

 MONONGALIA EMS	BLOOD ADMINISTRATION			
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PURPOSE: Monongalia Emergency Medical Services (Mon EMS) is committed to providing our patients with the highest quality and most evidence-driven emergency medical care. The prehospital administration of whole blood has been shown to improve critically ill patients' survival and decrease hospital blood product administration, thus helping conserve precious blood resources. An increasing number of EMS systems worldwide have implemented whole blood programs.

This policy outlines Mon EMS's prehospital whole blood program in partnership with WVU Ruby Memorial Transfusion Services/Blood Bank. It includes storage, administration, and documentation procedures. It is imperative for our patients' safety and the program's sustainability that all personnel strictly adhere to the storage and administration practices described in this document.

POLICY: Mon EMS shall establish Blood Administration Guidelines that shall outline the training, education, equipment, storage, administration, documentation, and general blood administration procedures. All Mon EMS personnel participating in the blood administration program must comply with all guidelines to ensure patient safety and the proper administration of blood and blood products.

SECTION 1: DEFINITIONS

1. **Compact Disposable Unit (CDU)** – the disposable unit connected to the QinFlow Warrior Lite device via an extension cord, in which the blood/fluid coils through to be warmed.
2. **Delta Insulated Container** – Cold chain carry bag that insulates a Phase Change Material (PCM)
3. **Hemorrhagic Shock** – The type of shock that occurs following blood loss.
4. **LifeFlow Infuser** – a reusable unit, in the shape of a gun, which allows for a fast bolus of blood/fluid into the patient. LifeFlows y-shaped disposable blood tubing must be used with this device in order to work.
5. **Low Titer O+ Whole Blood (LTO+WB)** - aka "Whole Blood"
6. **Phase Change Material (PCM)** – The primary container that houses whole blood, providing the required temperature range.
7. **Shock Index** – A calculation to quantify the various stages of shock. Shock Index = Heart Rate / Systolic Blood Pressure. A normal class I shock: SI < 0.6; class II shock; SI ≥0.6 to <1.0; class III shock SI ≥1.0 to <1.4, class IV shock: SI ≥1.4
8. **Safe T Vue Indicator:** Blood temperature indicator sticker attach to the unit of blood.
9. **QinFlow Warrior Lite** – the device includes a battery unit, extension cord, and compact disposable unit (CDU) to warm the blood/fluid.

SECTION 2: GENERAL GUIDELINES

1. All personnel participating in the Mon EMS Blood Program must comply with all applicable sections of the Blood Administration Guidelines. This includes but is not limited to:
 - a. Minimum qualifications
 - b. Initial training and education requirements
 - c. Ongoing education and competency
 - d. Complete and timely documentation of patient care activities

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- e. Complete and timely documentation of logistical requirements
 - f. Communication with Clinical Services, Medical Director, and Medical Command
 - g. Quality review
2. All personnel will notify their Supervisor and/or Director of Clinical Services immediately if any parameters established in the guidelines are not met.

SECTION 3: DETAILS

1. Authorization to Administer Whole Blood
 - a. EMS Clinicians who have completed the West Virginia Office of EMS and Monongalia EMS-approved training programs may administer whole blood to patients. In accordance to the West Virginia Statewide EMS Protocols, a Paramedic or AEMT who is authorized to administer blood must be the one to administer the blood. Additionally, a second clinician who is authorized to administer blood is required. This clinician may be an EMT, AEMT, or Paramedic. The Mon EMS whole blood training and credentialing process consists of successfully completing the following components:
2. Initial Training and Credentialing
 - a. Successful completion of the West Virginia Office of EMS Blood Administration Course on the Department's Learning Management System (LMS).
 - b. Successful completion of the Mon EMS Fundamentals of Blood Administration Course, covering blood product storage and administration, procedures, skills, and simulations in person.
3. Ongoing Maintenance of Credentialing
 - a. Successful completion of the West Virginia Office of EMS Annual Update Blood Administration Course on the Department's Learning Management System (LMS).
 - b. Successful completion of the Mon EMS Blood Administration Review course.
4. Operational Deviation
 - a. If any action requested by the blood bank, MEDCOM, or any other outside entity and is outside the scope of this document, an incident report should be submitted in addition to notifying the Director of Clinical Services and Director of Operations.

SECTION 4: EQUIPMENT

1. The following equipment maintains the blood supply in Mon EMS blood-equipped Shift Captain vehicles. Blood Administration Equipment shall only be stored in the Shift Captain vehicle or other temporary designated place. Storing Blood Administration Equipment in any other vehicle is only permitted with approval by the Director of Operations, Director of Clinical Services, or Medical Director.
2. The minimum Blood Administration equipment shall include the following:
 - a. [1] Delta Insulated Container
 - b. [3] Phase Change Material (PCM) Packs
 - c. [1] Dedicated Freezer set to at least -18°C
 - d. [1] QinFlow Warrior Lite Blood Warmer Base
 - e. [1] QinFlow Warrior Lite Blood Warmer Extension Cable
 - f. [2] QinFlow Warrior Lite Blood Warmer Compact Disposable Units (CDUs)
 - g. [2] QinFlow Warrior Lite Blood Warmer Extra Batteries
 - h. [1] LifeFlow Infuser

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- i. [2] LifeFlow Blood Infusion Tubing
- j. [1] 250ml normal saline bag
- k. [1] Glass Thermometer
- l. [1] Labeled 2.5-gallon bag
- m. [1] Unit Low Titer O+ or O- Whole Blood OR [2] Packed Red Blood Cells and [2] Fresh Plasma



DEDICATED FREEZER

- The supervisor office of Station 66 shall have a storage freezer.
- The freezer will have a combination lock on it.
- The freezer shall be plugged into an outlet that is generator-supported.
- The freezer shall be set to a temperature of at - 20°C.
- The freezer shall have a thermometer to provide continuous temperature validation.
- The freezer will have two Thermal Isolation Chambers (TIC) conditioned for 24 hours. The TIC insert box will be placed in the freezer apart from the lid.



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DELTA INSULATED CONTAINER

- The Captain's vehicle (EMS1) will be issued one Delta Insulated Container bag that contains a Phase Change Material (PCM) pack.
- Mon EMS has two coolers, "Hatfield" and "McCoy". One cooler is used as a backup/training cooler.
- It is reusable.

Symbol	Description
	Power / Wake icon. This icon identifies the button that, when held for three seconds, powers on/off the device. When the button is pressed once while on, the device will wake from sleep mode.
	Wireless Communications icon. This icon identifies the button which, when pressed, cycles through wireless communications options. These options include Airplane mode ON/OFF When Airplane mode is OFF, Cellular, Bluetooth and GPS are active
	Charging: Indicates the battery is charging.
	Disabled: Indicates that cellular, Bluetooth and GPS are disabled.



DELTA INSULATED CONTAINER INTERFACE

- Power Button -- Hold for 3 seconds and release to turn On and off the device.
- Wireless Communication Button -- Cycles through the different communication operation modes. Pressing and holding the wireless communication button for 3 seconds will enable/disable airplane mode. When enabled, airplane mode shuts off all cellular, Bluetooth and GPS transmissions.
- Display -- Automatically turns off after 4 minutes to save energy.
- Status LED -- Indicates status of the Delta ICE's operation by lighting red or green LEDs.
 - Red -- The status LED turns red when the compartment temperature is outside of the range of 2 - 6°C.
 - Green -- The status LED turns green and blinks when the compartment temperature is inside of the range of 2 - 6°C.
- Alarm -- Notifies the user of a temperature excursion, lid open, or low battery. The alarm will stop ringing when a button is pressed.

