and place with the gel packs in freezer
	  ○ <In> -Date and time gel packs placed in freezer
	  ○ <Available to Use> -Date and time gel packs available to use- this is calculated 24 hours from date and time gel packs are placed in the freezer

2	• Charge 2 S6 gel packs in designated refrigerator at 2-6^{0}C for minimum of 24 hours
	• Document the following on *S6 Gel Pack* card and place with the gel packs in refrigerator
	  ○ <In> -Date and time gel packs placed in refrigerator
	  ○ <Available to Use> -Date and time gel packs available to use- this is calculated 24 hours from date and time gel packs are placed in the refrigerator

Packing and Issuing the MaxPlus MTP Coolers

STEP	ACTION
1	Remove 3 S6 frozen gel packs from freezer and 2 S6 gel packs from refrigerator
2	Place the MTP payload insert in the middle of the cooler
3	Place 2 of the frozen S6 gel packs against two opposite walls labeled “F” of cooler between the wall and payload insert  Gel pack arrangement: 3 x Frozen – 2 against opposite walls, 1 on the lid 2 x Refrigerated – 2 against opposite walls
4	Place the 2 refrigerated S6 gel packs against the other two opposite walls labeled “R” of cooler between the wall and payload insert
5	Place the 3rd frozen S6 gel pack in the pouch on the lid
6	Obtain appropriate number of units of RBC and Plasma from storage **Note**: Do not place freshly thawed plasma with refrigerated plasma in same cooler
7	Place the RBC and Plasma components standing up at a slight angle in the appropriately labeled compartment 
8	Close lid securely
9	**If** / **Then** Platelet Ordered → • Retrieve platelet from storage and place in yellow compartment labeled platelet • Go to next step  No Platelet Ordered → Go to step 11

10	Close the platelet pouch lid securely
11	Document the following on the *MaxPlus MTP Cooler* card • Patient Name and MRN • Date and Time Cooler Packed • Date and Time Cooler Return- this is 4 hours from date and time cooler is packed
12	Place *MaxPlus MTP Cooler* card on sleeve on top of cooler
13	Start assigned cooler timer **Note:** Timer is set for 3 hours
14	Document the following on the *MaxPlus MTP Cooler Log* • Cooler # - *Example: 1 is acceptable instead of 20-001* • Cooler Packed Date and Time – this should be same as *MaxPlus MTP Cooler* card • Tech ID • Patient Name and MRN- patient label can be applied here • Location • Date and Time of Issue- when cooler leaves TSL • Issued to – Note full (first and last) name or EID of physician or nurse receiving cooler when cooler is delivered
15	Deliver cooler to patient location or cooler is picked up by clinical team • Verify Patient name and MRN on cooler with clinical team • Document name of person receiving cooler from clinical team on the *MaxPlus MTP Cooler Log* under *Issued to* column • Notify clinical team that cooler must be returned to TSL within 4 hours
16	Return *MaxPlus MTP Cooler Log* to TSL. Monitor status of cooler using assigned timer. At end of 3 hours, track cooler and initiate contact with clinical team to retrieve cooler
17	Retrieve cooler from clinical area upon completion of bleeding emergency or procedure not to exceed beyond 4 hours post issue

Returning MaxPlus MTP Cooler to TSL

STEP	ACTION
1	Upon return of cooler to TSL, document the following on the *MaxPlus MTP Cooler Log* • Date returned • Time returned • Tech ID
2	Open cooler

Compartment	Action
Platelet compartment	• Remove any platelets present • Go to next step
Red Blood Cells and Plasma compartment	• Remove only one blood component at a time • Close cooler lid after removal of each blood component • Go to next step

3	Perform visual inspection for blood component acceptability per SOP *Visual Inspection of Blood Components*

<table>
<tr><td>4</td><td>Use a NIST calibrated thermometer to verify temperature of blood component</td></tr>
<tr><td>5</td><td>
<table>
<tr><th>If blood components returned</th><th>Then</th></tr>
<tr><td>Within 4 hours of issue in cooler</td><td>• Go to next step</td></tr>
<tr><td>Greater than 4 hours of issue
Or
In incorrect compartment</td><td>• Document temperature on QI form
• Quarantine component(s)
• Complete QI and notify TSL/QA Manager
• Go to step 6</td></tr>
</table>
</td></tr>
<tr><td>6</td><td>
<table>
<tr><th>If components is</th><th>Then</th></tr>
<tr><td>Within acceptable temperature range
<table>
<tr><th>For</th><th>Acceptable temperature range</th></tr>
<tr><td>RBC or Plasma</td><td>1-6^{0}C</td></tr>
<tr><td>Platelets</td><td>20-24^{0}C</td></tr>
<tr><td>Freshly thawed plasma</td><td>1-30^{0}C
Note: Freshly thawed plasma is acceptable for inventory if plasma was thawed right before issue.</td></tr>
</table>
</td><td>• Accept component into inventory
• Go to next step</td></tr>
<tr><td>Outside of acceptable temperature range</td><td>• Document temperature on QI form
• Quarantine component(s)
• Complete QI and notify TSL/QA Manager</td></tr>
</table>
</td></tr>
<tr><td>7</td><td>Update Sunquest LIS per section *Returning Blood Components in LIS* per SOP ***Returning Issued Blood Components to Inventory***</td></tr>
<tr><td>8</td><td>Place blood components in appropriate storage</td></tr>
<tr><td>9</td><td>Wipe down cooler with disinfectant wipe and return to storage</td></tr>
<tr><td>10</td><td>Place S6 gel packs in designated storage per section *Preparation of S6 gel packs*</td></tr>
</table>

