

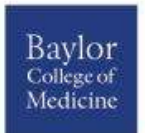
How EMS can Impact Trauma Center Verification

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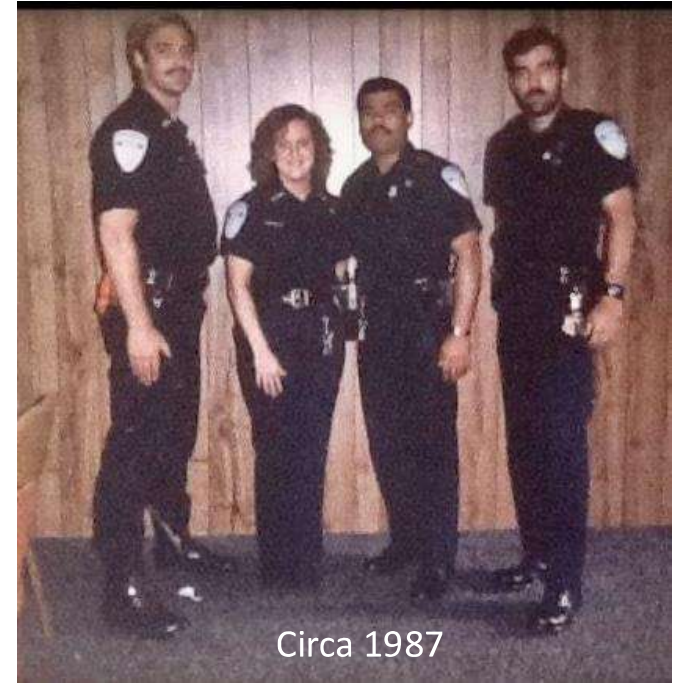
CTX DIVISION OF BAYLOR SCOTT & WHITE HEALTH, TEXAS



Disclosures

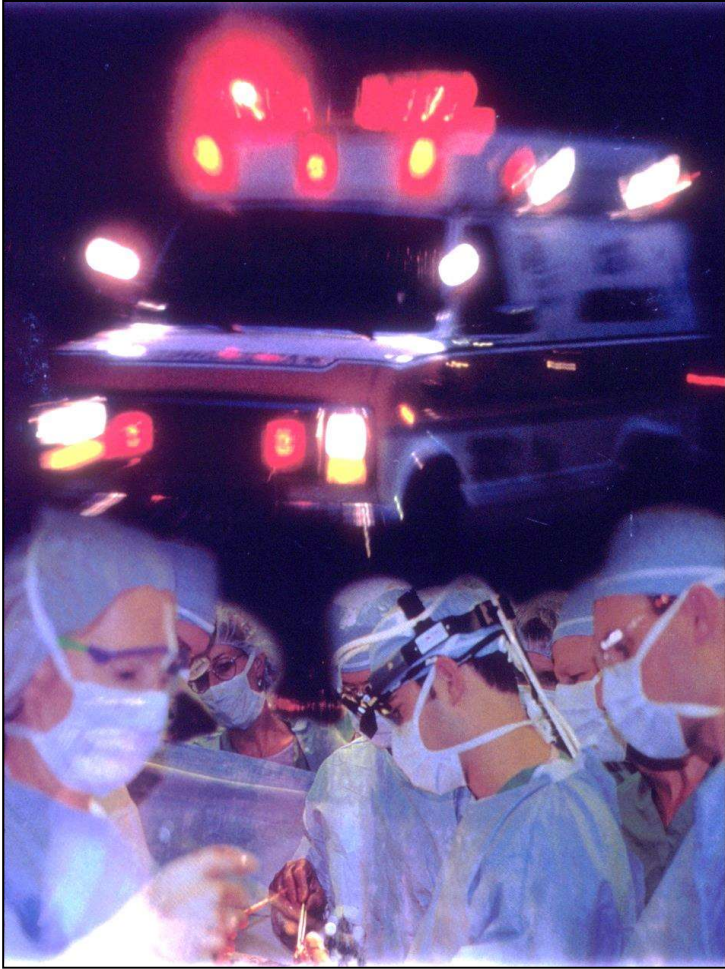
No financial relationships that create a conflict of interest to report





