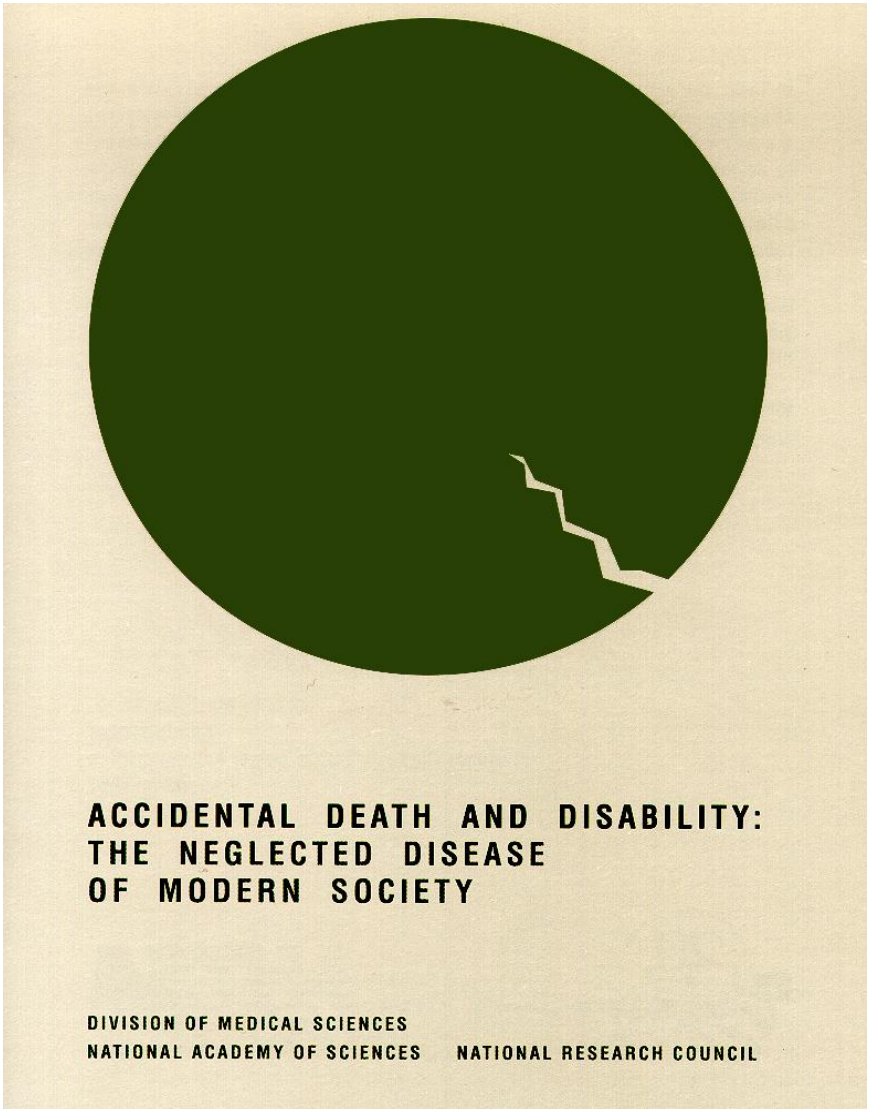
Challenges & Best Practices: A Systems Approach…
A Prehospital Perspective

Theodore Delbridge, MD, MPH, FACEP
Department of Emergency Medicine
East Carolina University
Greenville, North Carolina

© American College of Surgeons 2017. All rights reserved Worldwide.

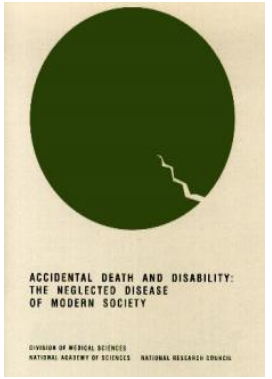


Institute of Medicine and National Research Council. 1985. *Injury in America: A Continuing Public Health Problem*. Washington, DC: The National Academies Press.

© American College of Surgeons 2017. All rights reserved Worldwide.

Accidental Death and Disability: The Neglected Disease of Modern Society

- 29 recommendations
- 11 related directly to emergency medical services



© American College of Surgeons 2017. All rights reserved Worldwide.

- Active exploration of the feasibility of designating a single nationwide telephone number to summon an ambulance.

Accidental Death and Disability: The Neglected Disease of Modern Society, 1966

© American College of Surgeons 2017. All rights reserved Worldwide.

NG 911

Next Generation 911

- Multi-media input
- Technology driven
- Better information
  - Improves response
  - Improves safety

© American College of Surgeons 2017. All rights reserved Worldwide.

- Initiation of pilot programs to evaluate automotive and helicopter ambulance services in sparsely populated areas and in regions where many communities lack hospital facilities adequate to care for seriously injured persons…