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	• Temperature Excursion -- The alarm will ring when the compartment temperature leaves the range of 2 - 6°C. • Low Battery -- The alarm will ring when the battery level drops below 10%.
	DELTA INSULATED CONTAINER DISPLAY SCREEN The display home status screen can display the following: - Temperature -- The displayed temperature best represents the compartment and payload temperature. It is measured at the bottom of the compartment under a raised feature. This value is recorded in memory and exported to the app. - Duration -- Displays the estimated time remaining until the payload rises above safe storage temperature (6°C). The estimate varies with ambient temperature. - Last Transmission -- Displays the time since the last data transmission. If airplane mode is enabled, both cellular, Bluetooth and GPS are disabled and the adjacent symbol will appear. - Battery Level -- Indicates battery's remaining capacity. A lightning bolt will appear over the battery when external power is plugged in. When the capacity is below 10%, the level will turn red. - Warning -- A warning popup will display when a temperature excursion occurs or the lid is left open for 1 minute. Press the power button once to silence the warning.



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PHASE CHANGE MATERIAL (PCM) PACK

- Mon EMS has a total of 4 PCMs (A, B, C, and D).
 - 1 that is in the active Delta Insulated Container
 - 2 that are in the freezer for exchange
 - 1 that is in the second-line Delta Insulated Cooler
- The PCM box is effective at maintaining temperatures between 2°C and 6°C for 48 hours at an ambient temperature of 77°F.
- The PCM boxes will be rotated every 24 hours at 0300.
- When the PCM box is removed from the freezer, it should be frozen and not “slosh” or sound like it contains liquid.
- It is reusable.



LIFEFLOW PLUS VOLUME INFUSER

- This is a hand-operated rapid infuser for precise volume delivery of blood, 10ml at a time. It allows one blood unit to be administered in about 2 minutes.
 - The LifeFlow infuser requires a dedicated infusion set with an integrated administration tubing set.
- It is to be used no more than 5 times and then disposed of and replaced. A slash mark in permanent marker should be added to the side of the device after each use.



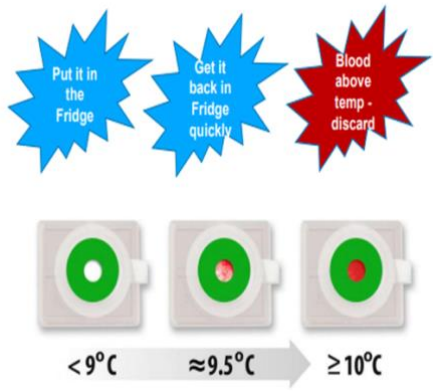
SPECIALIZED LIFEFLOW INFUSION FILTERED “Y” BLOOD TUBING

- This tubing set is specifically designed for the administration of blood products.
- It contains a specialized filter and is wider than conventional tubing.
- It is a one-time use only.

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	QinFlow Warrior Lite Fluid Warmer And Extension Cable The Captain's vehicle will carry a QinFlow Warrior Lite Fluid Warmer with the required accessories and the Extra Power Battery. The unit will warm near freezing blood/IV fluids at up to 180 ml/min, or up to 3 liters of blood/IV fluids on a single charge, to 38°C. The Warrior Lite comprises four parts: the Base Unit, the extension cable, the battery, and a Compact Disposable Unit (CDU). It is reusable.
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	QinFlow Warrior Lite Compact Disposable Unit (CDU) This is the disposable unit where the warming takes place. It is a one-time use only.
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	Safe T Vue (CDU) The Safe T Vue provides a warning when units are reaching 10°C, where corrective action can be taken to save the unit. These are installed by the blood bank staff and do not need to be changed or activated by Mon EMS personnel. When reviewing the indicator window, note the color: SOLID WHITE - the unit is under 10°C and acceptable SPECKLED RED - (IMMEDIATE ACTION REQUIRED) the unit must be returned to the cooler/ blood bank to avoid discard and allow the unit to return to proper temperature. SOLID RED- (SAFETY ALERT) the unit must be returned to the blood bank and exchanged
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SECTION 5: BLOOD PRODUCT

1. Monongalia EMS shall carry 1 unit of Low Titer Type O+ or O- Whole Blood (LTO+WB/whole blood) provided by the WVU Transfusion Services/Blood Bank. A unit of whole blood is roughly equal to 500 mL.
2. If whole blood is not available, Monongalia EMS will carry 2 units of packed red blood cells (PBRs) and 2 units of plasma. These are also known as "blood products". A unit of PBRs/plasma is roughly equal to 250 mL. If whole blood is not available, both units of PBRs and both units of plasma shall be administered to the patient.

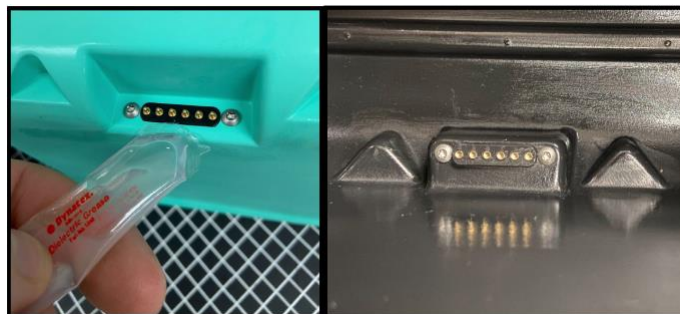
SECTION 6: STORAGE

1. All blood/blood products shall be continuously housed in the Delta Insulated Container to maintain a storage temperature between 2° - 6° Celsius per applicable FDA regulations. Only

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blood and the temperature monitoring probe shall be stored in the Delta bag. At no time shall food or drink be stored in the blood equipment.

2. The Delta Insulated Container has a built-in wireless thermometer with a high and low alarm parameter set.
3. Blood products need to be kept between 2-6° Celsius. For a buffer, the alarms are set at: Low: 2.5° and High: 5.5°
4. The thermometer is used to both log temperature readings and send alerts if it falls outside of range.
 - a. If the temperature falls outside of range, alerts are sent via app and text. The Captain must keep the supervisor's cell phone on them at all times.
5. Leave the Delta ICE plugged in and fully charged so it is ready for a mobile mission at a moment's notice. The battery will not be degraded by leaving the device plugged in.
6. The blood shall be removed from the Delta Insulated Container only for transfusion to a patient or to transfer when changing over PCMs.
7. Except when being administered, exchanged, or during weather extremes, the Delta bag shall remain in the unit assigned to carry it at all times.
8. If the vehicle carrying the blood is outside a temperature-controlled environment (e.g., garage), it shall remain turned on to allow continuous WiFi and environmental controls.
9. The vehicle must be locked.
10. When the Delta Insulated Container is in the vehicle, it must be in the climate control area of the vehicle to maintain a temperature between 40-80° F.
11. If the outside temperature is below 20° or above 90° Fahrenheit, then the Captain shall carry the Delta Insulated Container on their person.
12. The Delta Insulated Container operates using a cellular connection, thus it does not need to be connected to a Wi-Fi network. The device will automatically push cellular data every 15 minutes
13. The display will show the current temperature, remaining holdover time, battery level, and time since last wireless transmission. The front LED will blink green when the temperature is in range and turn solid red when the temperature is too hot or a fault is present.
14. The exterior housing can be cleaned with a damp, soapy cloth. For general decontamination and cleaning, apply a 70% isopropyl alcohol solution with a soft cloth. The exterior, interior, and PCM Pack can be cleaned with this solution. The interior compartment and PCM pack may also be cleaned with up to 3% chlorhexidine solution when disinfection is required.
15. On the first of the month, the electrical contacts of the PCM must be lubricated.
 - a. Apply a small amount of supplied Dielectric grease to the PCM Pack spring contacts.
 - b. Apply a small amount of supplied Dielectric grease to the contacts on the inside of the compartment.