Circa 1987





Without EMS, the injured patient may never make it into surgery

Objectives

Review Field Triage Criteria

Case Review of Pertinent Cases

Discuss Applicable VRC Standards affecting EMS



National Guideline for the Field Triage of Injured Patients

RED CRITERIA

High Risk for Serious Injury

| Injury Patterns | Mental Status & Vital Signs |
|--|---|
| <ul style="list-style-type: none"> • Penetrating injuries to head, neck, torso, and proximal extremities • Skull deformity, suspected skull fracture • Suspected spinal injury with new motor or sensory loss • Chest wall instability, deformity, or suspected flail chest • Suspected pelvic fracture • Suspected fracture of two or more proximal long bones • Crushed, degloved, mangled, or pulseless extremity • Amputation proximal to wrist or ankle • Active bleeding requiring a tourniquet or wound packing with continuous pressure | <p>All Patients</p> <ul style="list-style-type: none"> • Unable to follow commands (motor GCS < 6) • RR < 10 or > 29 breaths/min • Respiratory distress or need for respiratory support • Room-air pulse oximetry < 90% <p>Age 0-9 years</p> <ul style="list-style-type: none"> • SBP < 70mm Hg + (2 x age years) <p>Age 10-64 years</p> <ul style="list-style-type: none"> • SBP < 90 mmHg or • HR > SBP <p>Age ≥ 65 years</p> <ul style="list-style-type: none"> • SBP < 110 mmHg or • HR > SBP |

Patients meeting any one of the above RED criteria should be transported to the highest-level trauma center available within the geographic constraints of the regional trauma system

YELLOW CRITERIA

Moderate Risk for Serious Injury

| Mechanism of Injury | EMS Judgment |
|---|--|
| <ul style="list-style-type: none"> • High-Risk Auto Crash <ul style="list-style-type: none"> - Partial or complete ejection - Significant intrusion (including roof) <ul style="list-style-type: none"> • >12 inches occupant site OR • >18 inches any site OR • Need for extrication for entrapped patient - Death in passenger compartment - Child (Age 0-9) unrestrained or in unsecured child safety seat - Vehicle telemetry data consistent with severe injury • Rider separated from transport vehicle with significant impact (eg, motorcycle, ATV, horse, etc.) • Pedestrian/bicycle rider thrown, run over, or with significant impact • Fall from height > 10 feet (all ages) | <p>Consider risk factors, including:</p> <ul style="list-style-type: none"> • Low-level falls in young children (age ≤ 5 years) or older adults (age ≥ 65 years) with significant head impact • Anticoagulant use • Suspicion of child abuse • Special, high-resource healthcare needs • Pregnancy > 20 weeks • Burns in conjunction with trauma • Children should be triaged preferentially to pediatric capable centers <p>If concerned, take to a trauma center</p> |

Patients meeting any one of the YELLOW CRITERIA WHO DO NOT MEET RED CRITERIA should be preferentially transported to a trauma center, as available within the geographic constraints of the regional trauma system (need not be the highest-level trauma center)



Airway Nightmare

39-YEAR OLD MAN WAS UPSET
WITH HIS FAMILY SO HE STICKS
A SHOTGUN UNDER HIS JAW
AND FIRES.

PART OF THE JAW IS FOUND
ON HIS TEENAGE SON'S SHOE.



5.3 Levels of Trauma Activation

Applicable Levels

LI, LII, LIII, PTCL, PTCII

Definition and Requirements

In all trauma centers, the criteria for tiered activations must be clearly defined. For the highest level of activation, the following eight criteria must be included:

1. Confirmed blood pressure less than 90 mm Hg at any time in adults, and age-specific hypotension in children
 2. Gunshot wounds to the neck, chest, or abdomen
 3. GCS less than 9 (with mechanism attributed to trauma)
 4. Transfer patients from another hospital who require ongoing blood transfusion
 5. Patients intubated in the field and directly transported to the trauma center
 6. Patients who have respiratory compromise or are in need of an emergent airway
 7. Transfer patients from another hospital with ongoing respiratory compromise (excludes patients intubated at another facility who are now stable from a respiratory standpoint)
 8. Emergency physician's discretion
-