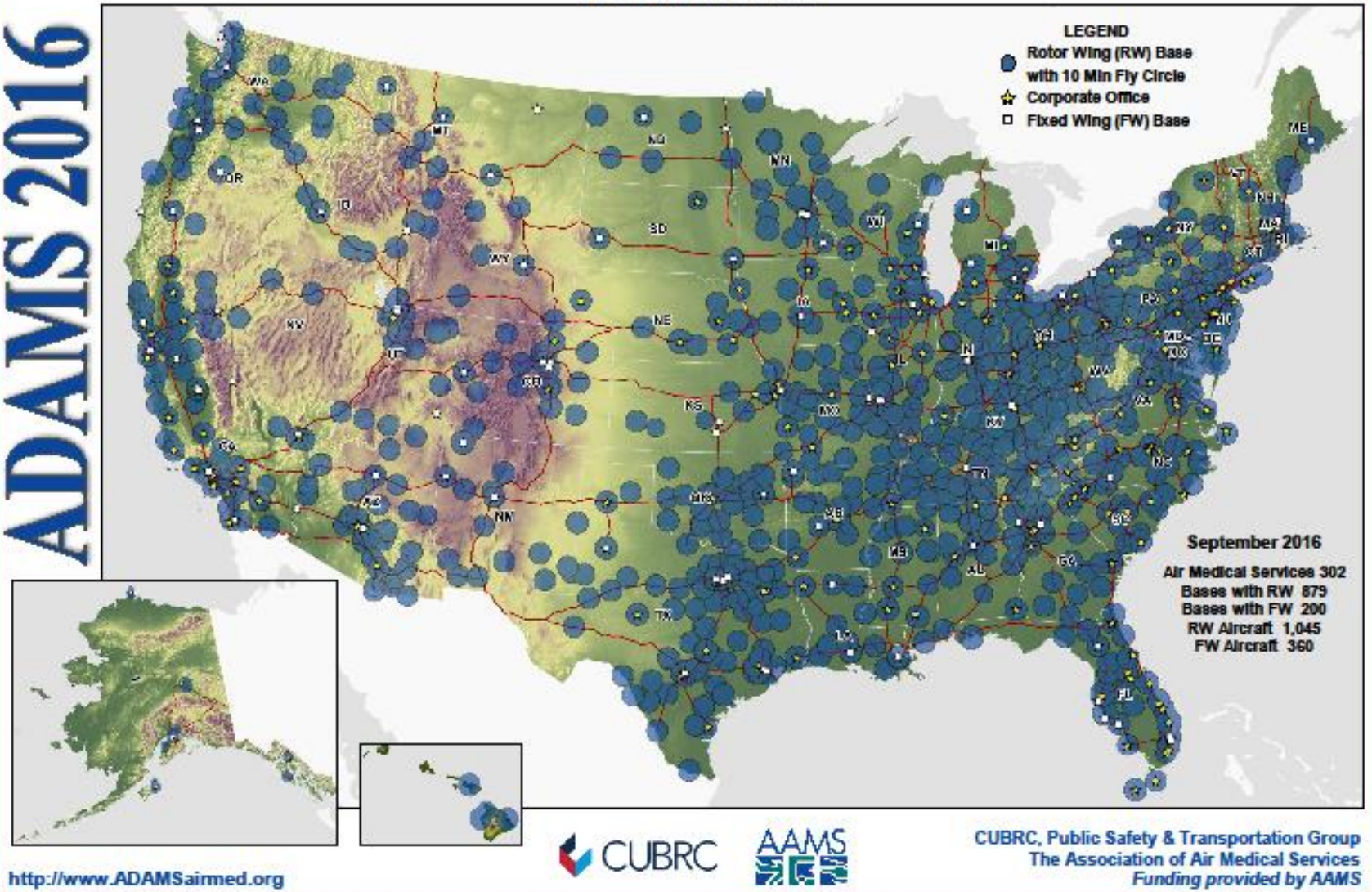
Accidental Death and Disability: The Neglected Disease of Modern Society, 1966

© American College of Surgeons 2017. All rights reserved Worldwide.

Atlas & Database of Air Medical Services

14th Annual Edition

ADAMS 2016



http://www.ADAMSairmed.org

CUBRC

AAMS

CUBRC, Public Safety & Transportation Group
The Association of Air Medical Services
Funding provided by AAMS

American College of Surgeons
Inspiring Quality: Highest Standards, Better Outcomes
100+years

The Committee on Trauma

NHTSA

NIH

© American College of Surgeons 2017. All rights reserved Worldwide.

- Implementation of recent traffic safety legislation, to ensure completely adequate standards for ambulance design and construction, for ambulance equipment and supplies, and for the qualifications and supervision of ambulance personnel

Accidental Death and Disability: The Neglected Disease of Modern Society, 1966

© American College of Surgeons 2017. All rights reserved Worldwide.

© American College of Surgeons 2017. All rights reserved Worldwide.

You can lead a horse to water and sometimes the horse will crap in it.

Roger Ellerton

Author "Win-Win Influence"

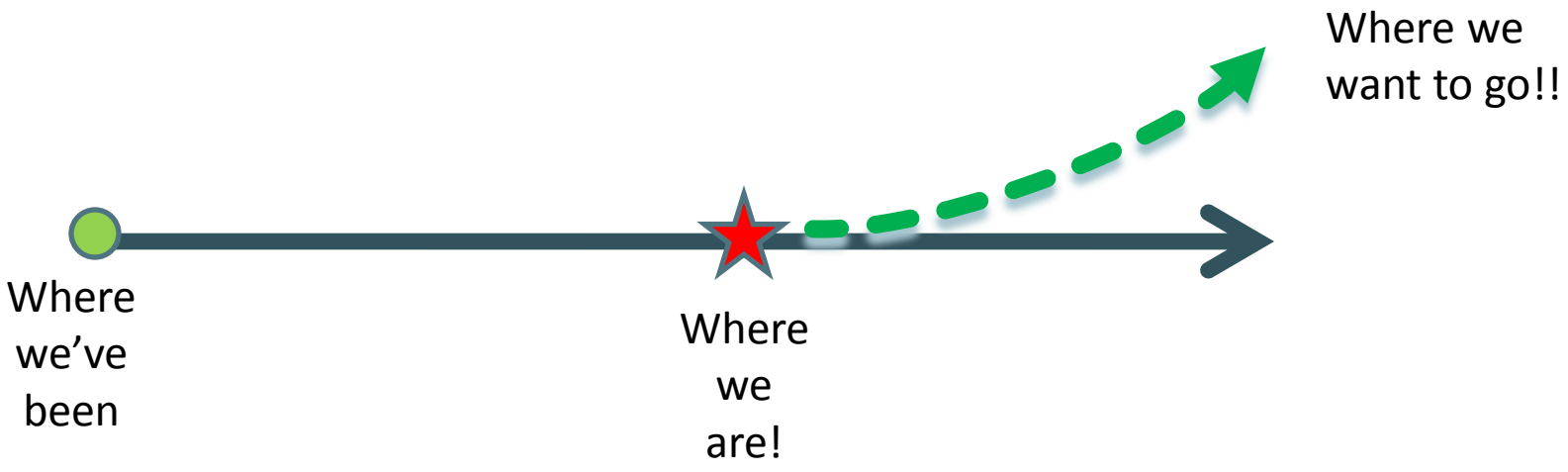
renewal.ca

© American College of Surgeons 2017. All rights reserved Worldwide.

