

Part 2

Getting There:

The Right Place at the Right Time

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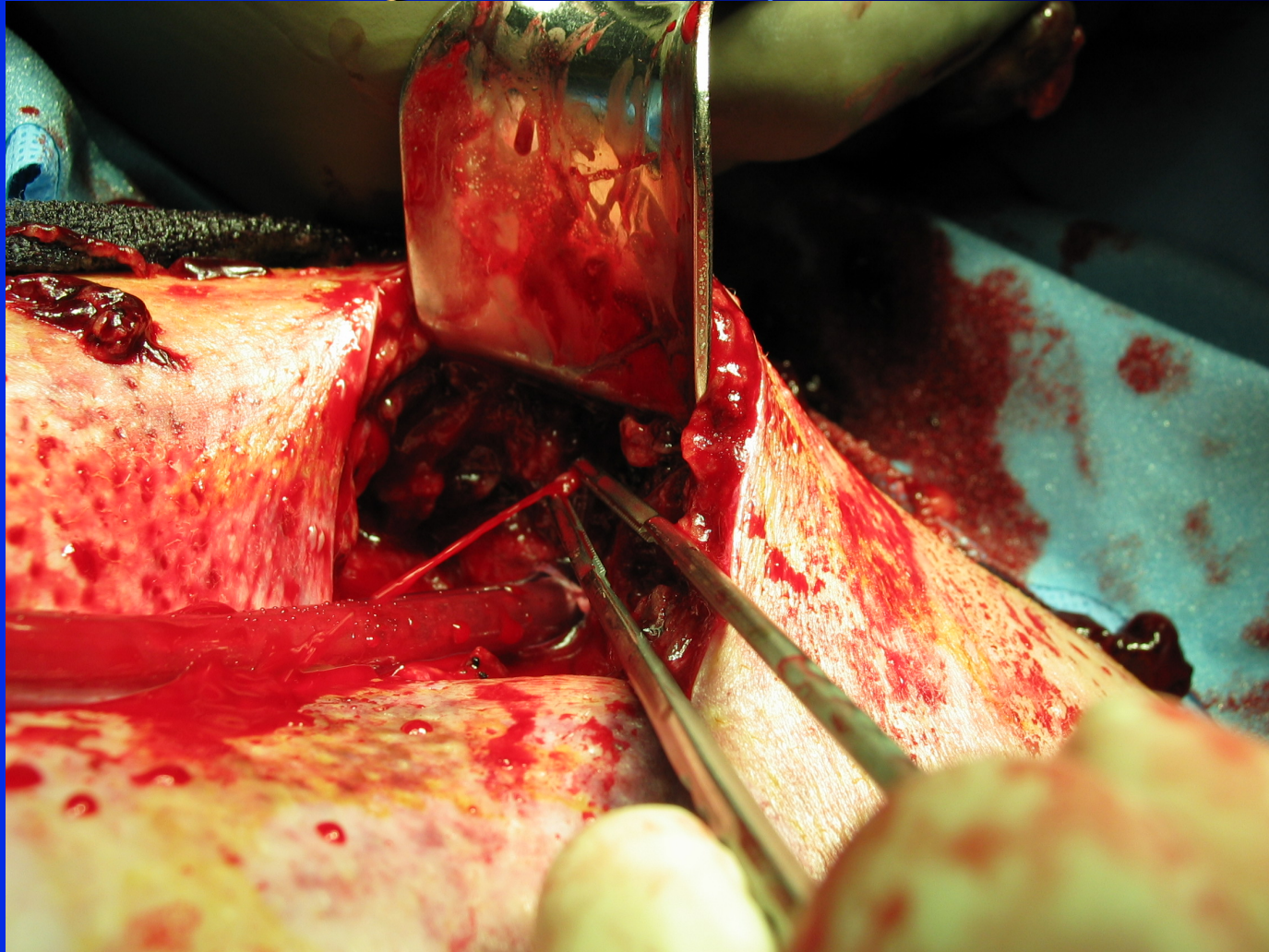
EMORY