5.2 Trauma Surgeon and Emergency Medicine Physician Shared Responsibilities

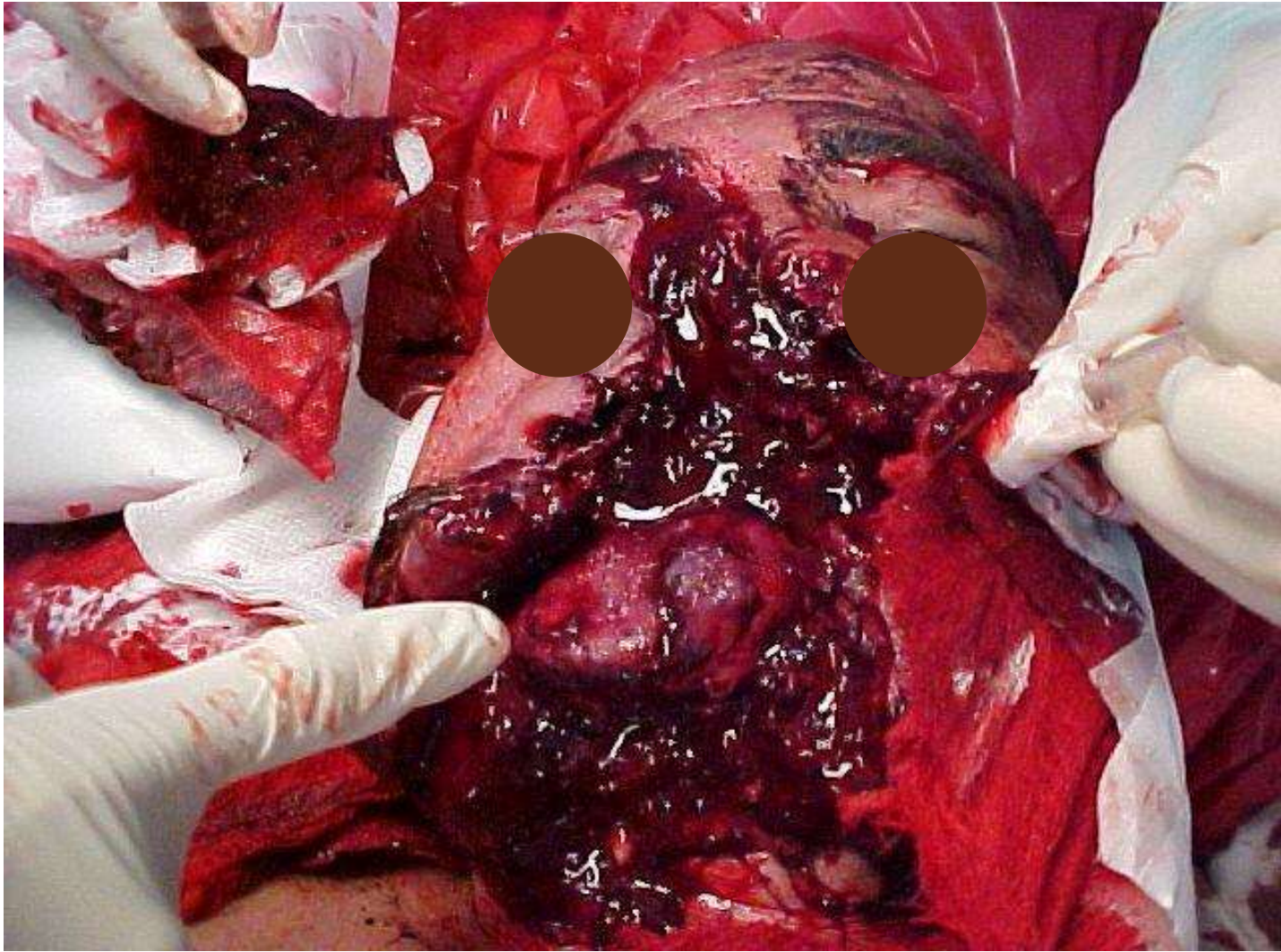
Applicable Levels

LI, LII, LIII, PTCL, PTCII

Definition and Requirements

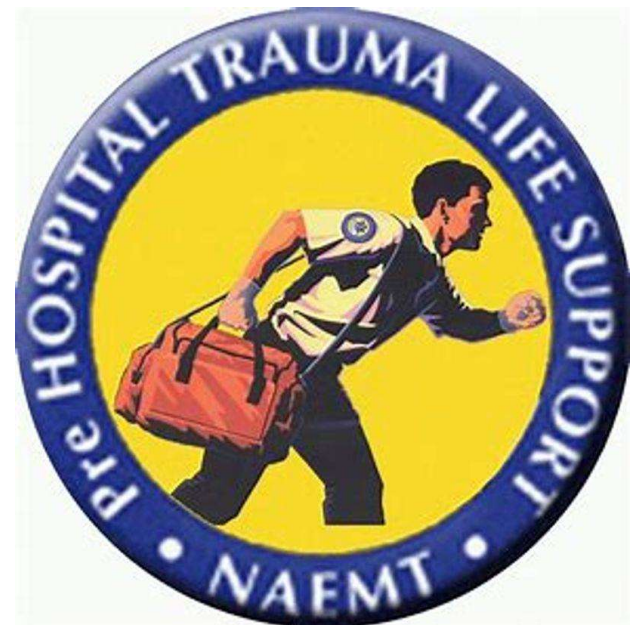