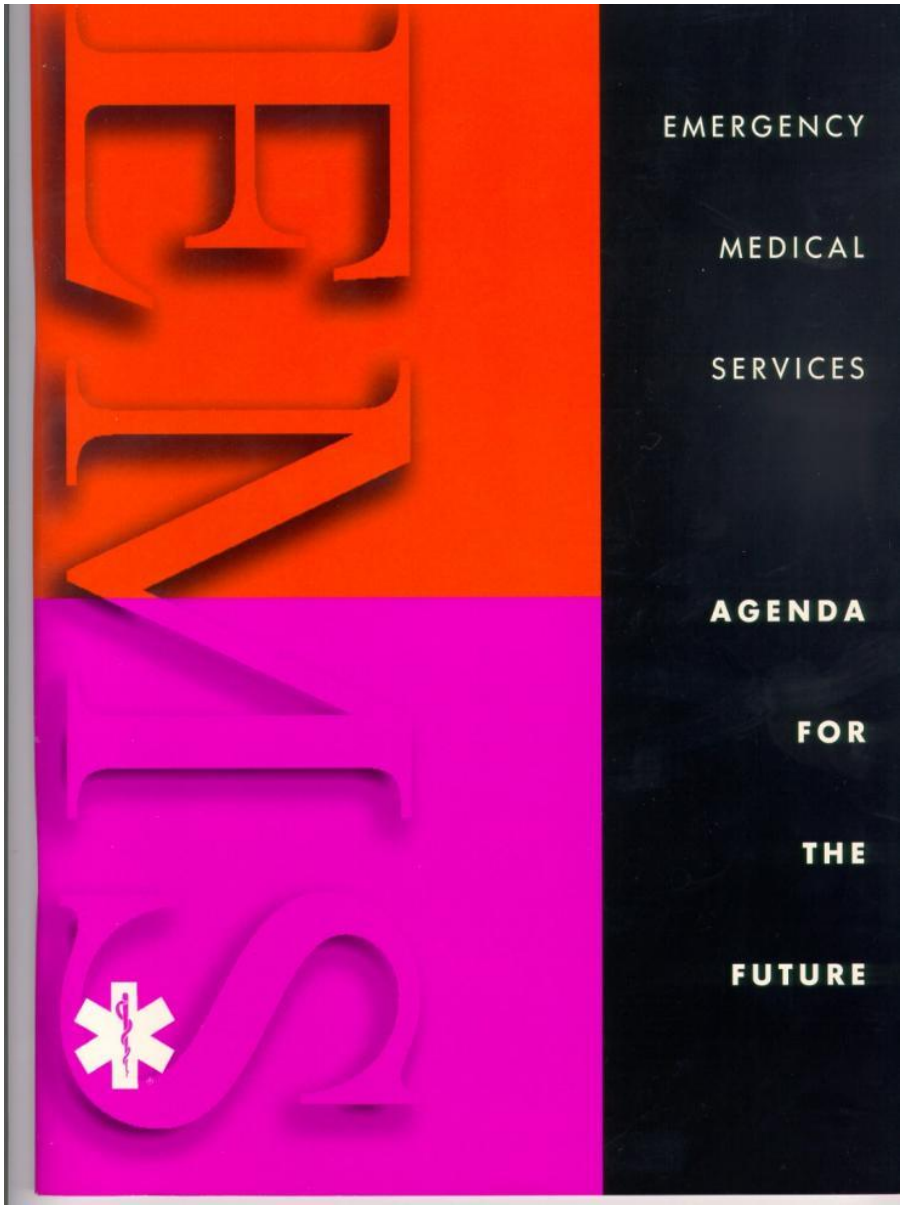
EMS & Prehospital Care:

- Team Sport
- Heterogeneity (def.)

© American College of Surgeons 2017. All rights reserved Worldwide.



© American College of Surgeons 2017. All rights reserved Worldwide.