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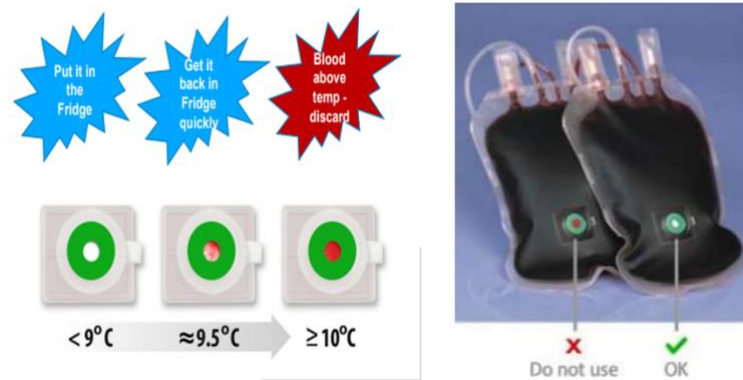
SECTION 7: DAILY PCM CHANGEOVER

1. The PCM changeover processes will occur daily on the night shift:
 - a. 0200 – Remove new PCM from the freezer and place on the conditioning mat
 - b. 0220 – Wipe off the PCM with the cloth. Place the PCM from the Delta Insulated Container in the freezer and place the new PCM in the Delta Insulated Container.
2. The PCM shall be removed from the freezer and allowed to condition for 20 minutes to achieve the correct temperature ($>1^{\circ}\text{C}$) before being inserted into the Delta Insulated Container. The PCM should be placed on the mat while conditioning.
3. If the 20 minutes is interrupted by a call, place the PCM back in the freezer and restart the process when back in service.
4. When the PCM is removed from the freezer and is not entirely frozen (it makes a sloshing sound), do not exchange it with the one in the Delta Insulated Container. Check the freezer operation and contact the Director of Operations for further directions.
5. While waiting during the 20-minute period, place the glass bottle thermometer inside the PCM currently in the Delta Insulated Container and ensure the temperature matches the reading on the Delta monitor.
6. While waiting during the 20-minute period, place the glass bottle thermometer inside the freezer and ensure that the temperature is at least -18°C .
7. On the TempWatch™ accessory, the green checkmark illuminates and pleasant tone rings when the Pack temperature has reached 2.5°C .
8. Once 20 minutes have passed, dry off every surface of the PCM Pack, including the pins located at the bottom of the pack, using the supplied towel as shown below and place it into the carry bag to check the temperature periodically until the appropriate temperature is reached. Check the temperature inside this PCM and ensure it is at a minimum of 2°C . If it is too cold, continue conditioning.



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9. Check to ensure that the Safe T Vue sticker on the unit of blood is white in the center.

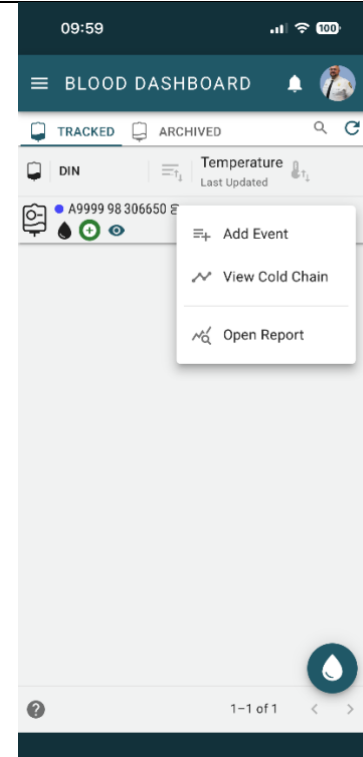


10. The blood should be placed with the Safe T Vue side facing down, towards the bottom of the cooler.
11. The PCM shall be immediately placed inside the Delta Insulated Container.
12. With one hand, align the lid latch with the latch base. The latch is magnetic and will automatically pull the latch to the base.
- The front panel on the Delta LED will blink green when the temperature is in range and turn solid red when the temperature is too hot or a fault is present.
 - The Delta ICE will maintain storage temperature best with a well-sealed lid. This is accomplished with the lid latch. With one hand, align the lid latch with the latch base. The latch is magnetic and will automatically pull the latch to the base.
13. The outgoing PCM that has just been removed Delta Insulated Container shall be rotated back to the dedicated freezer and allowed to condition for at least 24 hours at -18 degrees Celsius or colder.

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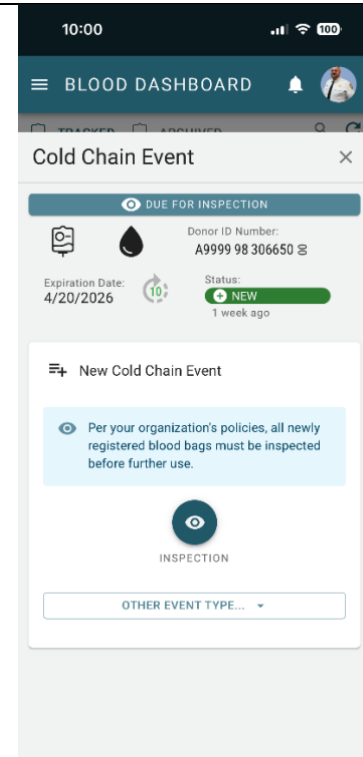
Step 14

- On the Blood Dashboard, click on the unit of blood/product.
- Select “Add Event”



Step 15

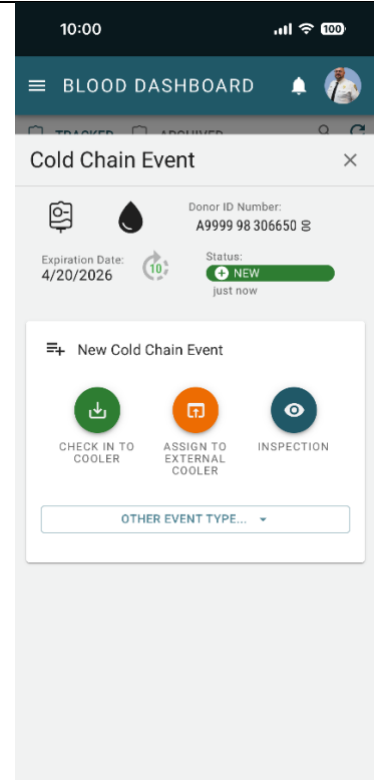
- Click “Other Event Type”