Cooler Function Check-performed annually

<table>
<tr><th>STEP</th><th>ACTION</th></tr>
<tr><td>1</td><td>Program 3 data loggers with Cooler ID and type of payload. Example: *Cooler 20-001 Minimum payload* or *Cooler 20-001 Maximum payload*</td></tr>
<tr><td>2</td><td>Place each data logger in individual zip lock bags</td></tr>
<tr><td>3</td><td>Record the serial number of data logger on *Cooler Function Check Log*</td></tr>
<tr><td>4</td><td>Set up cooler per steps 1-6 of Section: **Packing and Issuing the MaxPlus MTP Coolers**</td></tr>
<tr><td>5</td><td>Obtain mock blood components for minimum or maximum payload
<table>
<tr><th>Payload</th><th>Component</th></tr>
<tr><td>Minimum</td><td>1 RBC, 1 Plasma, 1 Platelet</td></tr>
<tr><td>Maximum</td><td>6 RBC, 6 Plasma, 2 Platelets</td></tr>
</table>
Note: Mock RBC and plasma must be refrigerated atleast 24 hours prior. Expired blood components can be used if available</td></tr>
</table>

<table>
<tr><td>6</td><td>Activate data logger and place on mock component.
<table>
<tr><th>Payload</th><th>Placement of Data Logger</th></tr>
<tr><td>Minimum</td><td>Rubber band data logger around component</td></tr>
<tr><td>Maximum</td><td>Rubber band data logger between two components</td></tr>
</table></td></tr>
<tr><td>7</td><td>Place the RBC and Plasma components quickly in appropriate compartment of cooler
Note: The data logger must remain on the component and not touching the bottom or sides of the cooler</td></tr>
<tr><td>8</td><td>Close the cooler lid making sure the lid is sealed properly with the Velcro latch</td></tr>
<tr><td>9</td><td>Place the platelet component, on the long edge, in the platelet pouch in a manner that sandwiches the data logger preventing the data logger from touching the sides of the pouch</td></tr>
<tr><td>10</td><td>Close the platelet pouch lid making sure the lid is sealed properly with the Velcro latch</td></tr>
<tr><td>11</td><td>Allow the cooler to remain closed at room temperature for 6 hours</td></tr>
<tr><td>12</td><td>Download data from each data logger and print all data including graph showing the temperature readings over 6 hours</td></tr>
<tr><td>13</td><td>Print a graph from TempTrak showing the room temperature of the validation area for the duration of the test period</td></tr>
<tr><td>14</td><td>Repeat steps 1-13 for next payload</td></tr>
<tr><td>15</td><td>Record the following on the *Cooler Function Check Log*
• Length of time cooler maintained temperature 1-6C. Record in hours and mins
• Verification that room temperature from Temptrak was between 20-24C. Record Yes or No
• Verification that cooler maintains temperature of 1-6C for atleast 4 hours. Record Yes or No</td></tr>
<tr><td>16</td><td>Submit *Cooler Function Check Log* for supervisory review</td></tr>
<tr><td>17</td><td>Label cooler with next due date
• Cooler is valid for use 1 year from date of function check</td></tr>
</table>

CALCULATIONS/INTERPRETATIONS/RESULTS REPORTING/NORMAL VALUES/CRITICAL VALUES

NA

CALIBRATION:

NA

PROCEDURE NOTES AND LIMITATIONS:

REFERENCES:

- MaxPlus MTP Cooler. Stillwater,OK: MAXQ
- Standards for Blood Banks and Transfusion Services, AABB Press, Bethesda, MD. Current Edition.

RELATED DOCUMENTS:
Cooler Function Check Log
MaxPlus MTP Cooler Log

APPENDIX:
Appendix A: S6 Gel Pack Card

S6 Gel Pack Card
Circle one: Freezer/ Refrigerator

Date and Time		Tech ID
In		
Available to use		
Note: Calculate date and time 24 hours from time In		

Appendix B: MaxPlus MTP Cooler Card

MaxPlus Cooler	
Patient Name	
Patient MRN	
Date and Time Cooler Packed	
Date and Time Cooler Return By	

Cooler Instructions

- **Do not open cooler until ready for transfusion**
- **Close lid immediately upon removal of blood component for transfusion**
- **Single Patient Use only**
- **Do not place any non-blood components in cooler**
- **Please return cooler to TSL when no longer needed within 4 hours of packing time or at TSL request**

Return Cooler to TSL NN601
Call 206-598-6240