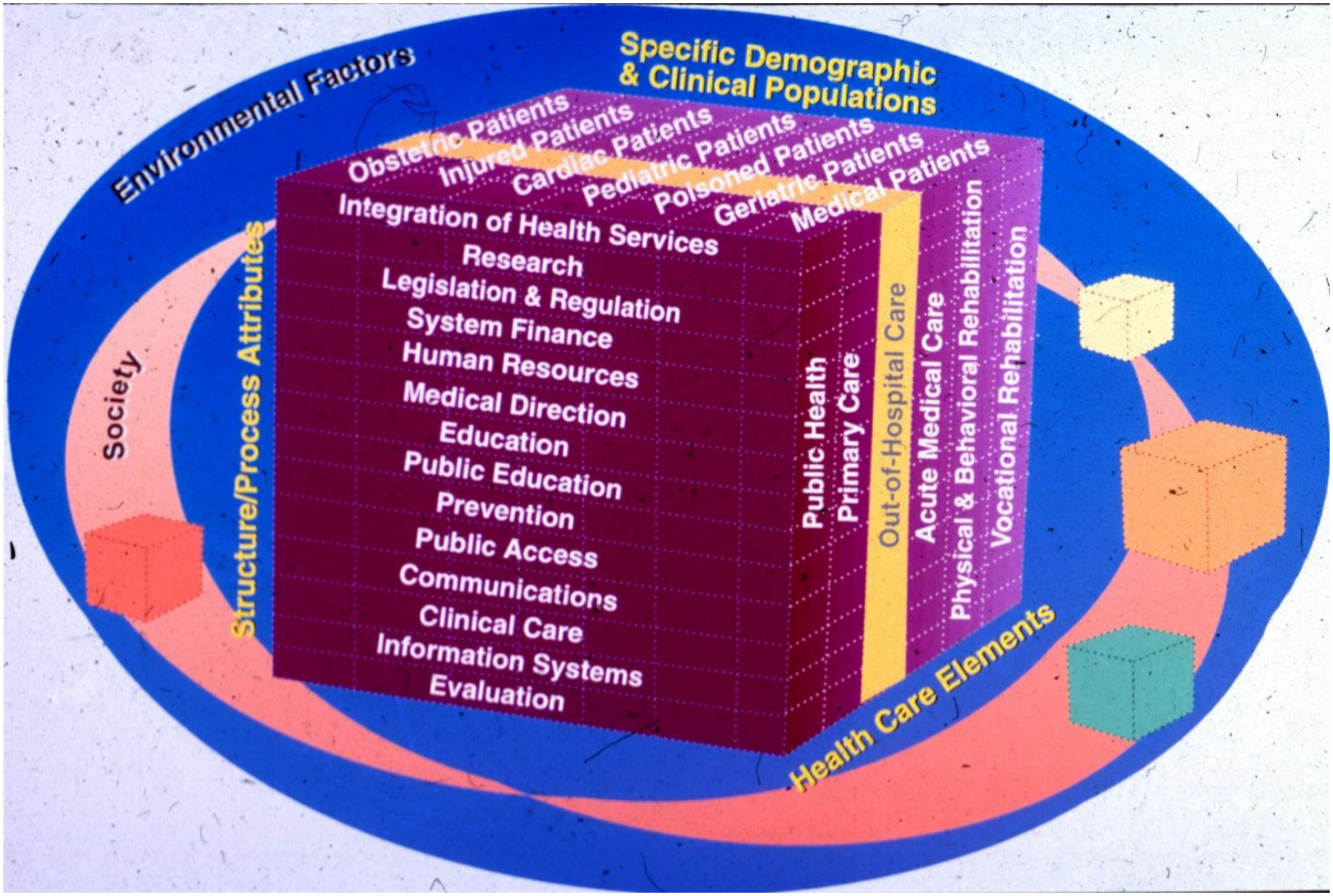


https://www.ems.gov/pdf/2010/EMSAgendaWeb_7-06-10.pdf

T. R. Delbridge, B. Bailey, J. L. Chew, Jr, A. K. Conn, J. J. Krakeel, D. Manz, D. R. Miller, P. J. O'Malley, S. D. Ryan, D. W. Spaite, *et al.* EMS agenda for the future: where we are ... where we want to be. EMS Agenda for the Future Steering Committee. Ann Emerg Med. 1998 Feb; 31(2): 251–263.

© American College of Surgeons 2017. All rights reserved Worldwide.

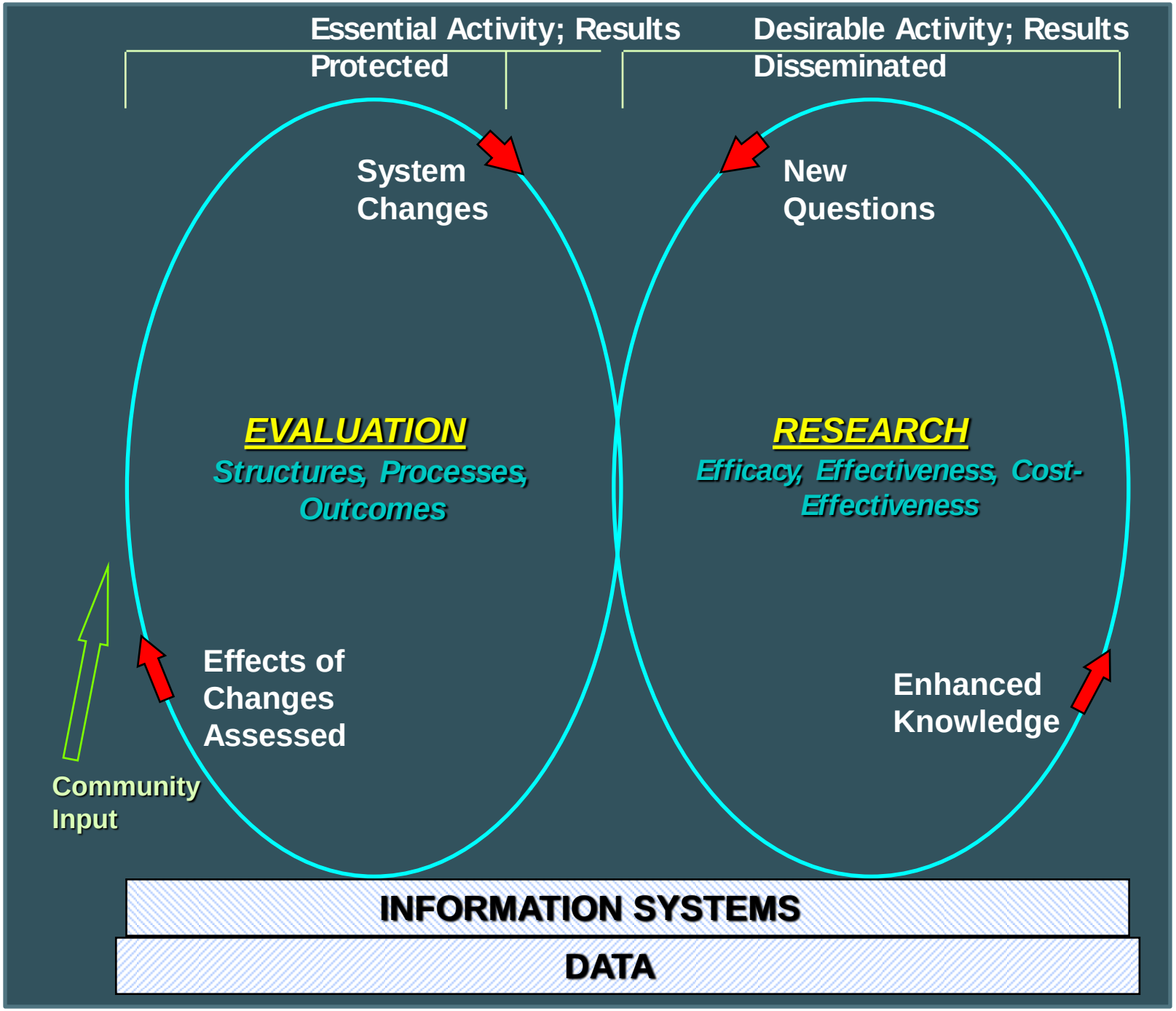
Figure 1: EMS: Part of the Health Care System



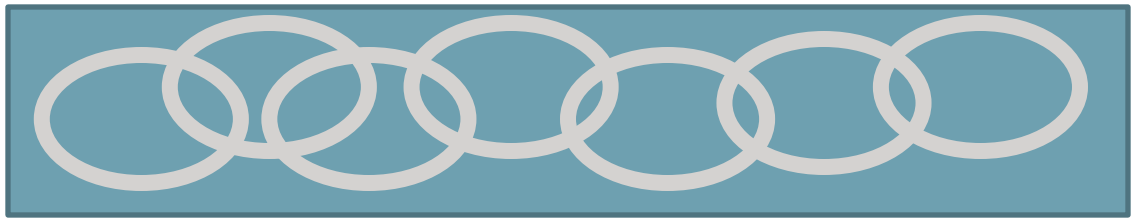
T. R. Delbridge, B. Bailey, J. L. Chew, Jr, A. K. Conn, J. J. Krakeel, D. Manz, D. R. Miller, P. J. O'Malley, S. D. Ryan, D. W. Spaite, *et al.* EMS agenda for the future: where we are ... where we want to be. EMS Agenda for the Future Steering Committee. Ann Emerg Med. 1998 Feb; 31(2): 251–263.

© American College of Surgeons 2017. All rights reserved Worldwide.