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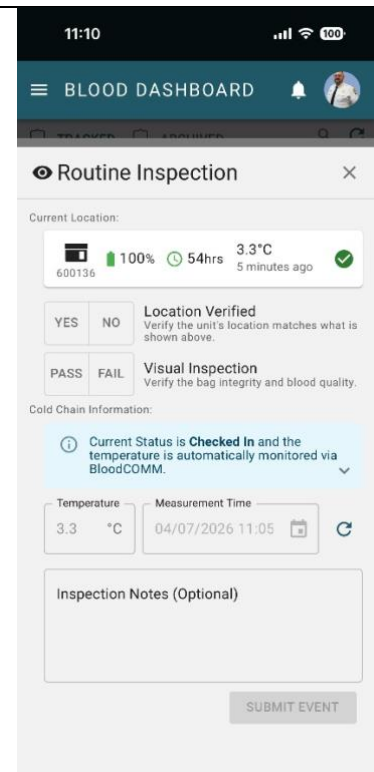
Step 16

- Click "Inspection"



Step 17

- Complete a visual inspection of the unit:
 - Expiration date
 - Are there any obvious signs of bacterial contamination?
 - Is there excessive hemolysis?
 - Is the unit dark red, purple, or black in color
 - Are there any visible foreign substances in the unit?
 - Are there any visible clots in the unit?
 - Are the WVU Transfusion Service tie tags attached and legible?
- Type in the current temperature displayed on the Delta Cooler
- Select the current time and date.
- For "Inspection Note" type "PCM A replaced with PCM B" (whichever PCMs you are using).



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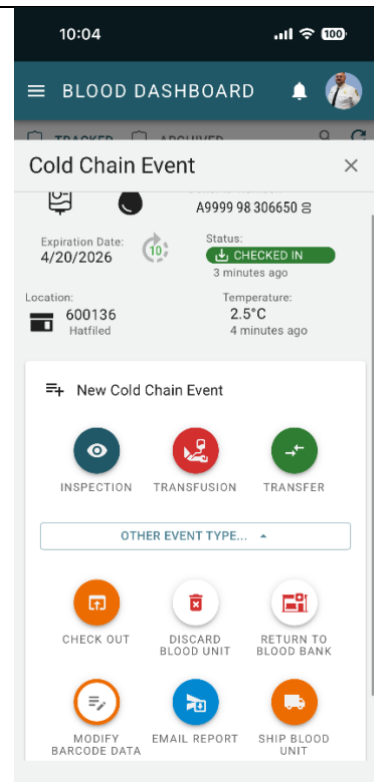
SECTION 8: EXCHANGE OF BLOOD

1. Only Captains or personnel authorized by the Director of Operations can exchange or replace blood products.
2. The exchange of blood/blood products will occur weekly on Wednesdays at 0300 at the WVU Ruby Memorial Transfusion Services/Blood Bank. If the blood expires sooner than Wednesday, it should be exchanged before that day.
3. Paperwork from the Blood Bank will contain information for each unit of blood. It will accompany the blood unit while under the Department's possession.

Check Out the Old Unit of Blood

Step 4

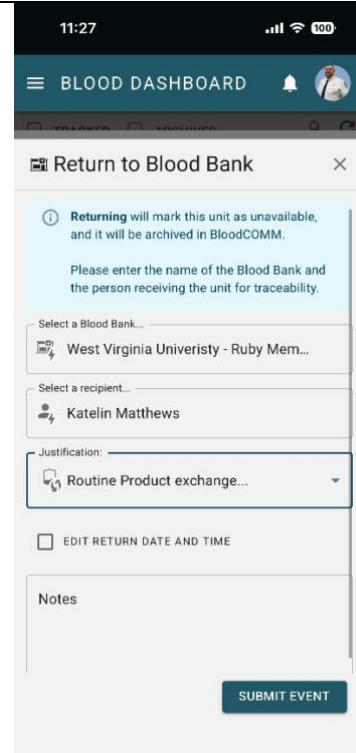
- On the Blood Dashboard, click on the unit of blood/product.
- Select "Add Event"
- Select "Other Event Type"
- Select "Return to Blood Bank"



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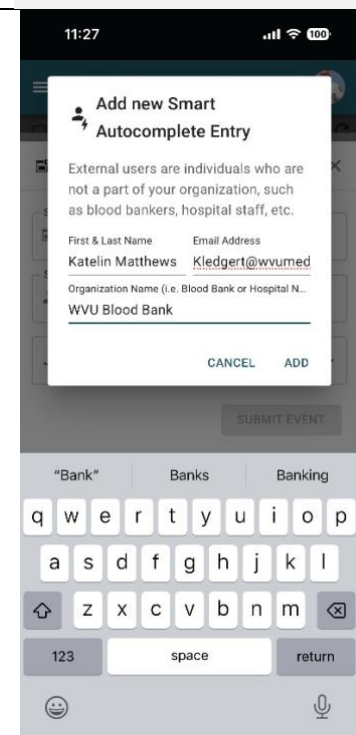
Step 5

- Record the following information:
 - Select a Blood Bank: Select WVU from the drop down
 - Select a Recipient: 1) Select the Blood Bank personnel from the dropdown or 2) If the persons name isn't in the list, go ahead and add them. Make sure that you complete all information and capitalize appropriately.
 - Justification: Select "Routine Blood Exchange."
- Click "Submit Event"



Adding a Blood Bank Personnel

- Make sure to add their full legal name
- Make sure to add their WVU email
- For the Organization Name, type "WVU Blood Bank"

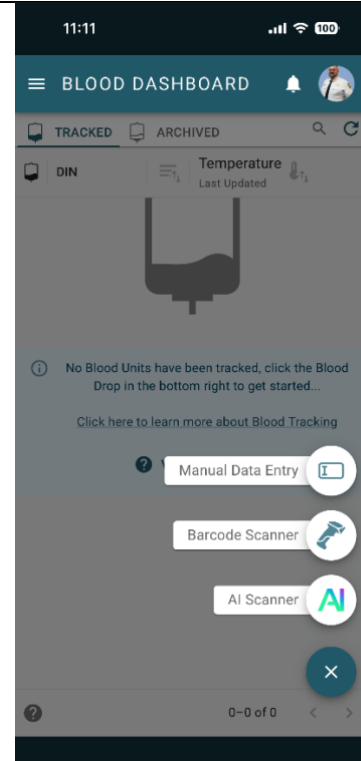


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Check in the New Unit of Blood

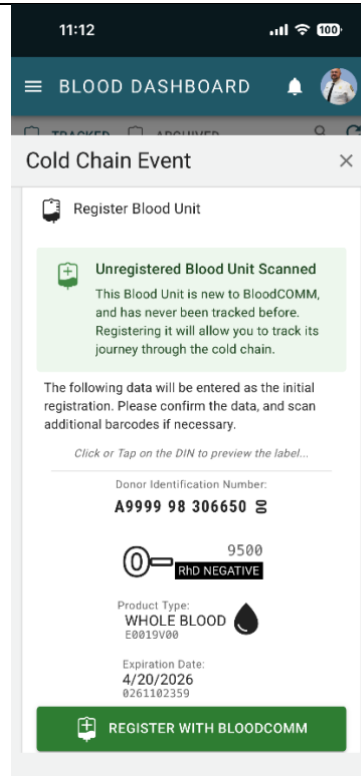
Step 6

- In the BloodCOMM app, go to the Blood Dashboard. Select the teal blood drop icon in the bottom right corner.
- Select "AI Scanner"



Step 7

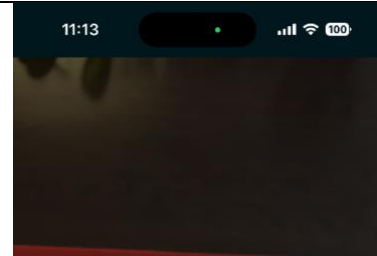
- Click "Register with BloodCOMM"



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Step 8

- Confirm that the scan results on the app match what is on the blood/product unit sticker.
- Click "Confirm"



Confirm Scan Results

11:13

A9999 98 306650

ISBT 128 Validation Sample...

