



EMS System for Metropolitan Oklahoma City and Tulsa 2026 Medical Control Board Treatment Protocols

Draft for Approval 1/7/26, Effective 4/1/26, Replaces all prior versions



170 – LOW TITER O+ WHOLE BLOOD(LTOWB)

TREATMENT PRIORITIES

1. MARCH Assessment:
 - Massive bleeding control
 - Airway – NPA/OPA/Crich
 - Respiratory – decompress chest if tension pneumothorax, seal “sucking” chest wound(s)
 - Circulation – IV/IO, wound packing
 - Hypothermia care
2. Minimize scene time in critical case**
3. **Initiate Whole Blood transfusion**
4. Enroute Care:
 - Reassess all primary care
 - Support oxygenation/ventilation
 - Vascular access
 - Secondary Survey (if able)
 - Keep patient warm/avoid hypothermia
5. Hospital per destination protocol..

PARAMEDIC

Class: Blood Products

Purpose: Increase survival from traumatic hemorrhagic shock, factoring trauma patients who receive whole blood vs component therapy have many advantages, one of the most important being a reduction in 30-day mortality per published studies.

Actions/Pharmacodynamics:

Whole blood **provides red cells, stable clotting factors, and volume in each unit** that make it potentially beneficial in rapidly hemorrhaging patients.

Indications: Hemorrhagic Shock in Priority 1 Trauma Patients

Age	Systolic BP	Shock Index	Volume to be given	Maximum
< 6 years (OMD Consult required)	≤80	> 1.2	4 y = 340 ml	1 Unit
			5 y = 400 ml	1 Unit
6-12 years	≤ 90	> 1.1	1 Unit	1 Unit
≥ 13 years	< 70	> 1.0	1 Unit	2 Units
13 to 65 years	≤ 90	> 1.0	1 Unit	2 Units
≥ 65 years	≤ 100	> 0.9	1 Unit	2 Units
Post traumatic arrest with ROSC				



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Protocol 17O: Low Titer O+ Whole Blood (LTOWB) cont.'

Contraindications and Precautions:

- Ground level falls/found down
- Age less than 6 years old (Contact OLMC)
- Isolated head injuries above the neck
- Burns
- Non-traumatic blood loss
- Religious objection to receiving whole blood

Side Effects: Transfusion Reactions - Fever, chills, urticaria (hives), and itching. Respiratory distress, high fever, hypotension, and hemoglobinuria can indicate a more serious reaction.

Dosage: One unit of Low Titer O+ Whole Blood

How Supplied: One unit of Low Titer O+ Whole Blood contains approximately 500 ml of blood and is packaged by Our Blood Institute.

Infusion Site Considerations

LTOWB requires an 18 gauge or larger IV/IO. IO transfusion is authorized but is less efficient than IV. The humeral neck is the most effective IO site if used for blood transfusion. If TXA is needed it should be administered through a separate IV. This IV should be established in a different extremity than the one in which LTOWB is transfusing.

Procedure: Prepping Tubing and Disposable Unit for Whole Blood Administration

- Make certain that unused portion of the IV line is closed off.
- Attach the IV line to the disposable tubing unit.
- Attach the disposable tubing unit to the blood warmer.
- Attach disposable tubing unit to the saline lock.
- Spike the 100 mL NS bag to appropriate port on the blood tubing.
- Spike the whole blood bag to the appropriate port on the blood tubing.
- Prime the IV-line, disposable tubing unit, and saline lock with saline prior to powering on the blood warmer.
- Turn blood warmer ON.
- Start infusion of LTOWB (do not wait for the blood to warm).
- Place LTOWB in the pressure bag and pump up the pressure bag.
- Use the hand pump built into the blood tubing for rapidly administering LTOWB.
- Once LTOWB infusion is complete, flush line with remaining saline from 100 mL bag.
- Calcium Chloride (10% solution) 10 mg/kg IVP/IOP, maximum dose of 1 gram

**Avoid excessive delays related to availability of LTOWB. Scene times may be delayed while starting LTOWB. However, there should not be a significant delay waiting on LTOWB to arrive on-scene. Consider intercept enroute to transition LTOWB case to transporting unit if time allows.