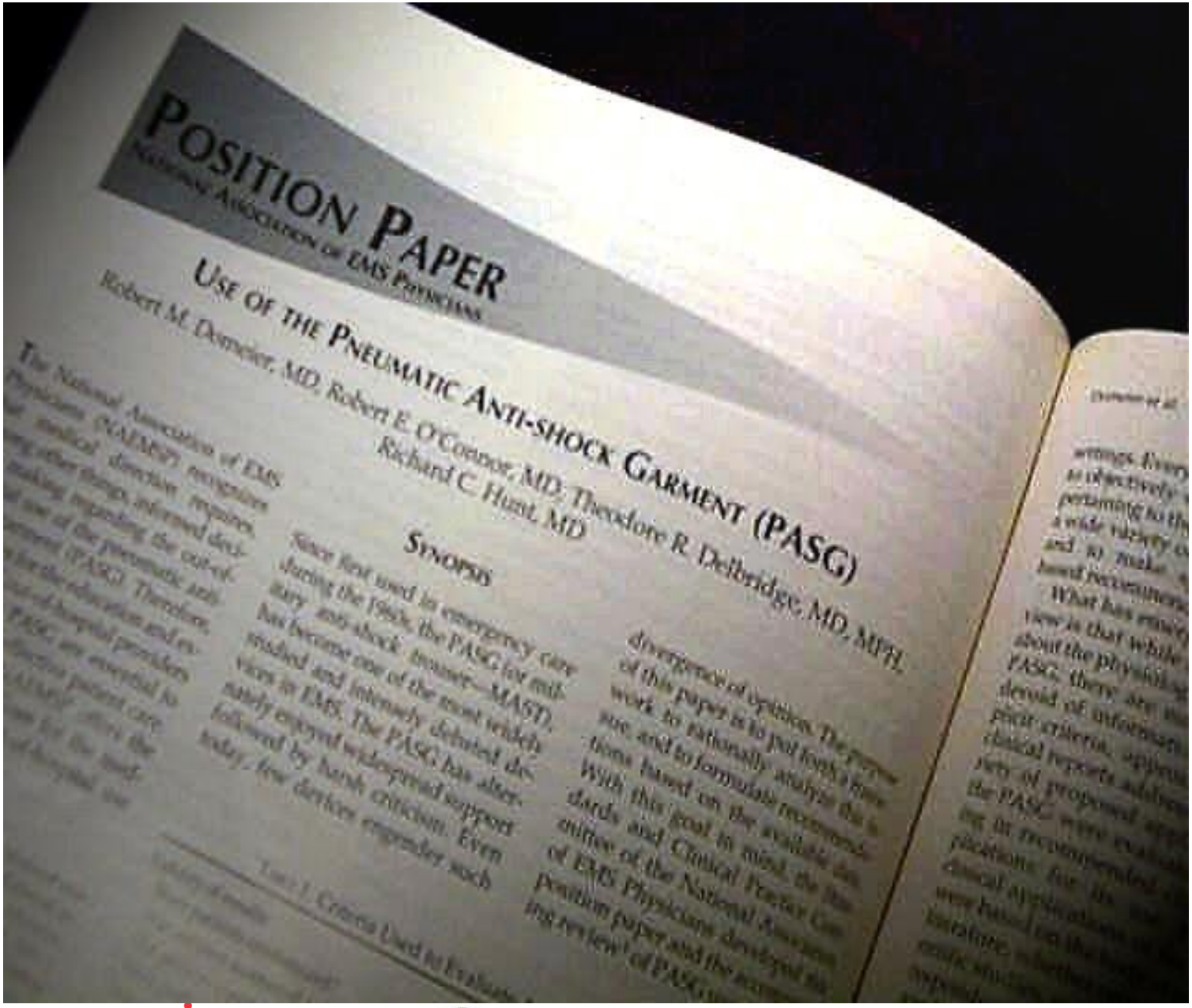
Figure 3: EMS Evaluation and Research: Supported by Information Systems



T. R. Delbridge, B. Bailey, J. L. Chew, Jr, A. K. Conn, J. J. Krakeel, D. Manz, D. R. Miller, P. J. O'Malley, S. D. Ryan, D. W. Spaite, *et al.* EMS agenda for the future: where we are ... where we want to be. EMS Agenda for the Future Steering Committee. Ann Emerg Med. 1998 Feb; 31(2): 251–263.



We understand the chain of survival for cardiac arrest victims… and we provide feedback.



© American College of Surgeons 2017. All rights reserved Worldwide.

Even the Gold is in Question…

TRAUMA/ORIGINAL RESEARCH

Revisiting the "Golden Hour": An Evaluation of Out-of-Hospital Time in Shock and Traumatic Brain Injury

Craig D. Newgard, MD, MPH*; Eric N. Meier, MS; Eileen M. Bulger, MD; Jason Buick, MSc, PCPf; Kellie Sheehan, BSN; Steve Lin, MD, MSc; Joseph P. Minei, MD; Roxy A. Barnes-Mackey, RN; Karen Brasel, MD, MPH; and the ROC Investigators

*Corresponding Author. E-mail: newgardc@ohsu.edu.

TRAUMA/EDITORIAL

Has the Gold Lost Its Luster?

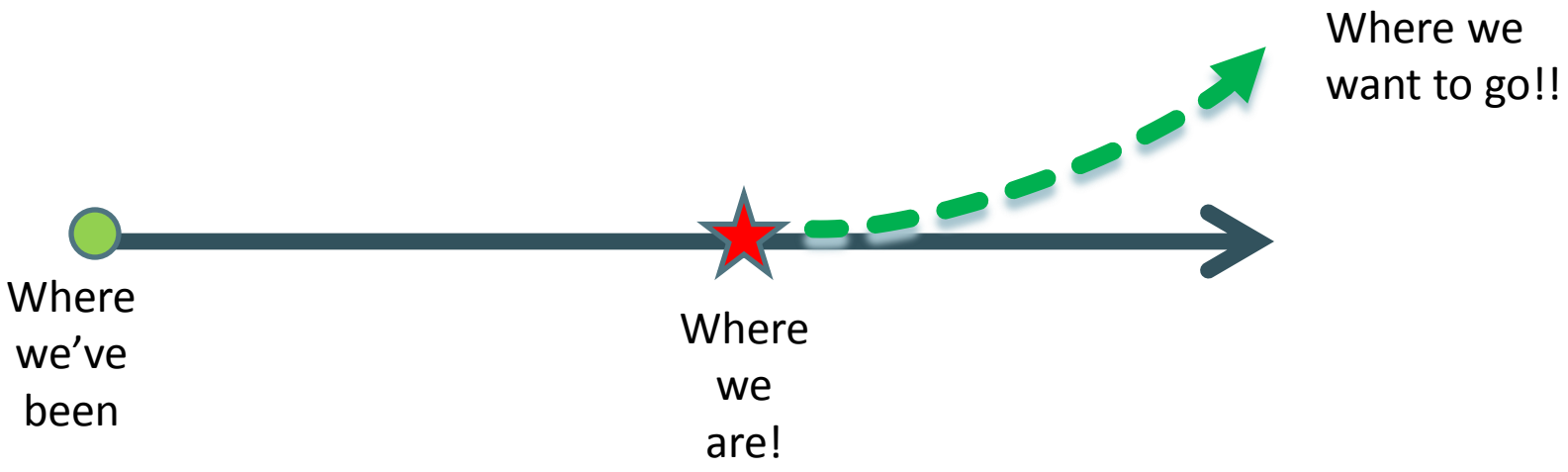
Theodore R. Delbridge, MD, MPH*; Donald M. Yealy, MD

