**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 |  |
| **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 SQ  Stock Trauma Pack Maintenance  Airlift Northwest (ALNW)  Medic One  Using 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 Log  ALNW Unit Record  Medic 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 |  |
| 7 | Record issue/release information on the Cooler Log.   * Post Cooler Log in TSL. |  |
| **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) |  |
| **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 SQ  Quarantine of Blood Products  SQ 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 loggers  QP: 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 Process  Airlift Northwest  Medic One  SQ 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 Processing  SQ Using Blood Bank Inquiry  Using 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 |  |
| **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 |  |
| 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 |  |
| 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