**Purpose**

To provide instructions on the appropriate usage of the Credo Coolers. This includes preconditioning the coolers, packing the appropriate blood products, activating the temperature recorder, and cooler return processing.

**Policy**

The Credo coolers are used for storing blood products that require storage at 1oC to 6oC. They must be appropriately preconditioned before use and can hold a maximum of four red blood cell and/or plasma units or 2 Whole Blood units. When a cooler is packed, a temperature recorder will also be placed in the cooler to record temperatures allowing assessment of blood product return to inventory or discard.

**Equipment**

* Credo Series 4 EMT Coolers
* Temperature recorder placed in a sealable, water tight plastic bag
* Credo Cooler Log

**Procedure**

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| **Step** | **Action** | **Related Documents** |
| **Credo Specifications** |
| 1 | **Credo Cooler System consists of 3 parts*** TIC System: internal base and lid which are “preconditioned” prior to blood storage and transport
* VIP System: **V**acuum **I**nsulation **P**anel base with hinged lid
* Outer bag with zipper closure lid

**Overview*** Light weight pack designed for use by emergency medical staff
* Holds blood and other chilled medical supplies for 24+ hours even in harsh ambient conditions.
* Reusable, iceless medical container has removable two liter TIC Insert that is preconditioned in a <-18ºC freezer.

**Ensuring Performance*** All components are clean and not damaged
* Avoid opening container unnecessarily
* Bag has not been torn or damaged during use
* Both TIC and VIP lids are secure before sealing for transport
* Avoid removing VIP base from the outer bag unless replacement or cleaning are required
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| **Conditioning the Credo Series 4 EMT Cooler** |
| **Step** | **Action** | **Related Documents** |
| 1 | **Prepare a Credo Cooler Log.*** Record cooler number
* Record Tech ID, date and time on the Cooler Log as indicated.
* Comments section available throughout process for documentation.
 | Credo Cooler Log |
| 2 | **Inspect Credo Cooler:*** Verify VIP is not expired
* Inspect for punctures, scratches, bends, tears and/or dents
* Ensure zipper is functioning and closes securely

**Condition the cooler:*** Remove the black, inner container from cooler (Box and Lid)
* Place it in a minimum -18°C freezer
* Place lid flat under the base to ensure proper gel insulant distribution
* Leave in freezer for at least 8 hours (no maximum time)
* Record Tech ID, Date/Time on Cooler Log under “Conditioned” for time placed in freezer.
* Clip cooler log to the door of the freezer.

**Prepare cooler for loading**:* Select products following the steps below before removing cooler from freezer
* Verify cooler has been in freezer for >8 hours
* Remove the black container base from the freezer
* Record Tech ID, Date/Time removed from freezer under “Prepared” on cooler log.
* Leave base at room temperature for 10 minutes
* After 10 minutes, remove cooler lid from the freezer and leave both the base and the lid at room temperature for an additional10 minutes
* Cooler should be packed within 25 minutes from freezer removal.
 | Credo Cooler Log |
| **Loading Credo Series 4 EMT Cooler**  |
| 1 | Select products per policy. All blood products must have different unit #s. Do not place products from same donor in one cooler.* Prepare and attach UNXM sticker and Transfusion Record.
* Prepare and attach ALNW or Medic One Unit Record
* Record unit number on the form using a sticker and/or written unit number and aliquot designation
* Check product type box: RBC, Plasma, or Whole Blood
	+ LTP: add Low Titer Plasma sticker
	+ LTWB: add Low Titer Whole Blood sticker
* Record tech number for preparer.
* **NOTE: the above steps are to be done in advance so there are always units prepared**
* Transfer products to appropriate location and cooler in LIS
* Ensure products are at or below 4ºC prior to loading cooler.
* Cooler log: Attach sticker or handwrite unit number and aliquot, if applicable
 | Changing Blood Product Location in SQStock Trauma Pack MaintenanceAirlift Northwest (ALNW)Medic OneUsing TAG for Emergency Release of Blood Products Credo Cooler Log |