In all trauma centers, the shared roles and responsibilities of trauma surgeons and emergency medicine physicians for trauma resuscitation must be defined and approved by the TMD.



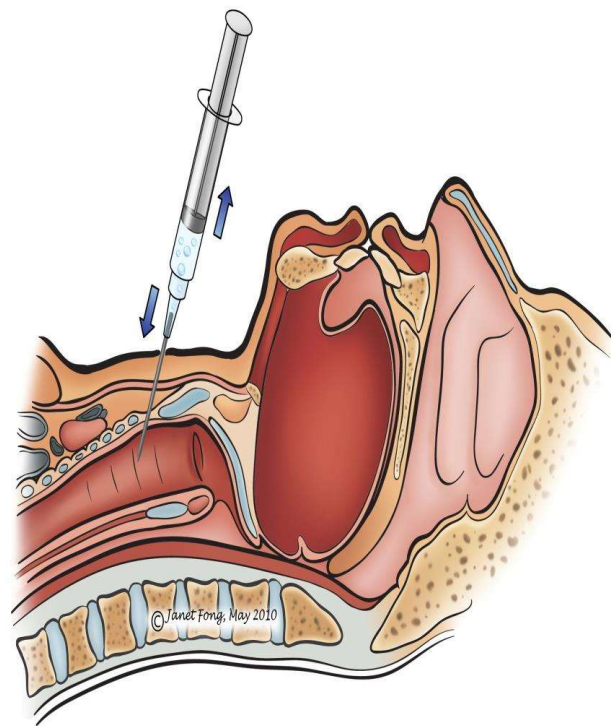
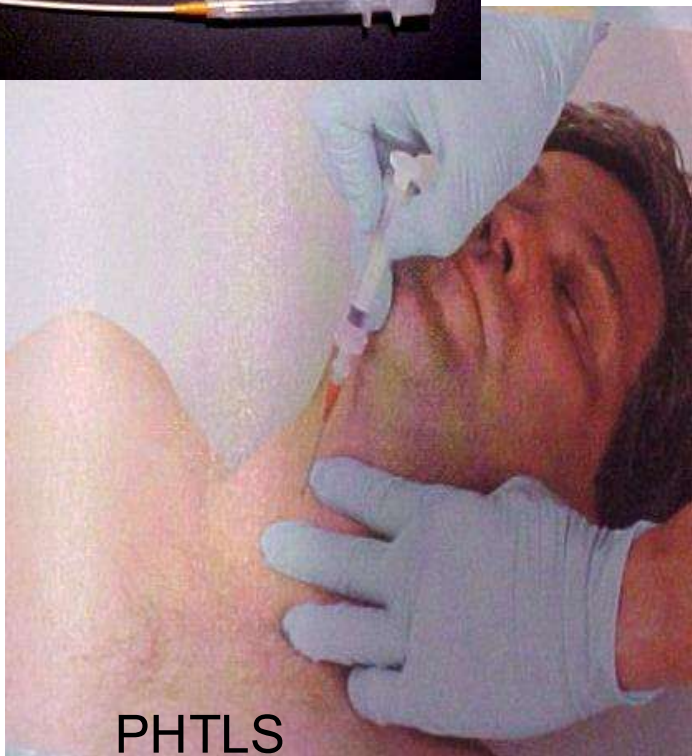