Case

- 78 y/o restrained female front seat passenger in high speed motor vehicle crash. PMH of A-fib, on warfarin
- Airway: intact
- Breathing: RR 24, slightly decreased BS on left
- Circulation: HR 110, irreg; BP 148/90
- Disability: GCS 15
- Expose: multiple contusions



Elderly female in MVC



Special Circumstances

Take to Trauma Center:

- Age
 - Older adults: risk of injury death increases after age 55
 - Children: should be triaged preferentially to pediatric-capable trauma center
- Anticoagulation and bleeding disorders
- Burns
 - Without trauma mechanism: triage to burn facility
 - With trauma mechanism: triage to trauma center
- Time sensitive extremity injury
- End-stage renal disease requiring dialysis
- Pregnancy > 20 weeks
- EMS provider judgment

Comorbid Disease / Risk Factors

Increases in morbidity and mortality have been associated with:

- Increasing age
 - McCoy GF, et al., J Trauma, 1989
 - Morris JA, et al., J Trauma, 1990
- Certain comorbid diseases
 - Morris JA, et al., JAMA, 1990
 - Sacco WJ, et al., J Trauma, 1993

EMS “gut feeling”

- Data mixed
- May lead to abuses:
 - “Other hospitals don’t like HIV patients”
 - “He didn’t look like he had insurance”
 - “You guys do a better job than other hospitals”

Evaluation of the ACS Criteria

- Trauma patients transported by ground EMS
- Severe trauma defined as ISS>15
- EMS completed survey on ACS criteria

Norcross, 1995

N=753	Sensitivity	PPV
Physiologic Criteria	65%	42%
Anatomic Criteria	45%	22%
Physiologic and Anatomic	83%	27%
Mechanism of injury	54%	16%
Physiologic, Anatomic, and Mechanism of injury	95%	18%

The Right Amount of Time



EMS in Perspective

- J. Frank Pantridge, 1969
 - Cardiologist
 - Royal Victoria Hospital, Belfast (UK)
 - noted that more than 60% of the young and middle-age males who died from a heart attack did so within one hour of the onset of symptoms
 - Mobile coronary care units
 - Bring physician to the patient
 - Stabilize the patient at the scene

Pantridge JF, *Lancet*, 2, 271 (1967)

EMS in Perspective

- U.S.
 - Medics returning from Viet Nam
 - Firefighters trained in EMS
 - **Seattle, Miami, Denver, L.A.**



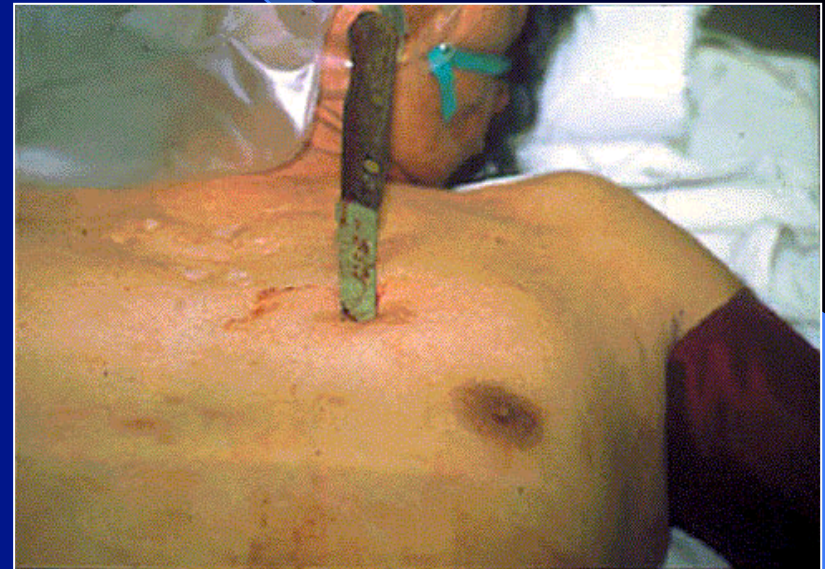
Emergency! (1972-77)

