
	STAFFORD COUNTY FIRE AND RESCUE DEPARTMENT INTERIM MEDICAL DIRECTIVE	
	NUMBER: 2023-001	DATE: January 1, 2023
	ISSUED BY: Robert E. Fines, MD, FACEP Operational Medical Director 	
	SUBJECT: Blood Administration Protocol	
SUPPLEMENT MEDICAL PROTOCOLS/PROCEDURES: Section II Medical Protocols: Hypotension/Shock Non-Trauma, Section III Trauma Protocols: Bleeding/Hemorrhage Control, and Section VI Medication Reference		

PURPOSE

This protocol outlines how blood will be administered by Stafford County ALS Clinicians.

POLICY

Authorized Paramedic level ALS Clinicians may administer blood to patients who meet the criteria as outline in this Interim Medical Directive (IMD).

Clinicians shall refer to FRD Policy-EMS 100.207 *Blood Program* for administrative and operational requirements; and to EMS Training Bulletin 2023-001 *Blood Administration* for specific equipment specifications and step-by-step instructions.

DEFINITION

Shock Index: Shock index (SI) is an indicator of the severity of hypovolemic shock and is calculated by dividing the heart rate (HR) by systolic blood pressure (SBP). A normal SI is 0.5 to 0.7 in healthy adults. Indications for blood administration require a SI of ≥ 1.0 .

PATIENT CRITERIA

- Hemodynamically unstable trauma or medical patient with signs/symptoms (tachycardia, hypotension, decrease distal pulses, pallor, and altered mental status) consistent with hemorrhagic shock **and**,
- Patient’s SI ≥ 1.0 .

CLINICAL CONSIDERATIONS

Clinicians are encouraged to consult online medical control for patients that do not meet the specific patient criteria yet may warrant blood administration.

Conscious patients should be informed for the reason for blood administration, its benefits, risks and give their verbal consent (see Appendix A, Page 3). Blood may be administered using implied consent if the patient is incapable of providing consent.

CONTRIDICATIONS

- Cardiac Arrest
- Injuries incompatible with life
- Patient Refusal

PATIENT PREPARATION

EMS Clinicians shall:

- Perform a rapid assessment to determine criteria for blood administration and request EMSS.
- Document initial set of vital signs including temperature.
- Establish two large bore IVs and identify the largest IV for infusing blood
Blood can be administered through an IO however the flow rate is comparably slower than through an IO.
- Attach IV Extension Tubing between the IV Catheter and Blood Y Administration Set. The IV Extension will allow connection for the Qinflow Compact Disposable Unit (CDU).
- Do not delay transport while waiting on the EMSS, unless preparing for air-medical transport.

INSPECTION

An authorized ALS Clinician shall:

- Check that the blood type is O-Positive Blood
- Check the expiration date to ensure the blood is in date
- Check the Hemo-Trac Blood Temperature Indicator is displaying **Green**.
If the Hemo-Trac Blood Temperature Indicator is displaying **Blue** it shall not be used.
- Record or remove a Blood W Number or label.



SETUP

Option 1: Blood administration using Standard Blood Y Administration Set with Pressure Infuser Bag

Option 2: Blood administration using LifeFlow Infuser with LifeFlow Blood Y Administration Set. The LifeFlow Infuser with LifeFlow Blood Y Administration Set shall be used for all pediatric patients who require defined dose amounts, or when administering blood through an IO.

Refer to EMS Training Bulletin 2023-001 *Stafford County Fire and Rescue Department (SCFRD) Blood Program* for step-by-step instructions.

Blood shall never be infused without being warmed with the Qinflow Warrior Base Unit and infusing through a Qinflow CDU.

DOSAGE

Adult: 1 unit Type O-Positive Blood IV rapidly administer, reassess and document vital signs. If patient remains hemodynamically unstable as defined under patient criteria then rapidly administer a second unit of blood, reassess and document vital signs.

Pediatric: 10cc/kg Type O-Positive Blood IV rapidly administer, reassess and document vital signs. If patient remains hemodynamically unstable as defined under patient criteria then rapidly administer a second 10cc/kg of blood, reassess and document vital signs.

ADMINISTRATION

Check filter and tubing for adequate blood flow and absence of clot formations. If clot formation is noted or rate slows, discontinue administration and exchange with a new blood Y administration set and QinFlow CDU.

Verify the Qinflow system warms to the set-point temperature and check the LCD display to verify normal operation. Check the LCD display following any audible notification (short or steady beep.)

Medication should not be administered through the same IV line as whole blood.

ALLERGIC REACTION

Allergic reactions may be seen in up to 1% blood transfusions. Transfusion reactions can range from mild to life-threatening events. If a patient displays signs and symptoms suggesting an Allergic Reaction the blood infusion should be stopped and disconnected. Clinicians should follow established protocols for allergic reactions or consult online medical control.

COMPLETION

Flush blood Y administration set with a small amount of Normal Saline after blood administration.

PATIENT TRANSFER

The Qinflow Warrior Base Unit or CDU is not interchangeable with devices used by air-medical services or local medical facilities. The Qinflow Warrior Base Unit or CDU shall not be loaned to air-medical services or left at the medical facility.

Blood W Numbers shall be relayed to referring air-medical services and medical facilities during patient transfer.

DOCUMENTATION**ESO Electronic Health Record (EHR)**

- Under FlowChart-Blood Tab: dose (ml), route, clinician's name, patient's response and any complications. Under Comments document *Low Titer O Positive Whole Blood (LTOWB)* with the Blood W Number.
- Under Vital Sign Tab: BP, HR, RR, SpO₂, GCS and Temperature recorded every 5 minutes.
- Under Narrative Tab: Document if verbal consent was obtained

Appendix A

Conscious patients should be informed for the reason for blood administration, its benefits, risks and give their verbal consent

Reason: Blood administration is provided to replace or increase the amount of blood in your body when you have been bleeding. Based upon your vital signs, and other signs/symptoms it appears you have lost a large amount of blood and it is life-threatening.

Benefits: Blood administration may correct low levels of blood components in your body, and may sustain your life. In some cases, failure to receive blood transfusion(s) may result in death.

Risks-Hemolytic Reaction (ABO Incompatibility): This is highly unlikely given that this is Type O Positive Blood and the short transport time. Some may have a small reaction if titers of Rh antigen is higher than anticipated.

Risks-Allergic or Febrile Reaction: Allergic Reactions may be seen in up to 1% of transfusions. Transfusion reactions can range from mild to life-threatening events. Transfusion reactions can rarely be fatal. The incidence of such fatal reactions varies from (~1 in 600,000 to ~1 in 2,300,000).

Risks-Transmission of diseases:

Hepatitis B (~1 in 1,000,000)

Hepatitis C (~1 in 1,200,000)

HIV/AIDS (~1 in 1,500,000)