*Corresponding Author. E-mail: delbridget@ecu.edu.

0196-0644/$-see front matter
Copyright © 2015 by the American College of Emergency Physicians.
http://dx.doi.org/10.1016/j.annemergmed.2015.03.036

American College of Surgeons Inspiring Quality: Highest Standards, Better Outcomes 100+years
The Committee on Trauma
NHTSA
NIH

© American College of Surgeons 2017. All rights reserved Worldwide.



© American College of Surgeons 2017. All rights reserved Worldwide.

EMS Agenda 2050

Envision the Future

http://emsagenda2050.org/

American College of Surgeons
Inspiring Quality: Highest Standards, Better Outcomes
100+years

The Committee on Trauma

NHTSA

NIH

© American College of Surgeons 2017. All rights reserved Worldwide.

CDC

MMWR™

Morbidity and Mortality Weekly Report

www.cdc.gov/mmwr

Recommendations and Reports | January 23, 2009 / Vol. 58 / No. RR-1

Guidelines for Field Triage of Injured Patients

Recommendations of the National Expert Panel on Field Triage

INSIDE: Continuing Education Examination

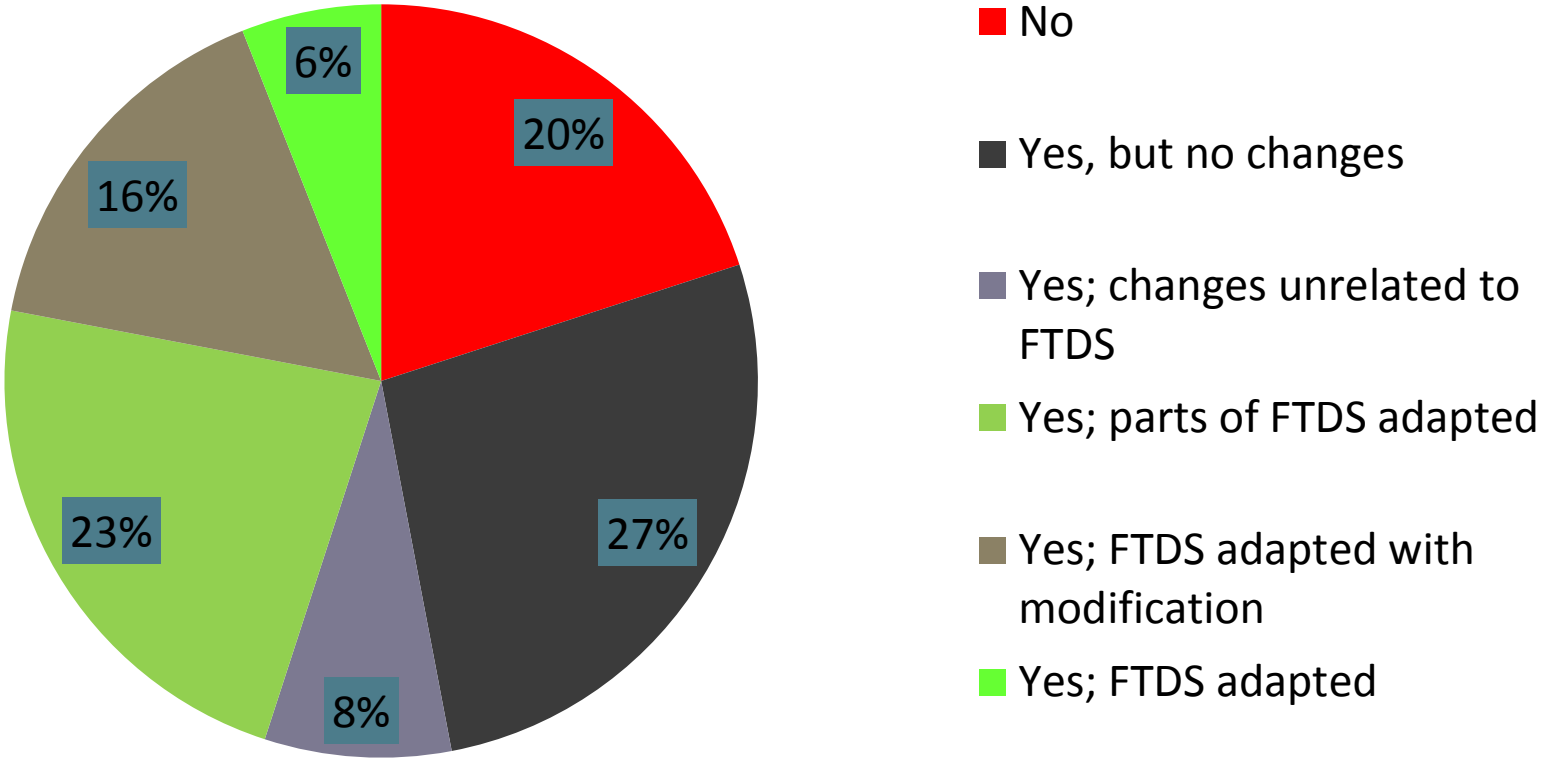
DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION

American College of Surgeons
Inspiring Quality:
Highest Standards, Better Outcomes
100+years