City, State or Province, Postal Code

Website Address

9500

RhD NEGATIVE

VOLUNTEER DONOR

E0019V00

0261102359

20 APR 2026 AT 23:59

WHOLE BLOOD

CPD/450mL refg

ResLeu<SES

TRY AGAIN

CONFIRM

Step 9

- Complete the Unit Inspection, by clicking on the teal circle icon with a eye that says "Inspection"

11:13

BLOOD DASHBOARD

Cold Chain Event

DUE FOR INSPECTION

Donor ID Number: A9999 98 306650

Expiration Date: 4/20/2026

Status: NEW just now

Register Blood Unit

New Cold Chain Event

Per your organization's policies, all newly registered blood bags must be inspected before further use.

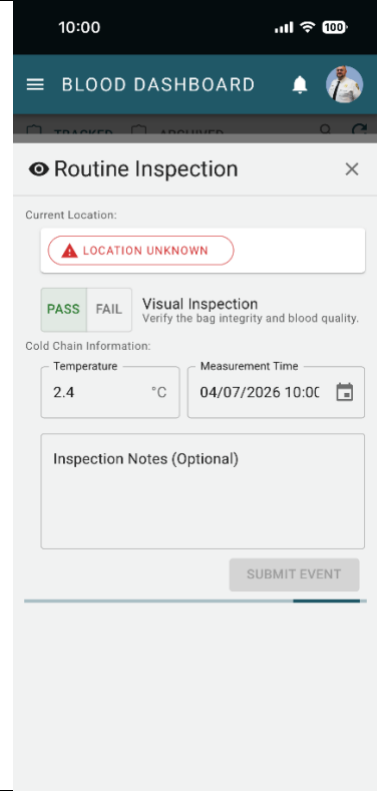
INSPECTION

OTHER EVENT TYPE...

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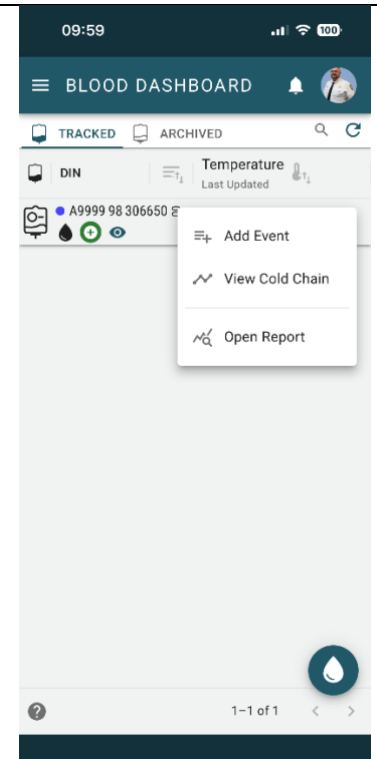
Step 10

- Complete a visual inspection of the unit:
 - Expiration date
 - Are there any obvious signs of bacterial contamination?
 - Is there excessive hemolysis?
 - Is the unit dark red, purple, or black in color
 - Are there any visible foreign substances in the unit?
 - Are there any visible clots in the unit?
 - Are the WVU Transfusion Service tie tags attached and legible?
- Type in the current temperature displayed on the Delta Cooler
- Select the current time and date.
- If there are any issues, type them in the inspection notes.



Step 11

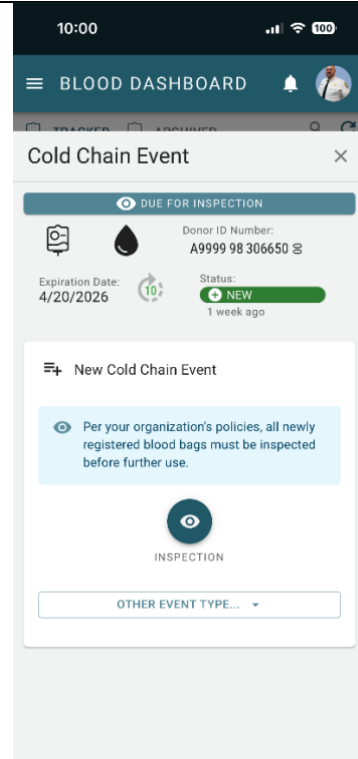
- On the Blood Dashboard, click on the unit of blood/product.
- Select "Add Event"



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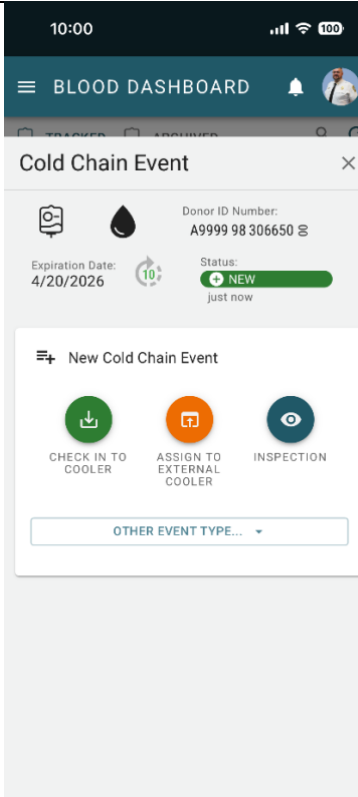
Step 12

- Click "Other Event Type"



Step 13

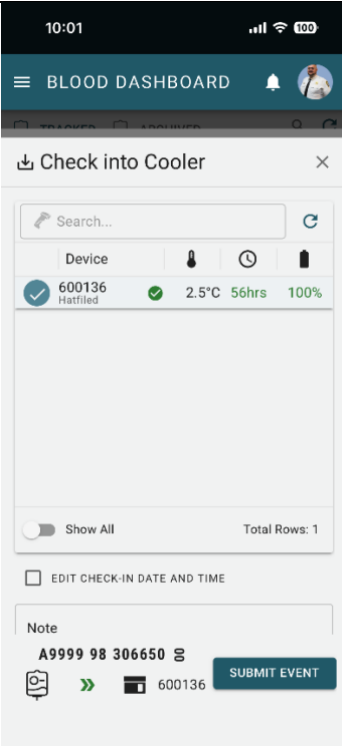
- Click "Check in to Cooler"



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Step 14

- Select the Delta Cooler (Hatfield or McCoy) that you are placing the blood in.
- Click "Submit Event"



10:01

BLOOD DASHBOARD

Check into Cooler

Search...