Prehospital ALS for Trauma

- Adaptation of ALS care for medical / cardiac patients to trauma care
- Management at scene focused on stabilizing the patient

Prehospital ALS for Trauma

- Scene stabilization of trauma patients by ALS crews were disastrous
 - Improved outcome when victims of penetrating cardiac trauma were transported by BLS
 - “scoop and run”
 - 5/6 vs 0/7



Gervin A, *J Trauma*, 1982

Prehospital ALS for Trauma

Authorities questioned the role of prehospital advanced life support

- **Is ALS necessary for pre-hospital trauma care?**
 - Trunkey DD, *J Trauma*, 1984
- **Prehospital stabilization of critically injured patients: a failed concept**
 - Smith J, et al, *J Trauma*, 1985

The “Ultimate Stabilization”



EMS vs Private transport

Los Angeles (USC+LAC)

- 4856 EMS patients vs. 926 non-EMS patients
- ISS > 15



Demetriades D, *Arch Surg*, 1996

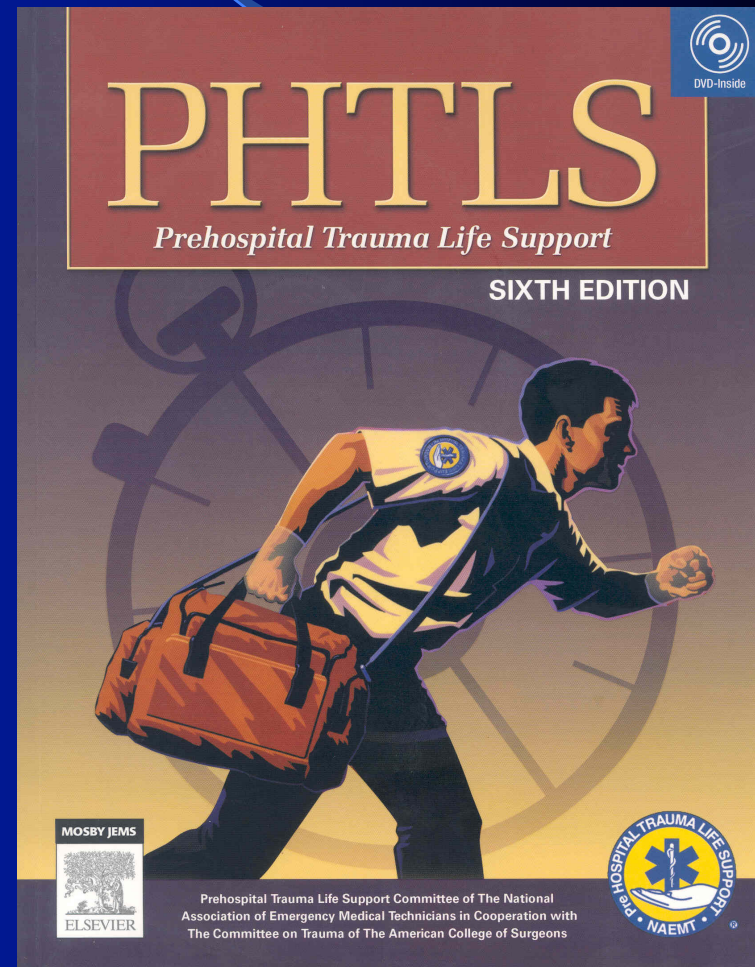
Above all, do no further harm

- Mortality:
 - 28.8% EMS Transport
 - 14.1% Private Transport
- Scene time
 - More than 20 mins for both blunt and penetrating trauma