What is Your Rx Priority?

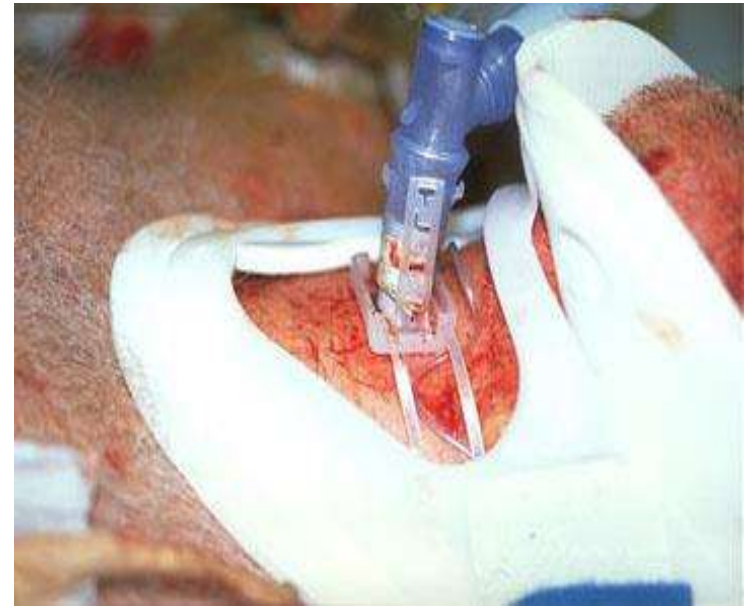
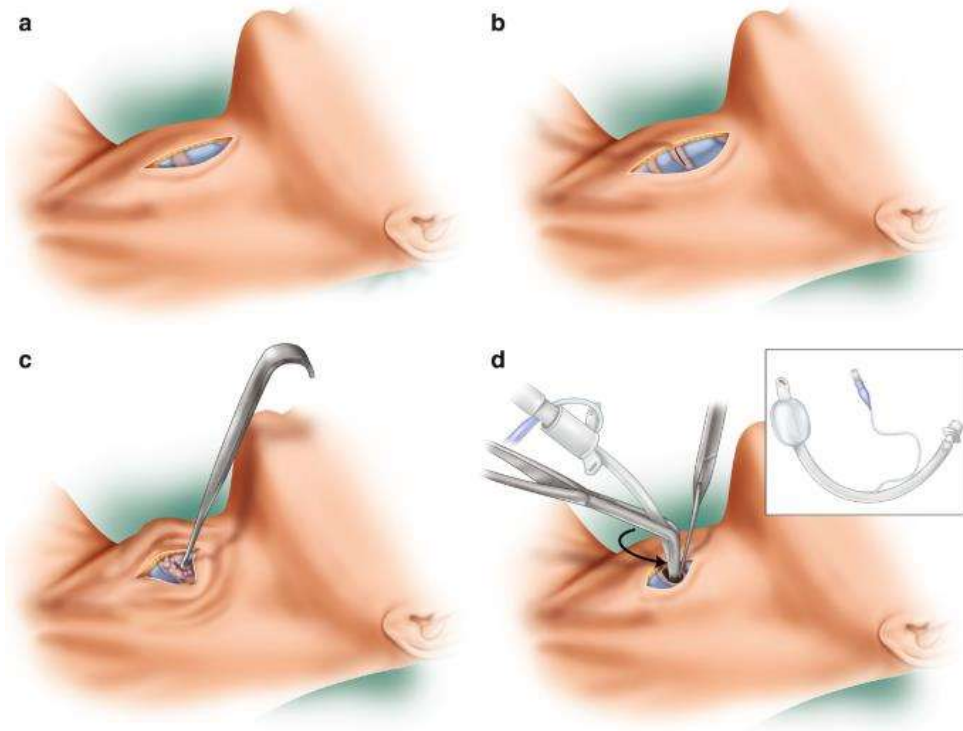
- A. Airway**
- B. Breathing**
- C. Bleeding Control**
- D. C-spine control**



