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|  | **Palm Beach County Fire Rescue**  **Standard Operating Guideline**  **SOG 510-05 Blood Transfusion**  Issue Date: 05/12/2022 Effective Date: 05/12/2022 |

**PURPOSE:**

To establish guidelines for proper procurement, storage, maintenance and administration of blood products.

**AUTHORITY:**

* Fire Rescue Administrator
* Medical Director, Palm Beach County

**SCOPE:**

This standard operating guideline shall apply to Medical Services, all EMS Captains, and Flight Crews.

**ATTACHMENTS**:

Attachment A: Blood Transfusion Report

Attachment B: [Whole](http://www.example) Blood Daily Check-Off Form

**Procedures**:

These guidelines provide a basic framework for blood products.

1. **Definitions:**
   1. **Blood Bank Refrigerator** – Approved refrigeration device to store blood products long term.
   2. **Portable Blood Cooler** – Approved cooler used to store blood outside of the blood refrigerator, and deliver products to the field.
   3. **TIC™ Freezer** – Separately maintained freezer to hold the cooler insert panels (TICs).
   4. **Thermal Isolation Chambers (TIC™) Panels** – TIC™ coolants filled with phase change material and vacuum insulated panels (VIP) keep medical materials at the required temperature for up to 48 hours.
   5. **Temp° Stick™️** – Temperature monitoring device placed within the blood Refrigerator and blood cooler.
   6. **Fluid Warmer** – Approved device to be used during administration of whole blood to warm the product prior to infusing.
   7. **LTOWB+** – Low titer Group O+ Leukoreduced Whole Blood
   8. **Blood Transfusion Report (Attachment A)** – Form from the blood bank that accompanies each unit of whole blood. This form must be completed for each administration.
   9. **Whole Blood Daily Check-Off Form (Attachment B)** – PBCFR form that requires each unit of blood be visually inspected and temperature logged twice daily.
2. **Procurement** – Blood products are distributed through ONE BLOOD, via regular/requested delivery.
   1. The Medical Services Division will serve as the centralized liaison to contact ONE BLOOD to order LTOWB+.
   2. Leukoreduced O+ Whole Blood
   3. LTOWB+, titer should be < 1:256