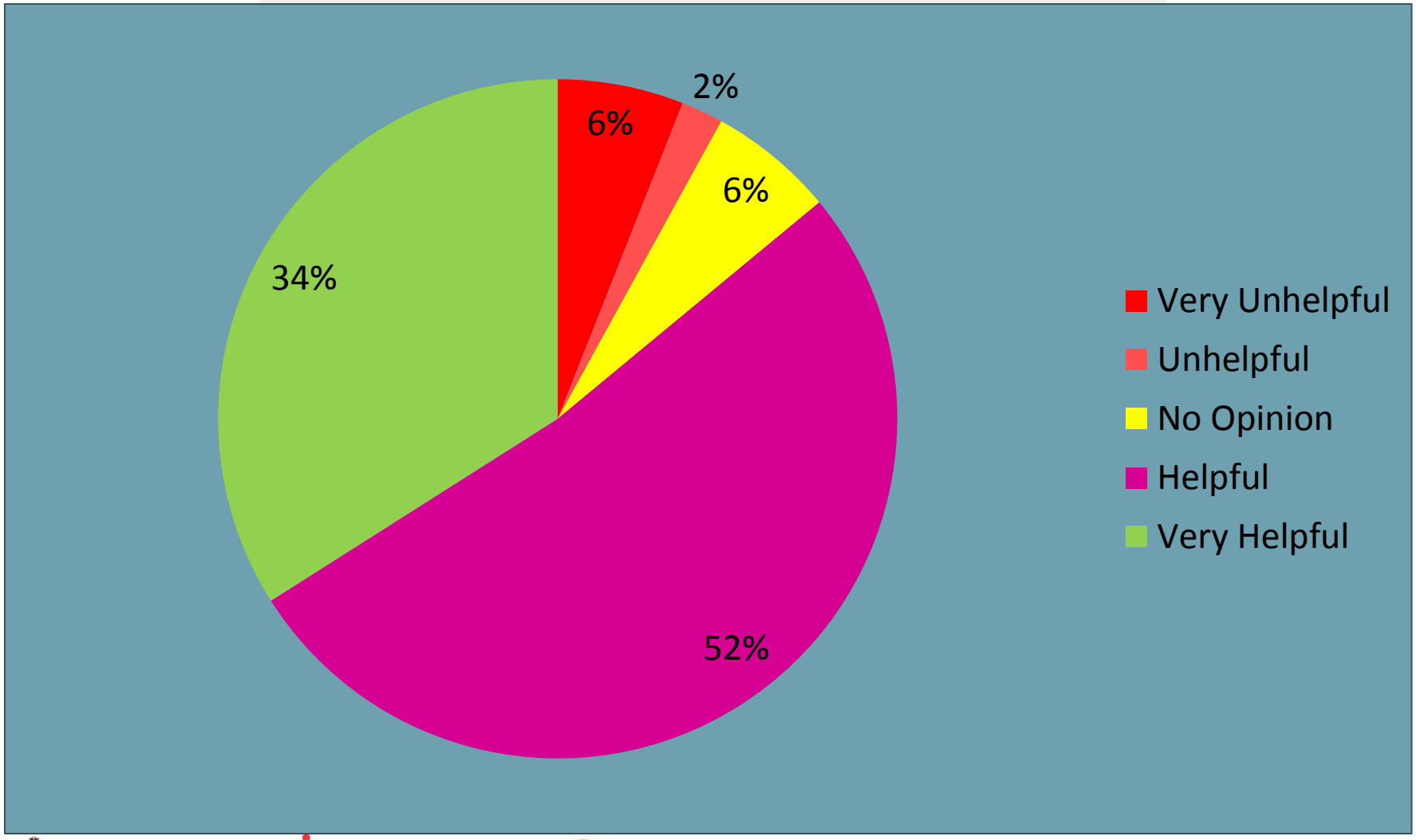
The Committ
on Trau

© American College of Surgeons 2017. All rights reserved Worldwide.

Since publication of the *Field Triage Decision Scheme* (FTDS), has there been consideration to updating your system's trauma triage protocol?



National guidelines are:



© American College of Surgeons 2017. All rights reserved Worldwide.

The Paradox of EMS

- The least "sophisticated" workforce is not in metropolitan areas
  - i.e., immediate proximity to a trauma center
  - Engaged medical direction

- The most opportunity for EMS to make a difference is proportionate to the length of exposure to a critical patient
  - The personnel with the most opportunity have the least likelihood of expertise

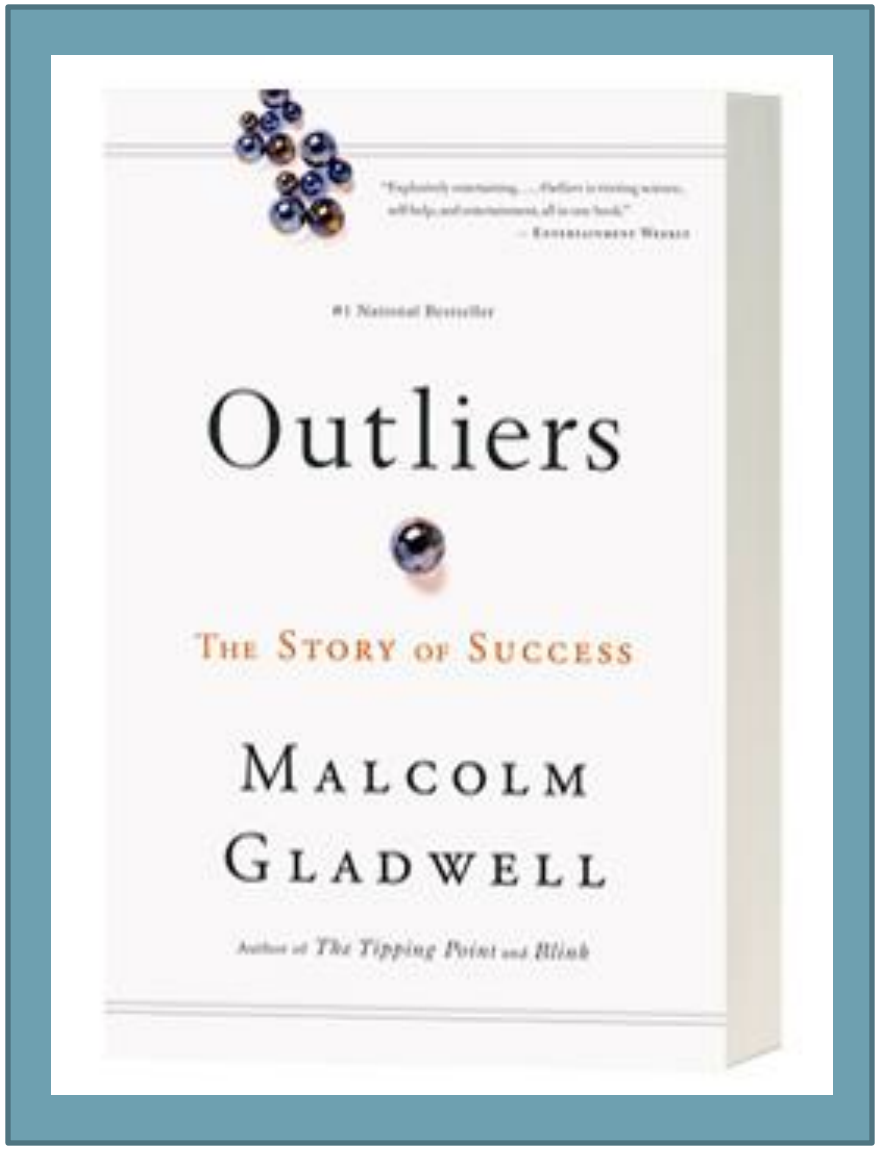
© American College of Surgeons 2017. All rights reserved Worldwide.

