Research Funding in Trauma

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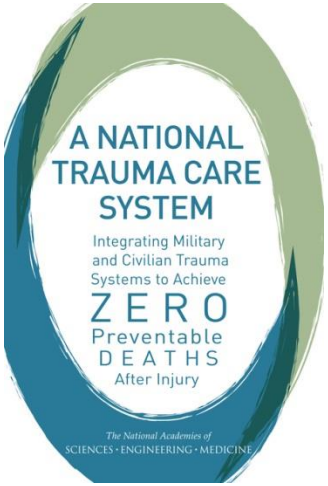
American College of Surgeons
Inspiring Quality:
Highest Standards, Better Outcomes

The Committee on Trauma

NASEM Recommendations

" . . Strengthen trauma research and ensure that the resources available for this research are commensurate with the importance of injury and the potential for improvement in patient outcomes . . . "



Injury -- The magnitude of the problem

Leading cause of death for people aged 1-44 years

5th Leading cause of death overall

Injury -- The magnitude of the problem

- Leading cause of death for people aged 1-44 years
- Fifth leading cause of death overall
- More deaths in children than all other causes combined
- More than 130,000 Americans die every year as a result of trauma
- 25% of all life-years lost = more than cancer + heart disease + HIV combined
- Most important problem for our children & our troops
- Health care costs + lost productivity = $676 billion/year
- 41 million ER visits; 2 million hospital admissions.

