



CBRAC Recommendations for Prehospital Whole Blood Transfusion Criteria

Purpose: To provide guidance on the use of Low Titer Group O + Whole Blood in the resuscitation of traumatic and medical hemorrhagic shock patients.

Best Practice

- The following are examples of guidelines that are evidence-based in the hospital setting. The following examples are not meant to be exhaustive or required. They intend to provide a foundation for each EMS system and EMS Medical Director to determine the practice that applies to their agency. As the practice of prehospital transfusions is new, many of the guidelines/protocols have been borrowed from the hospital setting and applied, as best possible, to the prehospital setting.
- The critical take away from this document is that the EMS Medical Director and the EMS Agency must follow each prehospital transfusion patient closely. This includes internal tracking metrics to include patient outcomes and adherence to each agency's individual protocols and guidelines.
- Each agency's medical director always has the authority to implement transfusion guidelines/protocols to treat patients as outlined in Texas Statute 773, Texas Medical Board 169, and Department of State Health Services 157. This document is only intended to inform the EMS Medical Director's clinical practice. The document does not replace any privileges granted to the EMS Medical Director by the State of Texas.
- Following AABB prehospital standards is considered best practice, unless any AABB recommendations or practices contradict state statutes or local laws. National agencies such as NASEMSO, PHBTC, and AABB provide resources to help support agencies by providing additional guidance and references to help with transfusion programs.

Examples of Indications:

Clinical Indications:

Suspected *HEMORRHAGIC SHOCK* from trauma or medical cause:

Criteria to assist in recognition of hemorrhagic shock

- Altered mental status (not believed to be due to intoxication or head injury)

- Pale, cool, clammy skin; pale mucosa
- Delayed capillary refill (> 2 seconds)
- Tachypnea
- Obvious source or suspected blood loss

Examples of parameters/triggers that may be used by the EMS medical director to determine if a patient meets criteria for blood are:

Adults:

- Systolic blood pressure (SBP) less than 70 mmHg or weak or absent radial pulse, and/or
- Shock Index (HR/SBP) from 0.9 to 1.2
 - Examples include:
 - HR 110/SBP 90 = SI 1.22
 - HR 90/ SBP 100 = SI 0.9 and/or
- ETCO₂ <25 mmHG and/or
- Ultrasound showing signs of intrabdominal/pelvic hemorrhage

Pediatrics:

- Shock Index, Pediatric Adjusted (SIPA)
 - 4-6 years = 1.2
 - 6-12 years = 1
 - > 12 years = 0.9
- Systolic BP less than 70 + (Age in years × 2) and/or
- Heart Rate:
 - 1 year: greater than 190
 - 2-10 years: greater than 140
- Tachypnea

Contraindications:

- Religious or any other objection to receiving blood products, as per federal/state law

Notes:

- The clinical parameters list is not exhaustive. For example, some agencies have prehospital capabilities to check hemoglobin and hematocrit. Any measured clinical parameter should be considered in the context of the patient presentation. The prehospital provider must suspect that the patient is in hemorrhagic shock.
- Special consideration may be given to those over the age of 65 years old.
- Pediatric patients should have a measurable way to determine transfusion volume.
- Select witnessed traumatic arrest patients have been shown to benefit from LTOWB transfusion.

- Prehospital LTOWB is one of the tools for EMS Medical Directors and EMS Agencies to implement for those in hemorrhagic shock. For trauma patients, a robust trauma guideline/protocol to treat patients, such as MARCH, is critical for overall patient survival.
- If the EMS provider/agency does not have access to LTOWB, alternative blood products such as plasma, red blood cells, and platelets can be substituted with the same or similar guidelines as used for LTOWB.

Definitions and Abbreviations

- AABB – Association for the Advancement of Blood and Biotherapies
- EMS – Emergency Medical Services
- LTOWB – Low Titer O + (positive) Whole Blood
- MARCH – Massive Hemorrhage Control, Airway, Respirations, Circulation, Hypothermia
- NASEMSO – National Association of State EMS Officials
- PHBTC – Prehospital Blood Transfusion Coalition
- SI – Shock Index

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