Emergency Medical Services in Rural America

National Conference of State Legislatures

June 2007

- [EMS personnel are boxed in their ambulances]
- Little integration with other health care workers
- Undervalue of potential roles in health care delivery



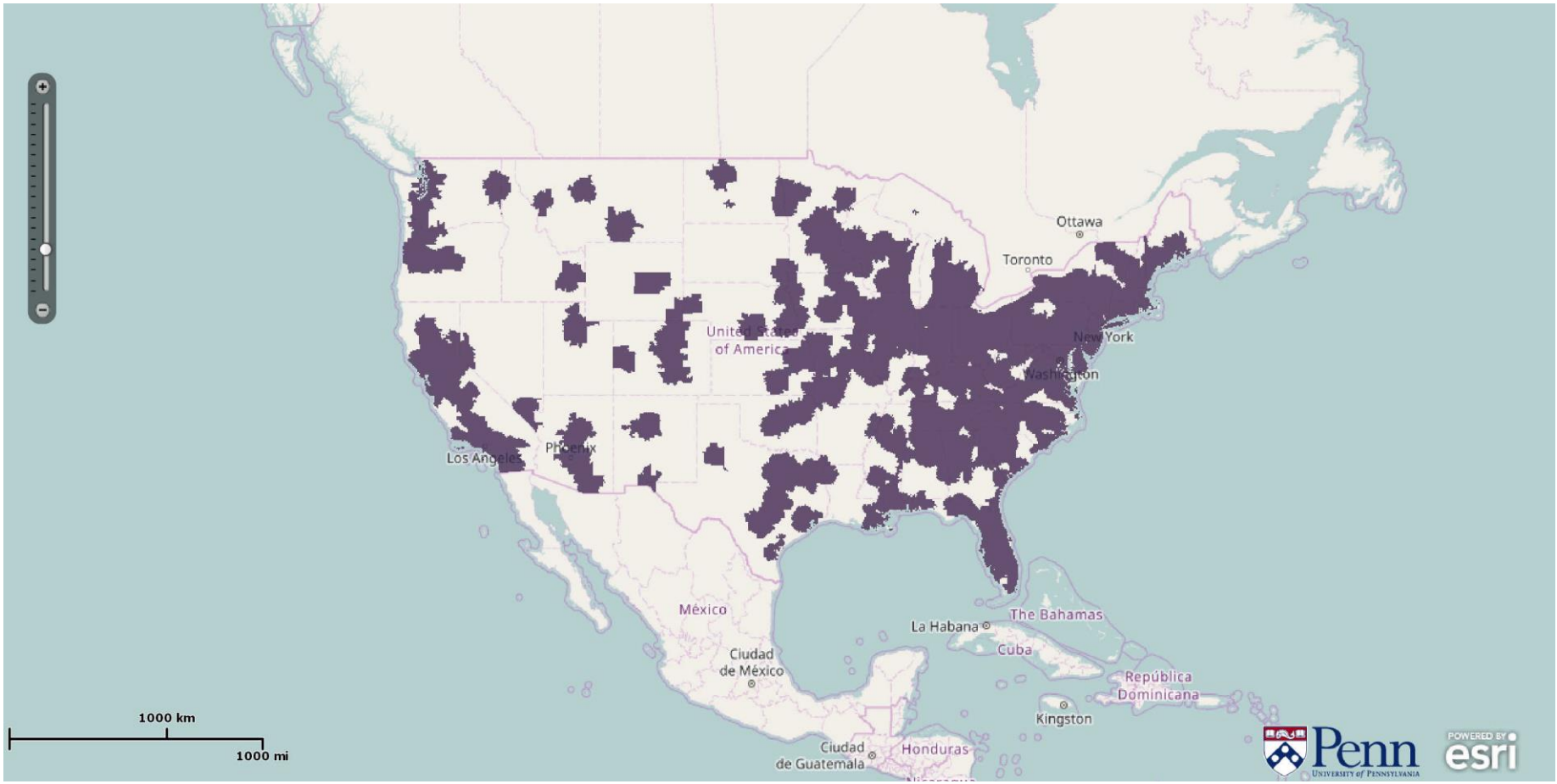
© American College of Surgeons 2017. All rights reserved Worldwide.

Systems of Care

- Overlook inherent heterogeneity
- Neglect dynamic resource availability
- Mandate local adaptation (or a free-for-all), depending on how they are structured

© American College of Surgeons 2017. All rights reserved Worldwide.

< 60 Minutes to a Trauma Center:



American College of Surgeons
Inspiring Quality: Highest Standards, Better Outcomes
100+years

The Committee on Trauma

NHTSA

NIH

© American College of Surgeons 2017. All rights reserved Worldwide.

In many cases, EMS resources are like automobile passive restraints…once the first impact occurs, the system is spent!

© American College of Surgeons 2017. All rights reserved Worldwide.

Take-Aways:

- EMS
  - A Team Sport
  - Heterogeneous; a fact of life
- Competing and complementary priorities
  - Seek synergy
- Engage as partners
  - Information is power (as it always has been!)
  - Share (bi-directional)

© American College of Surgeons 2017. All rights reserved Worldwide.