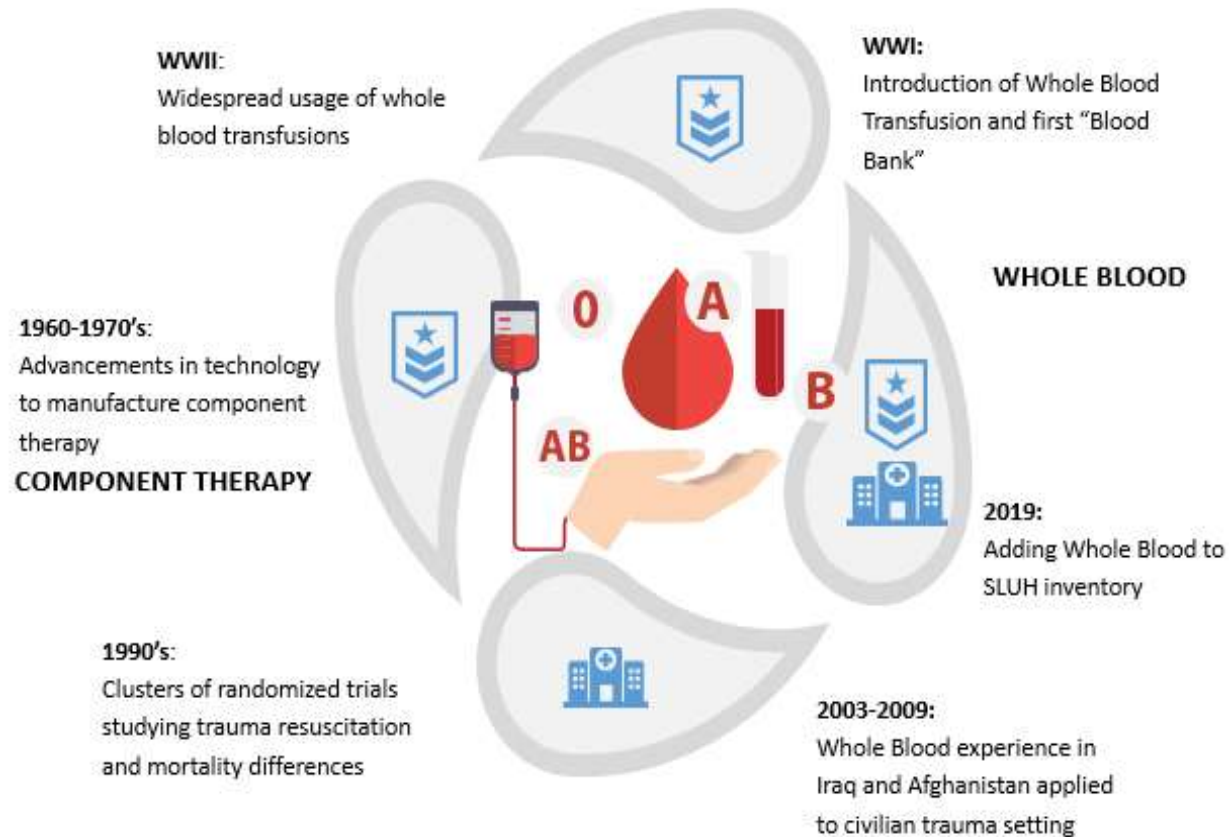
Needle Cricothyroidotomy



Surgical Cricothyroidotomy




WHOLE BLOOD MOVING FULL CIRCLE




PREHOSPITAL BLOOD TRANSFUSION


A Lifesaving Solution for Trauma Patients



Severe bleeding is the primary cause of preventable fatalities in trauma patients.¹