PreHospital Trauma Life Support

- Based on ATLS



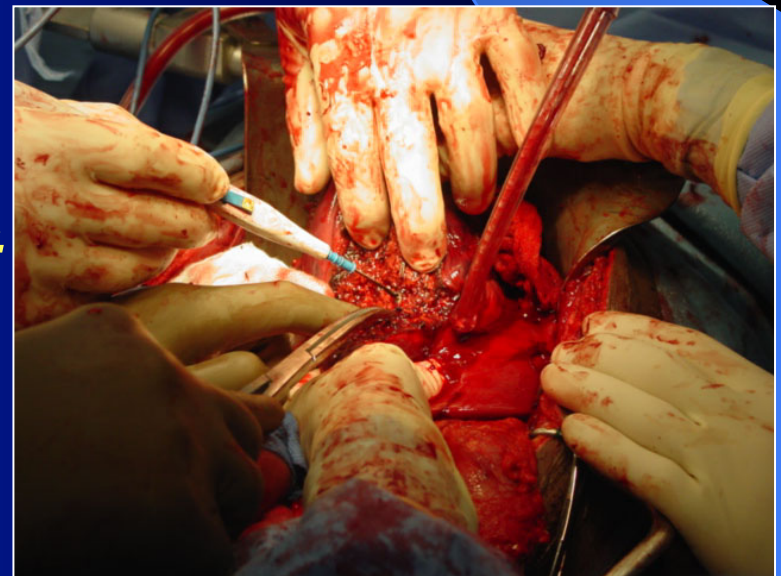
**Golden
Period**



Platinum
10 minutes



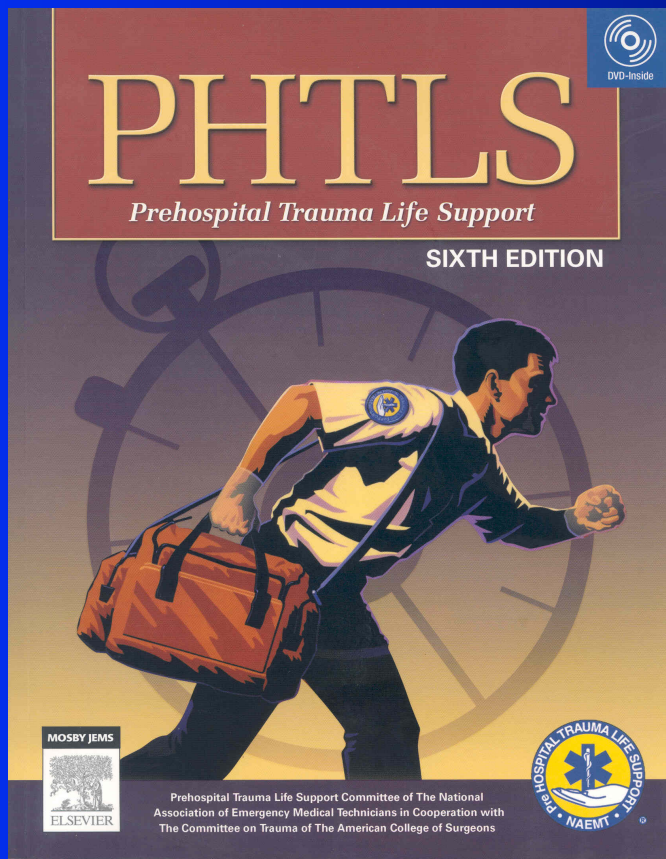
For critically injured patients, initiate transport to the closest appropriate facility within 10 minutes of arrival on scene.



Not “Scoop and Run”