Device

600136 Hatfield	2.5°C	56hrs	100%
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Show All

Total Rows: 1

EDIT CHECK-IN DATE AND TIME

Note

A9999 98 306650

600136

SUBMIT EVENT

SECTION 9: BLOOD TEMPERATURE DISCREPANCY

1. The Captain shall complete the following:
 - a. The Director of Operations, Director of Clinical Services, and Medical Director shall be immediately notified. If the Director of Operations cannot be reached by phone, a text or e-mail shall be sent as soon as possible as notification.
 - b. The Director of Operations shall immediately notify WVU Ruby Memorial Transfusion Services/Blood Bank to inform them of the temperature discrepancy.
 - c. The decision to exchange or discard blood shall be at the discretion of WVU Ruby Memorial Transfusion Services/Blood Bank.
 - d. The Captain shall perform immediate preliminary fact-finding efforts to determine if, how, when, and why the discrepancy may have occurred. If the initial fact-finding effort cannot rule out tampering or inappropriate use of the blood products, the discrepancy shall be considered unresolved, and further investigation and action will be required.
2. Upon completion, the Director of Operations shall provide a summary report of the preliminary fact-finding effort to the Director of Clinical Services and Medical Director.
3. Investigations that reveal inappropriate handling or access to blood products shall result in internal escalation.
4. *If the recorded temperature falls between 1-2° Celsius or 6-10° Celsius for more than 30 minutes OR Safe T Vue is red the following shall occur:*
 - a. Open the Blood Temperature Discrepancy form in the agency's online management system and complete it, along with the outlined procedure.
 - b. Immediately move the Delta Insulated Container to an acceptable temperature environment.

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- c. Follow the procedure used for daily PCM exchange.
 - d. In addition, for temperatures between 7-10° Celsius, complete the following.
 - i. If not at Station 66, return to the station with the blood freezer.
 - ii. Attempt to have personnel remove a conditioned PCM and begin the timer.
 - iii. During the movement of blood products to the new PCM, examine the Safe T Vue.
 - e. Notify the Director of Operations and provide the following information.
 - i. The maximum or minimum temperature recorded
 - ii. The event(s) causing the blood to fall out of range
 - iii. What actions have been taken to return the blood to the acceptable temperature range
 - f. The Captain shall arrange to return the blood to WVU Ruby Memorial Transfusion Services/Blood Bank immediately.
5. *If the temperature probe fails:*
- a. Open the Blood Temperature Discrepancy form on Vairkko and complete it, along with the outlined procedure.
 - b. Immediately move the Delta Insulated Container to an acceptable temperature environment.
 - c. Notify the Director of Operations and provide the following information.
 - i. The specific issues that have occurred with the temperature gauge
 - ii. The maximum or minimum temperature recorded
 - d. Every 4 hours, take the temperature inside the PCM using the glass bottle thermometer to ensure it remains between 1-6°C. Log this temperature using the Vairkko form.

SECTION 10: WHEN A CAPTAIN OR LIEUTENANT IS NOT ON DUTY

1. If at any time a Captain is not on duty, the Director of Operations shall designate an ALS clinician who is approved to administer blood by the WVOEMS to carry the blood and associated equipment on their assigned unit for the shift.
2. This ALS clinician may be already assigned to an ambulance that day or may be an administrative or education staff member utilizing a chase vehicle.
3. The person must have the supervisor's cell phone that connects to the Delta Insulated Container.
4. The Director of Operations will ensure that proper exchange and reporting is taken care of.

SECTION 11: REQUESTS FOR BLOOD FROM OTHER EMS AGENCIES

1. Mon EMS will provide this policy to surrounding EMS agencies and inform them that they may request blood from Mon EMS. If personnel and resources are available, Mon EMS will respond to intercept the requesting unit to provide and administer blood.
2. Requirements & Procedures:
 - a. Surrounding EMS agencies are encouraged to have clinicians complete the WVOEMS training required for blood administration, allowing them to serve as the second clinician required for administration.
 - b. The requesting unit must be en route to WVU Ruby Memorial Hospital.

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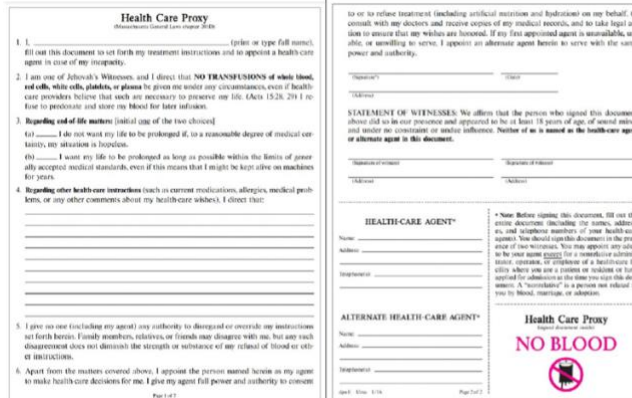
3. If the requesting unit does not have a clinician authorized to administer blood, the Mon EMS Captain will assess operational resources to determine whether Mon EMS can dispatch a second unit and the Captain to intercept.
4. If resources are unavailable, the request will be denied.
5. If the ALS clinician on the requesting unit states they are WVOEMS-authorized to administer blood:
 - a. Mon EMS personnel are not responsible for verifying credentials upon intercept.
 - b. The Director of Clinician Services will verify the clinician's credentials within 48 hours. If the credentials are unauthorized, the incident will be reported to the Medical Director and WVOEMS.
6. If the request is granted, both Mon EMS ALS clinicians administering blood must remain with the patient through transport and transfer of care at the receiving facility.

SECTION 12: ADMINISTRATION

1. Administration shall follow the latest edition of the WV Statewide Prehospital EMS Protocols.
2. Consent
 - a. Obtain informed verbal consent for blood transfusion if the patient can give consent (or someone legally authorized to consent for the patient is present to give consent in a reasonable time under the circumstances).
 - a. If informed consent cannot be obtained, blood may be administered under implied consent.
 - b. Patients have the right to object to receiving blood products—religious belief is the most common reason for refusal. Jehovah's Witnesses reference several passages of the Bible when choosing to abstain from blood transfusion (including whole blood, pRBCs, and plasma). Many members of Jehovah's Witnesses carry a Durable Power of Attorney card (DPA) that identifies their and their church's stance on blood transfusion.
 - c. When the status of a Jehovah's Witness patient is not known and a blood card cannot be identified, the clinician shall act in the patient's best interest. Relatives or friends on the scene who suggest that a patient would not accept a blood transfusion shall be asked to provide documentary evidence (e.g., "Does the patient carry a blood card or DPA?"). If a patient is verbal and displays appropriate decision-making capacity or if a signed DPA card is provided, the EMS team shall respect the patient's verbal or written decision. If doubt exists about the validity of a DPA card, clinicians shall aim to preserve life and administer the necessary blood product(s).

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- d. A patient's signed DPA card is considered equivalent to an advanced directive.



The image shows a 'Health Care Proxy' form from Monongalia EMS. It contains sections for patient information, medical instructions, and a 'NO BLOOD' stamp. The stamp is a red circle with a slash through it and the words 'NO BLOOD' in bold red letters. The form also includes a 'HEALTH-CARE AGENT' section and an 'ALTERNATE HEALTH-CARE AGENT' section.