Injury: 25% of total life loss before age 75

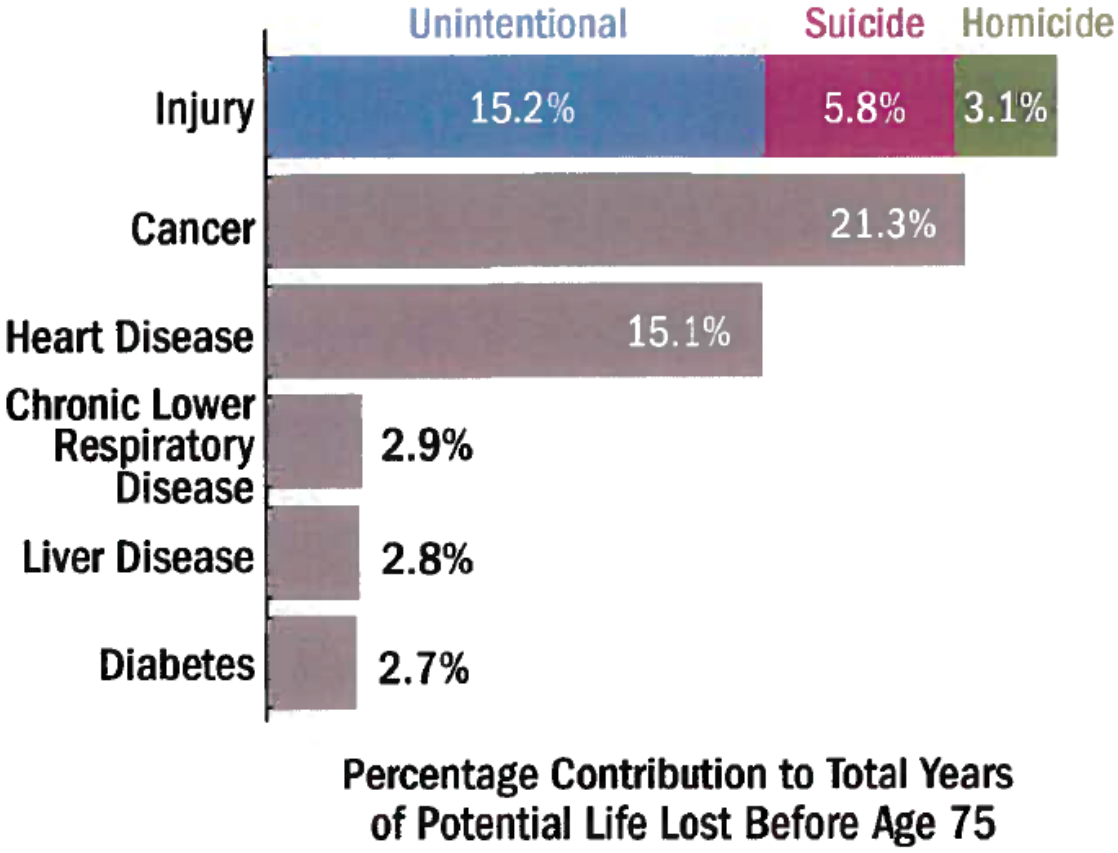
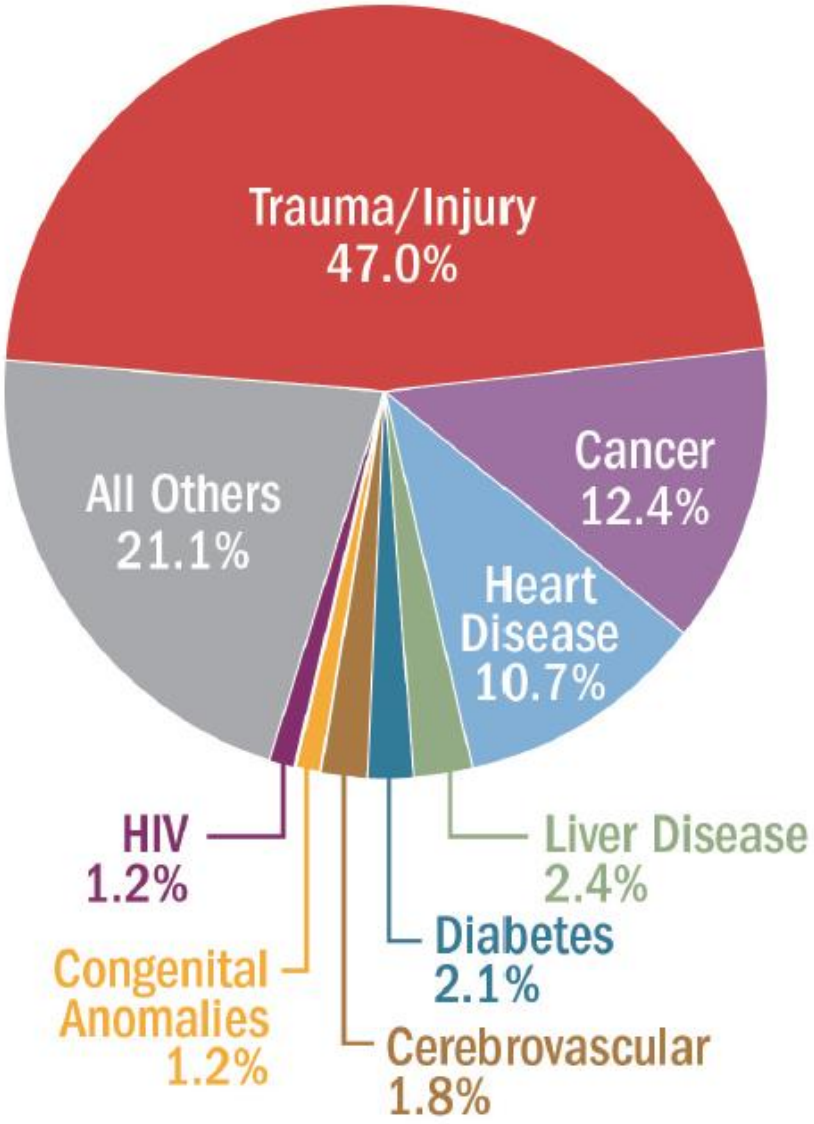


FIGURE 1-2 Leading causes of years of potential life lost before age 75, United States, 2014.
SOURCE: Data retrieved from NCIPC, 2015d.