Time is critical. Death can occur in as little as five minutes when someone is bleeding.²




For every minute of delay in administering blood, the risk of death increases by 11%.³

PREHOSPITAL BLOOD COULD SAVE **37%** OF TRAUMA PATIENTS WITH SEVERE BLEEDING.⁴


THREE GOOD REASONS TO BUILD A PREHOSPITAL BLOOD TRANSFUSION PROGRAM



IMPROVED PATIENT OUTCOMES
Trauma patients who got whole blood were **four times more likely to survive** and required 60% less blood in overall transfusion.⁵





ENHANCED EMS CAPABILITIES
A prehospital blood transfusion program allows clinicians to more quickly and efficiently **meet the needs of complex trauma patients.**



FASTER PROGRESS TOWARD REDUCING ROADWAY FATALITIES
From 2013 to 2022, the number of traffic crashes in which someone died increased by 30%.⁶ **A prehospital blood transfusion program can reduce deaths.⁷**

FOR MORE INFORMATION ABOUT PREHOSPITAL BLOOD TRANSFUSION GO TO [EMS.GOV](https://www.ems.gov).



References:
¹ CDC, "The Leading Causes of Death in the United States," <https://www.cdc.gov/nchs/fastats/leading-causes-of-death/>, accessed 10/20/23.
² "Time is Critical: Death Can Occur in as Little as Five Minutes When Someone is Bleeding," <https://www.traumacenter.com/blog/time-is-critical-death-can-occur-in-as-little-as-five-minutes-when-someone-is-bleeding/>, accessed 10/20/23.
³ "Severe Bleeding is the Primary Cause of Preventable Fatalities in Trauma Patients," <https://www.traumacenter.com/blog/severe-bleeding-is-the-primary-cause-of-preventable-fatalities-in-trauma-patients/>, accessed 10/20/23.
⁴ "Prehospital Blood Transfusion Program Reduces Mortality in Trauma Patients," <https://www.traumacenter.com/blog/prehospital-blood-transfusion-program-reduces-mortality-in-trauma-patients/>, accessed 10/20/23.
⁵ "Prehospital Blood Transfusion Program Reduces Mortality in Trauma Patients," <https://www.traumacenter.com/blog/prehospital-blood-transfusion-program-reduces-mortality-in-trauma-patients/>, accessed 10/20/23.
⁶ "Traffic Crashes in Which Someone Died Increased by 30%," <https://www.traumacenter.com/blog/traffic-crashes-in-which-someone-died-increased-by-30/>, accessed 10/20/23.
⁷ "Prehospital Blood Transfusion Program Reduces Mortality in Trauma Patients," <https://www.traumacenter.com/blog/prehospital-blood-transfusion-program-reduces-mortality-in-trauma-patients/>, accessed 10/20/23.



Original Research Article

Prehospital whole blood transfusion improves probability of survival over transfusion within one hour of arrival to a trauma center ☆

Aashish Rajesh ^a  , Lauran Barry ^a, Conor Giersch ^a, Katherine L. Danko ^a, Alexander Bowers ^a, Maxwell Braverman ^b, Eric Epley ^c, Traceee Rose ^c, San Antonio Whole Blood Consortium ^{e, f}, Bryan Cotton ^d, Brian Eastridge ^a, Donald Jenkins ^a

Highlights

- Patients receiving prehospital whole blood have improved probability of survival.
- Prehospital whole blood increases the odds of unexpected survivorship from trauma.
- About every \$15,725 spent saves one additional life through prehospital transfusion.
- Every \$5550 spent on prehospital whole blood significantly improves shock burden.
- Nationwide adoption of prehospital whole blood could improve trauma outcomes.

8.3 Prehospital Provider Training

Applicable Levels

LI, LII, LIII, PTCI, PTCII

Definition and Requirements

In all trauma centers, the trauma program must participate in the training of prehospital personnel.