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| --- | --- | --- |
| 2 | **Whole Blood and Red Blood Cells:*** Label one segment from unit, including aliquot designation.
* Place in a glass 12x75 tube
* Store in the corresponding ALNW or Medic One location of the RBC segment rack in TSL.
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| **Loading Credo Series 4 EMT Cooler (continued)** |
| **Step** | **Action** | **Related Documents** |
| 3 | **Temperature recorder:*** Prepare per SOP
* Record temperature recorder number on Cooler Log with Tech ID and Date/Time
 | Using the Marathon MicroDL Temperature Data Loggers |
| 4 | **2nd tech reviews ALNW or Medic One “pack”:*** Unit numbers match between face labels, unit cards, and Credo Cooler log.
* Verify LIS location transfer, Transfusion Record and unit record.
* Temperature recorder displays **REC**
* Cooler expiration is 7 days or 2 days prior to expiration of shortest date product.
* Record review on Credo Cooler Log and ALNW or Medic One unit cards
 | Credo Cooler LogALNW Unit RecordMedic One Unit Record |
| 5 | Load Credo Cooler:* 2 RBC and 2 Plasma:
* Units lay on a side with ports alternating pointing right and left.
* Plasma units are placed on the outside with their paperwork touching the cooler side while the RBCs are placed in the middle
* Do NOT lay units flat, stacking from the bottom
* Place data logger between middle units.
* 2 Whole Blood:
* Units lay flat with paperwork touching the base and lid of the cooler
* Place data logger between the units
 | Using the Marathon MicroDL Temperature Data Loggers |
| 6 | Package cooler* Place the lid of the black, inner container onto the base.
* Place the inner black cooler into the outer VIP.
* Close the white lid, ensuring it sits flush on the base
* Secure it using the Velcro strap.
* Create loop in the end of the strap for easy opening
* Zip shut the cooler.
* Attach a tie strip to the zipper handles to secure the closure.
* Record ALNW/Medic One destination on the top of the Credo Cooler Log
* Place a piece of tape on top of outer cooler bag with the date cooler needs to be returned
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| 7 | Record issue/release information on the Cooler Log.* Post Cooler Log in TSL.
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| **Monitoring Issued/Released Coolers** |
| 1 | Credo coolers will return to TSL:* + If cooler has remained refrigerated
		- Every 7 days **OR**
		- With 2 days remaining on products whichever is shortest.
	+ As soon as possible after removal from refrigerator for >24 hours cumulative.
	+ If refrigeration is unavailable at ALNW or Medic One
	+ If Credo cooler is opened
 | Credo Cooler Transport Schedule |
| 2 | Daily:* + TSL staff will examine Credo Cooler Log(s) for expiration date
	+ See Schedule for Cooler Exchange.
	+ Outside weekly scheduled exchange:
		- Contact facility to schedule return and replacement prior to expiration.
		- Record on cooler log.
 | Credo Cooler Transport Schedule |
| **Step** | **Action** | **Related Documents** |
| **Returned Coolers** |
| 1 | When the cooler is returned: * Record the time and date of return and determine if the cooler has been opened by examining the tie strip.
* Note OPENED or NOT OPENED on the Cooler Log.
* Remove tie strip, if present, and take internal temperature using Fluke Thermometer
* Place wire of fluke thermometer between the units
* Re-cover the cooler and wait for temperature on display to settle
* Document temperature on log in “comments” section
* Unpack the cooler
* Note Recorder status as Alarm or No Alarm
* Notify staff trained in downloading data when data logger is ready for download
 | Credo Cooler Log |
| 2 | Reconcile cooler inventory:* Compare product to Credo Cooler Log.
* Record “In Cooler?” Yes (Y) or No (N)
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| **Returned Blood Products** |
| 3 | Using Blood Status Update:* Quarantine all units pending review using appropriate return code
* Transfer location to “H” in Sunquest
* Place temperature recorder in Quarantine with product.
* Discard Transfusion Records and **blank** Unit Cards if units are close to expiration, otherwise save intact for future cooler exchanges
* Remove segments from rack, attach to unit for future use.
* Record “Quarantine” Yes, Tech ID and date on the cooler log.
 | Changing Blood Product Location in SQQuarantine of Blood ProductsSQ Blood Status Update |
| 4 | Staff trained in downloading of temperature recorder data and Credo Cooler Log:* Review data
* Approve the release of acceptable products from Quarantine and store in stock inventory.
* Any staff member can remove units from quarantine and return to inventory once data has been reviewed
* Record “Data Downloaded and Reviewed: Tech ID/Date/Time”
* Investigate any paperwork discrepancies
	+ *Example: Unit card completed but unit in cooler*
* Complete QIM for units found to be unacceptable.
* Discard units after consultation with TS Manager and/or Medical Director
 | Blood Product Storage Policy Using the Marathon MicroDL temperature data loggersQP: Management of Nonconforming Events |
| **Step** | **Action** | **Related Documents** |
| **Transfused Blood Products** |
| 5 | Process transfused blood products from unit cards, Transfusion Records and Credo Cooler Log:* Cooler Log: Answer “Transfused at another facility” question
* Yes if patient **not** admitted to HMC
* No if patient admitted to HMC
* Apply ORCA/EPIC/Sunquest sticker or hand write patient information in bottom right hand corner of cooler log
* Perform allocation and appropriate testing. Issue location = ALNW or MEDIC1
* Staple Unit Cards to the Credo Cooler Log
* Staple temperature data to Credo Cooler Log
* HMC Patients: Send original transfusion records and post Transfusion Records to HIM

