Busting Some ATLS Myths

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MYTHBUSTERS

Myth #1

- **ATLS is mainly responsible for improvements in modern trauma care**

The Tragic Origin of ATLS

- In 1976, an orthopedic surgeon crashed his plane into a field. His wife was killed and three of his four children were critical.
- He flagged down a car for transport to the nearest hospital ... which was closed.
- Once opened and a doctor summoned, care was inadequate and inappropriate.
- ATLS was subsequently created in 1977 by the ACS and first course given in 1978

Time Line of EM in the US

- 1970 1st EM residency
- 1973 AMA creates EM section
- 1976 ABEM incorporated
- 1977 ABMS rejects ABEM
- 1979 ABEM = specialty board
- 1984 1000 EM residents per year
- 1987 practice track closes
- 1989 ABEM = primary board

before ATLS

after ATLS

EM Residency Outcome Study

- 10 Level I Trauma Centers
  - 5 with an EM residency (EM+)
  - 5 without EM residency (EM–)
  - 18,591 cases (9912 EM+ and 8679 EM–)
- EM+ patients
  - Older
  - Sicker (more burns, penetrating, longer in ICU)
- EM+ outcomes
  - Lowered mortality, complications, hospital stays

Taylor SF, Journal of EM; 29:123-127 (2005)

EM Topics

Position Statements

Critical EM & Practice Issues

Regulatory Issues

Resources

Position Statements

Position Statement on the Advanced Trauma Life Support Course

AAEM recognizes the value of the ATLS curriculum for non-EM boarded physicians and other health care providers who need to be familiar with the principles of trauma care. However, AAEM believes that board certification in Emergency Medicine establishes expertise in trauma care beyond that which is taught in the ATLS course.

Therefore, ATLS should not be required of physicians board-certified in Emergency Medicine.

Adopted by the AAEM Board of Directors, February 19, 1998.

Myth #1

- ATLS is [illegible]
  - [illegible]
  - [illegible]
  - [illegible]

Myth Busted!

Myth #2

- **Trauma is a Surgical Disease**

Look at the Involved Physicians

- 5% of surgery graduates regularly manage trauma resuscitations
- 95% of EM graduates regularly manage trauma resuscitations
- 43% of surgeons required to take trauma call would prefer not to do so

Esposito TJ, *Journal of Trauma* 39(5)929-934 (1995)

Look at the Patients

- 100% seen by emergency physicians
- 5% seen by trauma surgeons

Look at the Operative Cases

- 1500 surgical procedures on injured patients at Keele University (UK) in 1992
  - trauma surgeons performed 2%
  - orthopedic surgeons performed 83%.

Maryosh J, Keele University (1992, UK)

Myth #2

- Trauma [illegible]
  [illegible]se

Myth Busted!

