14.6 Pilot Protocol – LOW TITER O+ WHOLE BLOOD (LTO+ WB) TRANSFUSION

1. **Indications**

Clinical suspicion for major blood loss WITH evidence of significant physiologic compromise

Clinical suspicion for major blood loss, such as:

- Penetrating trauma to the trunk
- Unstable pelvic fracture or multiple long bone fractures
- Blunt trauma mechanism consistent with major internal blood loss
- Observed major external blood loss
- Signs and symptoms of massive GI bleed, ruptured aortic aneurysm, or ruptured ectopic pregnancy

WITH

Evidence of significant physiologic compromise:

Age-defined hypotension* **PLUS** at least **one** of the following:

- Age-defined tachycardia**
- $ETCO_2$ less than 25
- Positive eFAST exam (if available)
- Lactate greater than 4 (if available)
- Capillary reperfusion greater than 3 sec
- Altered sensorium thought not secondary to intoxication or head trauma
- Witnessed PEA cardiac arrest less than 5 min duration

*Age-Defined Hypotension	**Age-Defined Tachycardia
Ages less than 10 Yrs: systolic BP less than [70 + 2 x years)]	Age 1 year: greater than 190
Ages 10-65: systolic BP less than 90	Ages 2-4 yrs: greater than 140
Ages greater than 65: systolic BP less than 100	Ages 5-12 yrs: greater than 140
Any age: absent radial pulses	Ages greater than 12 years: 120

On-line medical direction required for patients under 1 year of age.

2. **Contraindications**
   a) Patient indicates refusal to receive blood
   b) Medic alert tag indicating patient objection to receiving blood

3. **Procedure**
   a) Ensure applicable hemorrhage and shock interventions: tourniquet, wound-packing, pelvic binder, thoracic decompression
   b) Assess for contraindications to administration of LTO+ WB
   c) Obtain IV access (18 gauge or larger, if possible), and keep IV catheter hub accessible to allow direct connection of blood tubing. A large-bore IV extension set and large-bore stopcock may be utilized if available. Obtain pre-transfusion blood sample, if possible.
   d) IV infusion is preferable to IO infusion for optimal flow rates.

e) Transfuse LTO+ WB
   (1) Patients less than 35 kg: Administer 10 mL/kg IV/IO
   (2) Patients greater than or equal to 35 kg: Administer 1 unit IV/IO
f) Apply Whole Blood identification bracelet to patient's wrist or ankle
g) Assess for signs of transfusion reaction***
h) Assess for clinical improvement
   For patients with non-compressible hemorrhage: Look for signs of improved perfusion with presence of central pulses, but use permissive hypotension approach. Do not target systolic BP of greater than 90 mmHg unless significant TBI.
i) If inadequate clinical improvement, transfuse additional LTO+ WB
   (1) Patients less than 35 kg: Administer 10 mL/kg IV/IO
   (2) Patients greater than or equal to 35 kg: Administer 1 unit IV/IO
j) Assess for signs of transfusion reaction***
k) Upon hospital arrival, inform receiving team of patient's receipt of whole blood, and provide empty whole blood bags and pre-transfusion blood sample (if obtained) for hospital blood bank evaluation.

***Possible transfusion reaction signs and symptoms: Hives, wheezing, rigors, fevers, abdominal pain, vomiting, sudden worsening of hypotension or tachycardia that is not consistent with patient's underlying condition

If transfusion reaction is suspected:

- Immediately discontinue the transfusion
- Administer dexamethasone IV/IO AND diphenhydramine IV/IO in age appropriate doses

A new transfusion from a different unit of LTO+ WB may be initiated if patient reassessment indicates continued need for blood.