Additional Information

None

Measures of Compliance


Documentation demonstrating training of prehospital personnel





Run Over

12-year-old boy, taking out the garbage at his home, when he got under the wheels of the garbage truck and was run over and dragged









7.10 Prehospital Care Feedback

Applicable Levels

LI, LII, LIII, PTCI, PTCII

Definition and Requirements

All trauma centers must have a process of reviewing and providing feedback to:

- EMS agencies, related to accuracy of triage and provision of care
- Referring providers, related to the care and outcomes of their patients and any potential opportunities for improvement in initial care

Additional Information

None

Measures of Compliance

- Documentation of the process for reviewing and providing feedback
- Evidence of communication (feedback) between trauma center, EMS agencies, and referring providers





7.5 Physician Participation in Prehospital Performance Improvement

Applicable Levels

LI, LII, LIII, PTCI, PTCII

Definition and Requirements

In all trauma centers, a physician from the emergency department or trauma program must participate in the prehospital PI process, including assisting in the development of prehospital care protocols relevant to the care of trauma patients.

Additional Information

None

Measures of Compliance

- Attendance records from prehospital PI meetings
- Prehospital care protocols relevant to the care of trauma patients

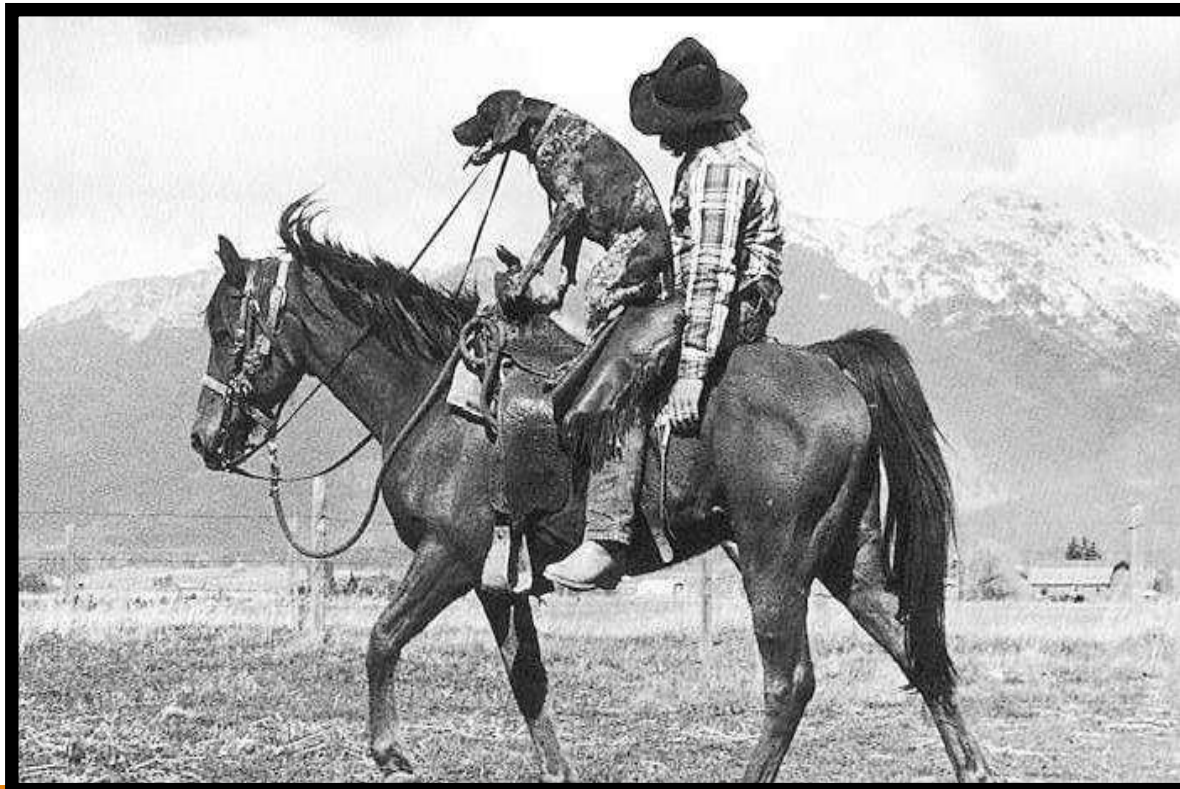


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Questions



Designated Driver



Thank you