Myth #3

- **There is a Golden Hour of Opportunity**

NJ Trauma Center Website

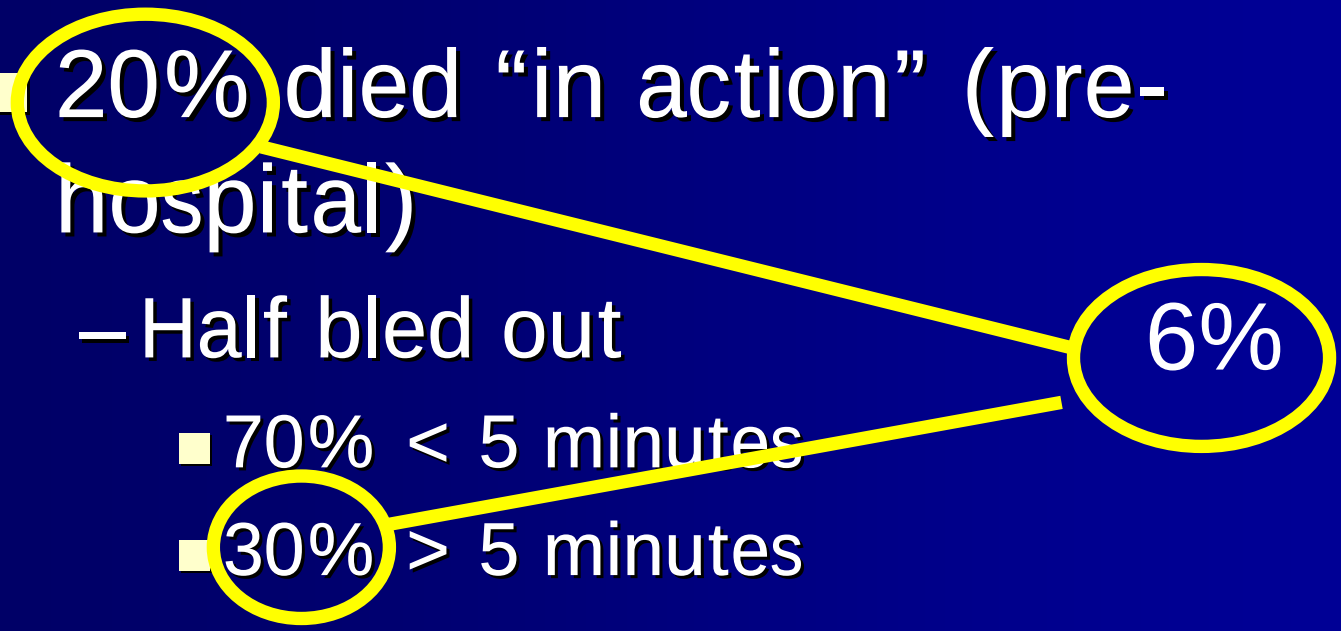
The NJ Trauma Center » The Golden Hour

The Golden Hour

The Golden Hour is defined as the time period of one hour in which the lives of a majority of critically injured trauma patients can be saved if definitive surgical intervention is provided. Only 60 minutes from the moment of injury to notify the police; dispatch an ambulance to the scene; transport the victim to a hospital; summon the appropriate surgical and support staff; and perform the necessary life-saving surgery.

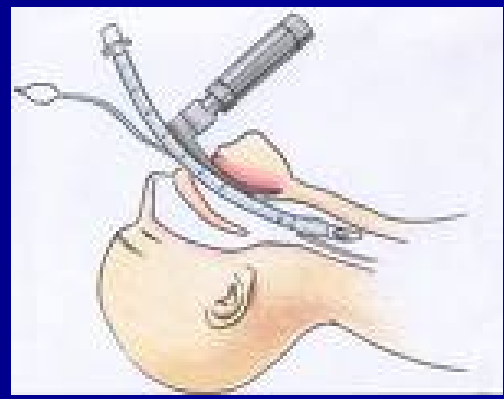
World War I Combat Deaths

- 20% died “in action” (pre-hospital)
  - Half bled out
    - 70% < 5 minutes
    - 30% > 5 minutes
  - Half head injuries
- 40% died in 24 hours
- 40% died over the next 2 weeks



Cannon WB, JAMA 70:618-621 (1918)

Opportunities for Trauma Care Excellence



Myth #3

- There is [illegible]

Myth Busted!

Myth #4

- **Aggressive crystalloid resuscitation is lifesaving**

ATLS

- "It is dangerous to wait until the trauma patient fits a precise physiologic classification of shock before initiating aggressive volume restoration. Fluid resuscitation must be initiated when early signs and symptoms of blood loss are apparent or suspected, not when the BP is falling or absent."

ACS, *ATLS for Physicians*, 7th Ed (2004)

Permissive Hypotension

- Definition
  - tolerate low BP until hemorrhage control
  - then, blood volume swiftly restored
- Rationale
  - increased BP “pops the clot”
  - hemodilution causes more bleeding (lower viscosity and dilutes factors)
  - aggressive fluid resuscitation increases bleeding, hastens time to cardiac arrest

Proof

- WWI (Cannon WB, JAMA 70:618-621,1918)
  - fluid resuscitation before definitive control of hemorrhage found detrimental
- Penetrating (Bickell WH, NEJM 331:1105-1109,1994)
  - hypotensive, penetrating trauma patients studied with higher survival in the delayed-resuscitation group
- Blunt (Hambly PR, Resuscitation 31:127,1996)
  - significantly lower survival when over 6 L of fluid administered

Quote by British Surgeon

"The greatest achievement for ATLS in the UK may prove to be the shift it has caused in the approach to fluid administration ... more surgeons appear willing to administer fluid before the fall in BP heralds the onset of profound circulatory collapse. This will need to be unlearned."