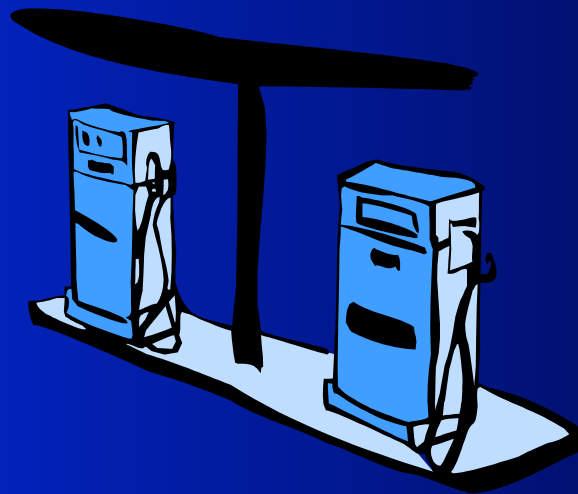
PHTLS

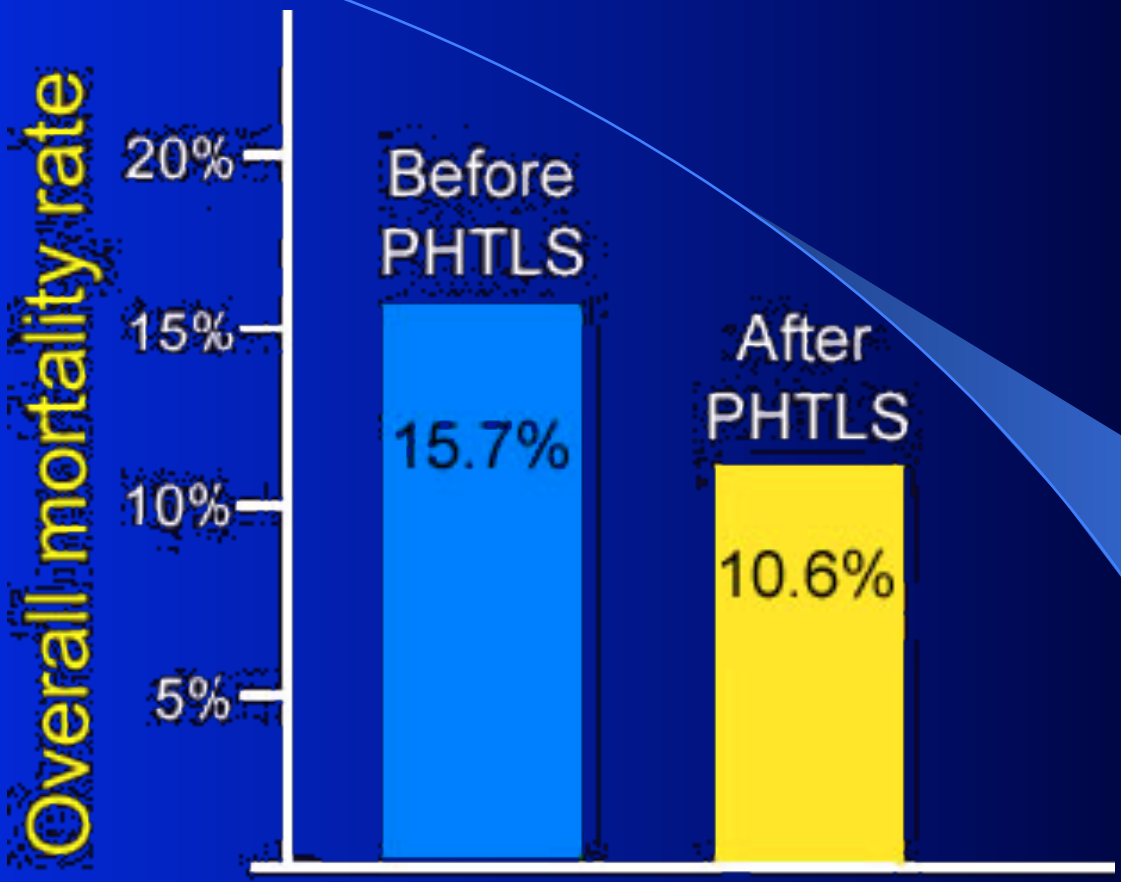


- Limited, key field interventions:
 - Airway control
 - Oxygenation and ventilation support
 - Hemorrhage control
 - Spinal Immobilization
 - Rapid Transport to *appropriate* facility
 - Initiate IVs enroute

Transportation

- **Gasoline** (or diesel or JetA) is the *most important* fluid in prehospital trauma care





PHTLS works!