Example:

*Durable Power of Attorney (DPA) card for Jehovah's Witness patients. This document folds so that the **NO BLOOD** portion is clearly visible.*

- e. If, after administration, it is discovered that a Jehovah's Witness patient has received a blood transfusion, the Director of Operations, Director of Clinical Services and Medical Director shall be notified immediately.

SECTION 13: PROCEEDURE

1. Per WV Protocol, blood administration requires at least one ALS clinicians (AEMT or Paramedic) and one EMT or higher who are authorized by WVOEMS to administer blood.
2. The clinicians do not need to have critical care C3IFT or MCCP endorsements to administer blood.
3. The two clinicians must remain with the patient in the back of the ambulance until patient care is transferred to the receiving facility.
4. One clinician (which may be a BLS) shall remove the Blood Administration Checklist and verbally go over and check off each step of the process as it is conducted.
5. Gather all necessary equipment to conduct a pre-hospital blood transfusion.
6. If whole blood is not available, both units of PBRCs and both units of plasma shall be administered to the patient.
7. Inspect the Safe T Vue Indicator to ensure the blood is at the appropriate temperature.
8. Obtain a baseline or pre-transfusion set of vitals (including temperature if at all possible).
9. Ensure IV (preferred)/IO patency or establish access. (If given via IO, blood will flow slower)
10. Administer blood. Nothing is to be administered through blood tubing but normal saline and blood products.
11. Monitor vitals for signs of a transfusion reaction (see below).
12. In a different line from the blood line, administer TXA to treat traumatic hemorrhagic shock (per WV Protocol). TXA can be administered prior to or concurrently with blood products through a different IV access site.
13. In a different line from the blood line, administer Calcium Chloride to treat hypocalcemia (per WV Protocol), which is known to occur with transfusion and hemorrhagic shock.
14. It is preferred that the patient be transported to West Virginia University (WVU) Ruby Memorial Hospital – Level 1 Trauma Center if they have received blood. (The blood is currently provided to Mon EMS by WVU Medicine) Clinicians must follow Protocol and MEDCOM orders. If the patient wishes to go to another facility when Protocol or MEDCOM directs differently, then a Patient Initiated Refusal should be obtained for the appropriate facility.

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15. Upon arrival at the receiving facility, a face-to-face closed-loop discussion shall occur with the attending physician to ensure they know that prehospital Whole Blood was transfused. Transfer used bag of blood products to the receiving team.

SECTION 14: TRANSFUSION REACTIONS

1. Personnel shall monitor the patient for signs and symptoms of a potential blood transfusion reaction. Transfusion reaction signs and symptoms include:
 - a. Hives
 - b. Wheezing
 - c. Rigors (uncontrollable chills)
 - d. Fevers
 - e. Abdominal pain
 - f. Vomiting
 - g. Sudden hypotension worsening or tachycardia inconsistent with the patient's underlying condition.
 - h. Shortness of breath
 - i. Facial flushing
 - j. Bronchospasm
2. Suspected Transfusion Reaction Procedures
 - a. Stop the transfusion.
 - b. Start a Normal Saline Infusion in the same IV.
 - c. Consult with MEDCOM for consideration of Diphenhydramine and to notify of the transfusion reaction.
 - d. Photograph the unit of blood.
 - e. Collect all administration equipment (Unit(s) of blood, administration set, and CDU) and place it in a labeled 2.5-gallon bag.
 - f. Confirm with hospital staff that they will begin the investigation and testing of blood.
 - g. STAT notification to the Director of Operations, Director of Clinical Services, and Medical Director, who will immediately notify WVU Ruby Memorial Transfusion Services/Blood Bank.

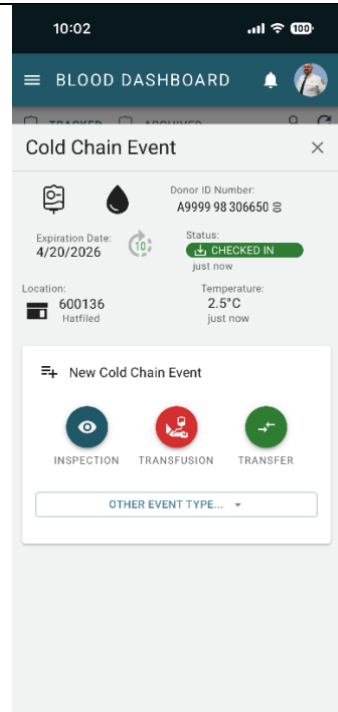
SECTION 15: POST-ADMINISTRATION

1. Upon infusing whole blood, clinicians shall use the department-issued phone to photograph the unit(s) of blood administered, with the label visible in the photo and a photo of the paperwork.
2. This photo shall be attached to the patient care report (PCR).
3. In the PCR narrative, include the following:
 - a. The statement "Attached are photographs of unit(s) of blood administered"
 - b. Blood Unit #
 - c. Vital signs at the start of the transfusion and then q5 minutes
 - d. Start and stop times of the transfusion
 - e. IV site and gauge
 - f. Verification of two clinicians initiating the transfusion.
4. Complete a STAT notification to the Director of Operations, Director of Clinical Services, Medical Director, and the Quality Assurance & Improvement Specialist.
5. Complete the WVU Emergency Release Form (Attachment B), pre-signed by the Medical Director. Give this completed form to the WVU Ruby Memorial Transfusion Services/Blood Bank when getting a new unit of blood after the call.

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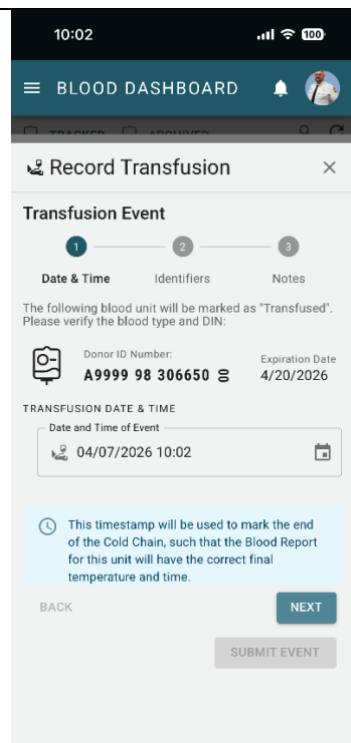
Step 6

- On the Blood Dashboard, click on the unit of blood/product.
- Select “Add Event”
- Select “Transfusion”



Step 7

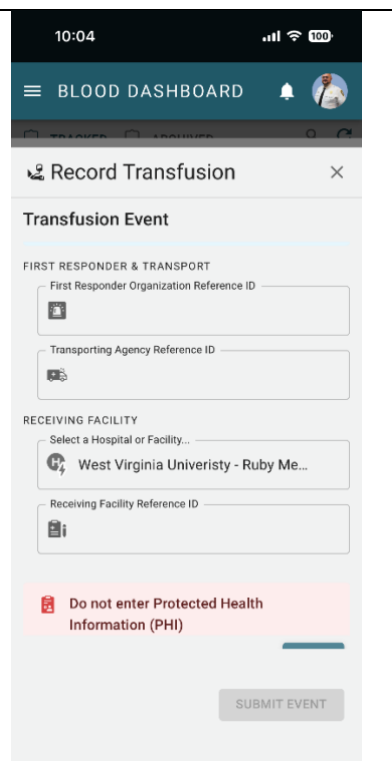
- Reviewing your PCR, record the date and time that the unit was transfused to the patient.
- This is NOT the date and time when you are completing this step after you have transferred patient care.
- Click “Next”