*Note: Transfusion Records for transfused products will be returned to TSL with the unit cards but TSL will forward the transfusion record to HIM after verifying record is complete with date/time, signatures, and has patient information via label or handwritten across the top. ALNW and Medic One have a separate record of transfusion.** Non-HMC Patients: Staple all Transfusion Records to Credo Cooler Log and Unit Cards
* Document flight or run # on cooler log
 | Compatibility ProcessAirlift NorthwestMedic OneSQ Blood Order Processing Test Result Guide |
| **All Returned Coolers** |
| 6 | Obtain 2nd tech review of log:* Verify segments have been pulled from Blood Location Rack
* Verify unit location of H if in inventory
* Verify unit issued if transfused
* Verify all boxes have date/time and tech ID
* Verify “transfused at another facility” has correct answer circled
* If transfused at outside facility, ensure flight or run number is listed
* Verify back of unit card is completed on units that were issued
* Verify Physician name is listed on unit card on units that were issued
* Verify patient information on bottom of cooler log if units were issued
 | SQ Blood Order ProcessingSQ Using Blood Bank InquiryUsing the Marathon Micro DL Temperature Data Loggers |
| 7 | File cooler log:* in the Trauma Log Notebook if units have been issued
* in the Credo Cooler Notebook if units have **not** been issued
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| **Storage and Cleaning Credo Components** |
| 1 | Upon return: Inspect and clean Credo Cooler |  |
| 2 | **Inspection:**Examine all components of the Credo Cooler to ensure integrity:* Tears
* Crush damage
* Zipper not functioning
* Loose or broken straps
* Lids fit securely
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| 3 | **Cleaning:**Lid and Base:* Clean using warm water and soap or alcohol. Disinfect with gray wipes
* Do NOT use abrasive cleaners, acetone, or extreme heat

Outer bag and liner:* Damp rag with soap or alcohol
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| 4 | **Storage and Rotation:**Lid and Base:* + Store in a -18 or colder freezer

Outer Bag and Liner: Store at Room Temperature |  |

**References**

Credo Cooler Reference Manual

Standards for Blood Banks and Transfusion Services, Current Edition, American Association of Blood Banks, Bethesda, MD