Ali J, *J Trauma*, 1998

Case

13 y/o male suffers single GSW. EMS called. On arrival:

- Airway: intact
- Breathing: decreased BS on right
- Circulation: HR 110, strong radial pulse
- Disability: GCS 15
- Exposure: bullet wound 5th ICS left parasternal; bullet wound right 8th ICS posterior axillary line

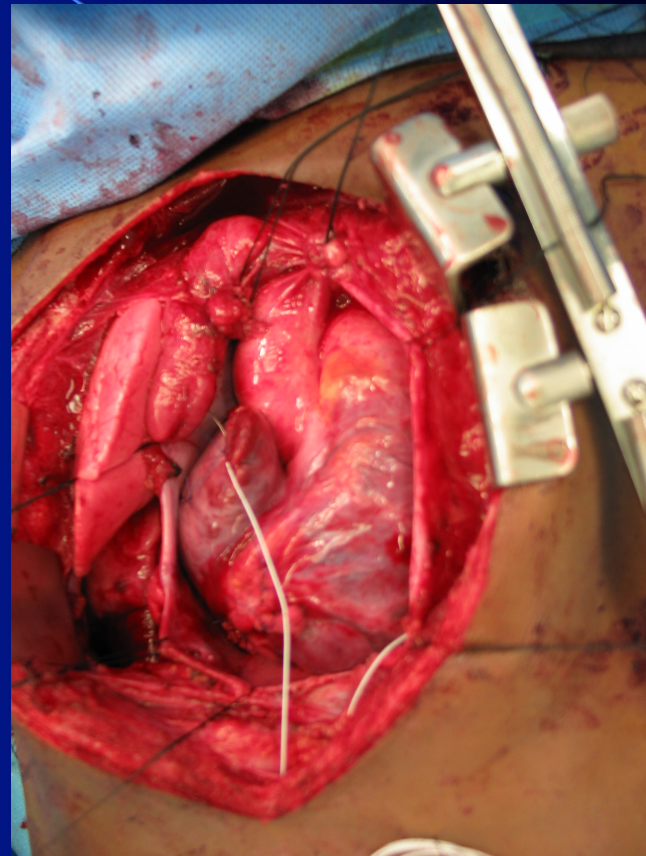
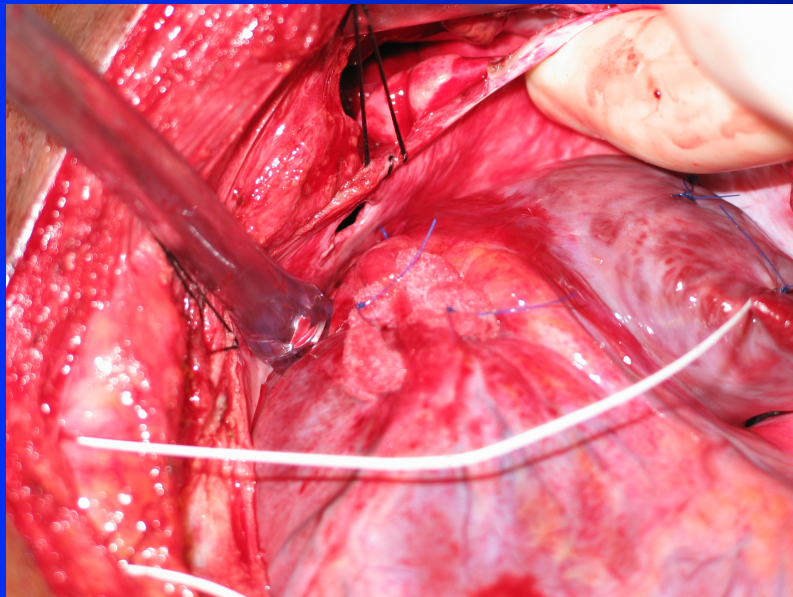
13 y/o shot in chest

- EMS treatment
 - High flow O2
 - Placed on gurney
 - Transport initiated (1 minute scene time!)
 - 2 IV lines placed en route
- ED evaluation
 - BP 110/80
 - Pericardial US positive for fluid

13 y/o shot in chest

- OR findings:
 - Blood in pericardium
 - Wound to anterior right ventricle near right coronary artery (repaired)
 - Wound to lateral right atrium (repaired)
 - Normal transesophageal echocardiogram
 - Right lung repaired
 - Bleeding diaphragmatic vessel ligated

13 y/o shot in chest



*The Right Patient. . .
To the Right Place. . .
In the Right Amount of Time*



Thanks for your attention!