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Step 8

- Record the required information:
 - First Responder Organization Reference ID: Do Not Type any Information
 - Transporting Agency Reference ID: Do Not Type any Information
 - Select Hospital or Facility: Choose from WVU or Vandalia in the drop down.
 - Receiving Facility Reference ID: Type the patient's E/MRN number
- Click "Submit Event"



SECTION 16: QUALITY ASSURANCE

1. The Director of Clinical Services, Medical Director, and Quality Assurance & Improvement Specialist will QA the call within 48 hours.
2. The Director of Clinical Services will publish a public report on the Blood Program once a year.
3. The Director of Clinical Services will work with the Director of Information Technology to ensure that documentation is maintained in accordance with applicable standards:
4. Records of storage temperatures of blood must be maintained for 10 years
5. Records of corrective action for an alarm must be maintained for 5 years.
6. The Director of Clinical Services will respond to routine audits of records from the WVU Ruby Memorial Transfusion Services/Blood Bank.
7. As requested, the Director of Clinical Services will provide WVU with a copy of temperature logs.

SECTION 17: BLOOD DRIVES

The Director of Clinical Services will work with regional partners to at least once a year, host an annual blood drive. The drive will be open to both Mon EMS personnel and the community.

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APPROVED:

Daniel S. Dushanko
Acting Executive Director

April 30, 2026
Date

Version	Reviewed Date	Effective Date	Retired Date
MEMS030.1	March 2025	April 1, 2025	May 14, 2026
MEMS4009.2	April 2026	May 15, 2026	

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ATTACHMENT A



Blood Administration Checklist

*Required to be completed with every administration,
scanned, and attached to the PCR.*

Preparation Before Equipment Arrives	
Ensure that you have one (1) Paramedic/AEMT and one (1) EMT or higher who are WV Blood Administration Authorized	☐
Takes appropriate PPE precautions (including gloves and mask)	☐
Ensure you have 2 IVs placed. - It is preferred to use a large bore IV catheter (18g+), however if not possible, a 20g catheter can be used. - Blood administration can be done via IO, but it is preferred though IV.	☐
While waiting for the blood to arrive, or while the paramedic is preparing the blood administration equipment, IN A DIFFERENT IV LINE FROM THE BLOOD administer TXA per WV Protocol. It can be administered concurrently with blood, but not in the same line.	☐
Obtain vital signs and confirm patient meets blood administration criteria	☐

Preparation When Equipment Arrives	
<i>Retrieve your supplies</i>	
Delta bag with blood products	☐
250ml NS	☐
LifeFlow Y Tubing Administration Set	☐
LifeFlow Infuser	☐
Warrior Lite base	☐
Warrior Lite battery	☐
Warrior Lite Compact Disposable Unit (CDU)	☐
Warrior Lite Extension cable	☐
On the Warrior Lite, connect battery to base unit to check battery level (All indicators will illuminate, then go out)	☐
Connect Warrior Lite extension cord to base.	☐
Remove LifeFlow Y Tubing administration set from packaging and close all clamps.	☐
On the LifeFlow infuser squeeze the tabs to open the top canopy. Place syringe plunger in blue slot with numbers up.	☐
Connect the LifeFlow administration set to Warrior Lite Compact Disposable Unit (CDU)	☐
Attach the CDU to the extension cord. (On the base, the battery indicator and green check light will remain on; it may be solid or blinking)	☐

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On the CDU tubing, open the main clamp.	☐
Spike 250 mL NS bag	☐
Check to make sure: - Saline clamp and all clamps downstream (including CDU) are OPEN (you will prime the LifeFlow and Warrior Lite with saline only) - Blood clamp is CLOSED.	☐
Squeeze the middle of AirCheck (lower chamber) to prime.	☐
Squeeze until fluid is halfway up the Blood Filter (upper chamber). If ball is at the bottom of AirCheck (lower chamber), squeeze "release" until ball floats.	☐
On the LifeFlow Infuser, remove foam trigger lockout. Point handle up and prime tubing of both the LifeFlow and CDU with saline by repeatedly squeezing the trigger.	☐
Flow saline through CDU to remove all air. Stop once primed. Confirm Warrior Lite is powered on.	☐
Connect line to patient	☐
Gently agitate blood products.	☐
Inspect the Safe T Vue Indicator on the bag to ensure it is WHITE	☐
Spike and hang the unit of blood.	☐

Blood Administration with LifeFlow Infuser and Warrior Lite	
Close saline clamp and open blood clamp.	☐
Record current vitals, including temperature. Note the start time of blood infusion.	☐
Infuse blood by repeatedly squeezing the trigger on the LifeFlow.	☐
Close clamp to blood products and open bag saline to flush. Note time of completion of blood infusion.	☐
To avoid creating a vacuum, stop infusing while a small amount of saline remains in the bag.	☐
Close the clamp on the J-loop	☐
The ALS clinicians who administered the blood MUST remain with the patient through transport and transfer of care at the receiving facility.	☐

After Blood Administration	
Un-spike blood bag and place in marked bag to transfer to hospital staff	☐
IN A DIFFERENT IV LINE, administer Calcium Chloride per WV Protocol in the second line	☐
Check vital signs every 5 minutes. Be aware of signs of possible transfusion reaction.	☐
Using the truck phone, photograph the unit of blood administered, with the label visible in the photo	☐

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After transfer of patient care at the receiving facility, complete a STAT notification to the Director of Operations, Director of Clinical Services, Medical Director, and Quality Assurance & Improvement Specialist.	☐
In the PCR narrative, include the following: - The statement “Attached are photographs of unit(s) of blood administered” - Blood Unit # - Vital signs at the state of the transfusion and then q5 minutes - Start and stop times of the transfusion - IV site and gauge - Verification of two clinicians initiating the transfusion.	☐

Replacing Blood	
Complete the WVU Emergency Release Form, pre-signed by the Medical Director. Give this completed form to the WVU Ruby Memorial Transfusion Services/Blood Bank when getting a new unit of blood after the call.	☐
Go to the WVU Transfusion Services/Blood Bank and secure a new unit of blood. Complete the Weekly Exchange of Blood Products Form on Vairkko.	☐

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ATTACHMENT B

West Virginia University Hospitals Laboratories Blood Bank	Form086 Emergency Release Form -EMS Effective Date 03/27/2024 Version Number: 1
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**West Virginia University Hospitals
Emergency Release Form
EMS**

Patient Name: _____	MRN: _____
Reason for Admin: _____	Age < 45, >45, Sex: _____
Number of units: _____	Massive Transfusion: N/A
Uncrossmatched: _____	

I believe this patient's life will be in jeopardy without an emergency transfusion: therefore, I accept the responsibility for the release of this blood prior to complete crossmatching and routine compatibility testing. I understand, that the blood bank personnel will perform routine compatibility testing and that they will report immediately to me any incompatibility they may find.

 DATE

 TREATING PHYSICIAN

Products Infused
☐ Whole Blood
☐ Group O, Rh neg RBC
☐ Group A, Liquid plasma

LAB USE ONLY

 Date/Time: _____

 Unit Numbers

Version	Revision
1.0	New format. Transferred from Share point.

Form086

1