Redmond AD, Archives of EM 9:103-106 (1992)

What Instead?

- 2 large bore IVs ... at TKO rate
- Maintain CPP If severe head injury
- Expedite definitive hemorrhage control
- Tolerate class III shock and give blood/fluids (1:3) for class IV shock

Class	SBP	HR	TBL	LOC
III	<90 **radial pulse**	>120	>30%	**confused**
IV	<70 **carotid pulse**	>140	>40%	**combative or coma**

Myth #4

- Aggressive [illegible]

MythBusted!

Myth #5

- **Surgeons Must Lead Trauma Resuscitations**

ATLS

- "The trauma team leader must be a qualified surgeon."
- "A qualified surgeon must be present at the time of the patient's arrival to determine the need and potential for success of an ED resuscitative thoracotomy (ERT)."

ACS, *ATLS for Physicians*, 7th Ed (2004) … in bold print!

Thoracotomy Survivors

- 7% overall
  - 17% for SW
  - 4% for GSW
  - 11% if some life sign
  - 3% if no life signs

- 92% of survivors neuro/psych intact

Rhee, *Journal of the American College Surgeons* 190(3):288, 2000

ATLS

- “The loss of an airway kills more quickly than does the loss of the ability to breathe ... more quickly than loss of circulating blood volume.”
- So, who are the trauma airway experts?

ACS, *ATLS for Physicians*, 7th Ed (2004)

Airway Management

- Cricothyrotomy rate in trauma patients declines with EM residency program indicating improved airway management

  Chang RS, Acad Emerg Med, 5:247-251 (1998)

- Equal success and complication rates for trauma intubation with EM v anesthesia residents
  - Twice as many by EM resident since anesthesia resident was not always immediately available

  Levitan RM *Ann Emerg Med* 43:48-53 (2004)

Myth #5

- Surgeon Must [illegible]
  [illegible]

Myth Busted!

Myth #6

- **Overtriage is necessary to improve outcomes**

ACS / COT

- EMS over-triage rate to a TC should be up to 50% in order to reduce the under-triage rate to 5%

Resources for Optimal Care of the Injured Patient, ACS/COT (1998)

Medical Center of Delaware

- Code
  - Physiologic criteria
    - SBP < 90, GCS <13, ventilatory compromise
  - Anatomic criteria
    - penetrating, major hemorrhage, airway compromise, amputation, severe head injury
- Alert
  - Cases safely managed by EP
  - 139-minute reduction in ED LOS

Tinkoff GH, Journal of Trauma 41(4):735-740 (1996)

Fairfax Hospital (Virginia)

- Two–tiered system
- ¾ of cases classified as non-emergent
  - team was pruned from 16 to 8 individuals
  - less equipment and tests
  - $1,000 cost savings per patient

DeKeyser FG, Annals of EM 23:4 (1993)

Rural → TC Transfers

- 4-year review of 90% blunt trauma
- Death rates lower than predicted
- Median time in rural ED = 103 minutes
- Median time in transfer = 44 minutes
- Concludes: stabilization prior to transfer ideal when travel times long

Veenema KR, Annals of EM 25(2):175-181 (1995)

ACS Criteria for Highest Level Activation

- SBP <90
  - age-specific hypotension in children
- GSW to neck, chest, or abdomen
- GCS <8
- Intubated
- Getting blood
- EP discretion

http://www.facs.org/trauma/faq_answers.html

Myth #6

- Overtria[illegible]

MythBusted!


Thank you!
Questions?
MYTHBUSTERS