1. **Storage** – Upon receipt of the blood products, each item will be logged on the Whole Blood Daily Check-Off Form and placed in the blood bank refrigerator at Battalion Headquarters or Trauma Hawk.
   1. Ensure all tags and unit stickers are correct for (LTOWB+) and are affixed to the bags.
   2. Ensure Temp Dot is affixed to blood bag and indicated “green”.
2. **Temperature Controls** – The blood bank refrigerator and portable blood cooler will be visually inspected and temperature checked twice each day, at 0730 and 1930, and recorded on the Whole Blood Daily Check-Off Form. Each unit of whole blood in the possession of PBCFR or Trauma Hawk must be logged.
   1. If at any time the affixed Temp Dot is indicated solid “red”, or the blood appears cloudy, discolored, or frozen, it is considered compromised and must be removed from service.
   2. A Temp° Stick™️ shall be used to continuously monitor the temperature of any container used to store or transport whole blood (blood bank refrigerator and portable blood cooler).
   3. Ensure the Temp° Stick™️ is connected to Wi-Fi as indicated on the Temp° Stick™️ app.
   4. An alert will be sent to the cell phone assigned to the Unit in possession of the whole blood if the Temp° Stick™️ detects a temperature out of range (< 1 degree Celsius or > 8 degrees Celsius).
   5. If an alert is received from the Temp° Stick™️, the storage container and whole blood should be immediately inspected and the issue should be corrected if possible.
   6. Visually inspect and log the temperature of each unit of whole blood stored in blood refrigerator and blood cooler twice daily (2-6 degrees Celsius).
   7. Each unit of whole blood must be documented on its own individual daily check-off form and visually inspected twice daily while in storage/possession of PBCFR or Trauma Hawk.
   8. Return and exchange each unit of whole blood to the Blood Bank or administer to a patient, on or before the day 21 possession date.
   9. Forward a copy of all completed Whole Blood Daily Check-Off Forms to the Medical Services Division: Fire-MSD@pbcgov.org
3. **General Instructions**:
   1. Do not delay transport to ED to initiate blood products. Administration of blood products may be initiated as soon as indicated per “Whole Blood Transfusion” protocol.
   2. Do not give medications through the Whole Blood IV/IO set.
      1. Utilize alternate access for medication administrations via IV/IO while blood products are being administered.
4. **Portable Blood Cooler Usage** – At the beginning of each shift, six TIC™ panels should be removed from the TIC™ freezer.
   1. Allow TIC™ panels to thaw for 25 minutes in flat position.
   2. The TIC™ panels should be wiped of any moisture/condensation and then loaded in the portable blood cooler.
   3. The blood products bag(s) should be removed from the blood bank refrigerator and placed inside the cooler, assuring temperature controls are in place (Temp° Stick™️).
   4. The routine time for products in this blood cooler is to be 24 hours, with a maximum time of 48 hours.
   5. The TIC™ panels from the previous shift shall be rotated back to the TIC™ Freezer and allowed to condition for at least 24 hours at -18 degrees Celsius.
   6. Be sure the temperature monitoring device (Temp° Stick™️) is maintained in the portable blood cooler and monitored throughout the shift.
5. **Rotation** – 72 hours prior to expiration of LTOWB+, contact the Medical Services Division for replacement: Fire-MSD@pbcgov.org
   1. The Medical Services Division will serve as the centralized liaison to contact ONE BLOOD to re-order LTOWB+.
   2. Blood can be exchanged 21 days prior to expiration, with a 24-hour turn-around time on ordering.
6. **Blood Transfusion Report** –Any time blood products are administered a Blood Transfusion Report shall be completed utilizing the form supplied by the blood bank. The following process shall be completed:
   1. The Blood Transfusion Report is filled out
   2. Remove barcode sticker from blood product bag and apply to both white and yellow copies of the Blood Transfusion Report.
   3. Attach the receiving hospital’s patient identification label to both the white and yellow copy of the Blood Transfusion Report.
   4. The incident number shall be written on the top of the Blood Transfusion Report.
   5. The white copy of Blood Transfusion Report shall remain with the patient.
   6. The yellow copy of Blood Transfusion Report shall be returned to the blood bank.
      1. Scan and e-mail copy to the Medical Services Division: Fire-MSD@pbcgov.org
      2. Medical Services will return the form to the blood bank.
      3. Medical Services will electronically attach the form to the ePCR.
7. **EPCR Documentation** –The following shall be documented within the EPCR:
   1. Type, titer and volume
   2. Reason for blood
   3. Administration site
   4. Patient’s temperature before, during and after administration
   5. Response to blood products
   6. Fluid warmer usage
   7. Any adverse reactions
   8. If verbal or implied consent was obtained regarding blood products
8. **Adverse Reaction** – Immediately STOP, maintain alternate fluids and follow appropriate protocol. Any transfusion reaction, must be reported to the receiving facility.
   1. Consistently watch for transfusion reaction.
   2. If an anaphylactic reaction exists, stop transfusion, change all lines and refer to “Allergic Reaction” section of the EMS Patient Care Protocols.
   3. The EMS Captain/Flight Crew shall ensure the blood products, with all tubing (LifeFlow tubing and QinFlow DU), will be packaged in a red bag and returned to the blood bank.
9. **Religious Observations** –Some religions will refuse to accept blood products. In this instance follow EMS protocol, and document the refusal in the EPCR.
10. **Out of Temperature or Compromised** –If any blood product is discovered out of temperature range (that has not been immediately corrected) and/or is visually compromised in any way:
    1. If at any time the affixed Temp Dot is indicated solid “red”, or the blood appears cloudy, discolored, or frozen, it is considered compromised and must be removed from service.
    2. Complete a Property and Liability Accident/Incident Report and obtain a Property Damage Tracking Number per FR-T-302
    3. Take the blood out of service, store in the blood bank refrigerator and label “out of service”.
    4. The blood bank will be contacted and an incident investigation will be done to prevent reoccurrence.
11. **QinFlow Portable Fluid Warmer** – The fluid warmer should be used whenever possible during the administration of LTOWB+. Routine care and operation should include:
    1. Turn on the unit daily and ensure the battery level is adequate.
    2. Batteries do not need to be depleted completely before recharging.
    3. Batteries should be swapped weekly, every Monday, and recharged after each use.
    4. The base unit, battery, and battery charger are reusable devices.
    5. Clean the base unit and battery after each use.
       1. Cleaning should consist of wiping the external covering of the base unit with a department approved anti-germicidal wipe.
       2. Do not submerge, sterilize or autoclave the base unit or the battery.

**Supersession History**

1. SOG #510-05, issued 05/12/2022