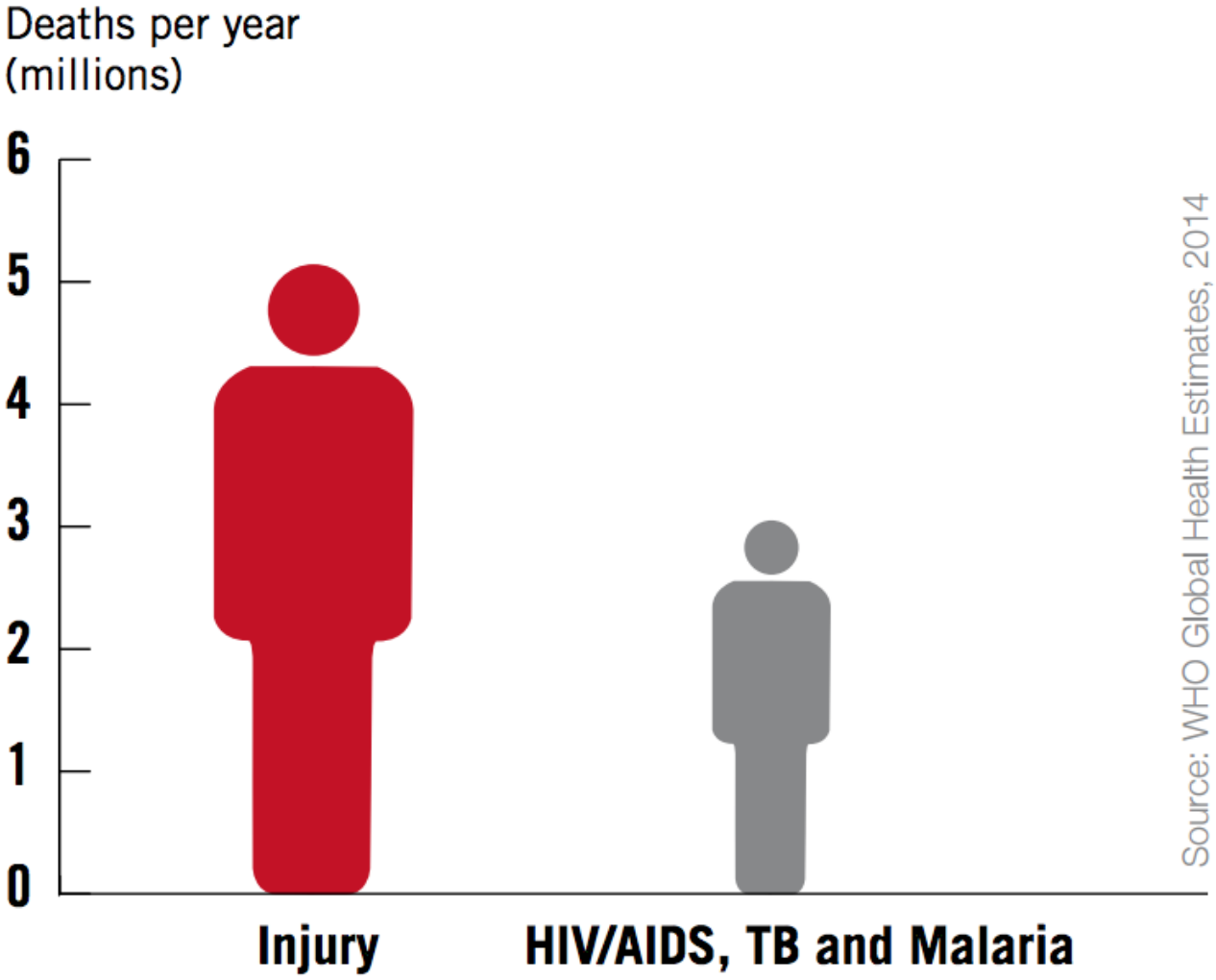
Injury:
Leading cause of death, USA, 2014; age 1-46



A NATIONAL TRAUMA CARE SYSTEM
Integrating Military and Civilian Trauma Systems to Achieve ZERO Preventable DEATHS After Injury

FIGURE 1-1 Leading causes of death, United States: 2014, ages 1-46 years.
SOURCE: Data retrieved from NCIPC, 2015b.

Injury: Global health problem as well



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100+years

The Committee on Trauma

NHTSA

NIH

Federal Research Funding

Agency	2016 funding level
NIH	32.0 Billion
NSF	7.46 Billion
DOE SC (Energy, science office)	5.35 Billion
VA	.63 Billion
AFRI (agriculture/food res. inst)	. 35 Billion
ARS (agriculture res. service)	1.14 Billion
Cost of Injury	**676 Billion / year**

Source: Federation of American Societies for Experimental Biology (FASEB)

Federal Research Funding

Agency
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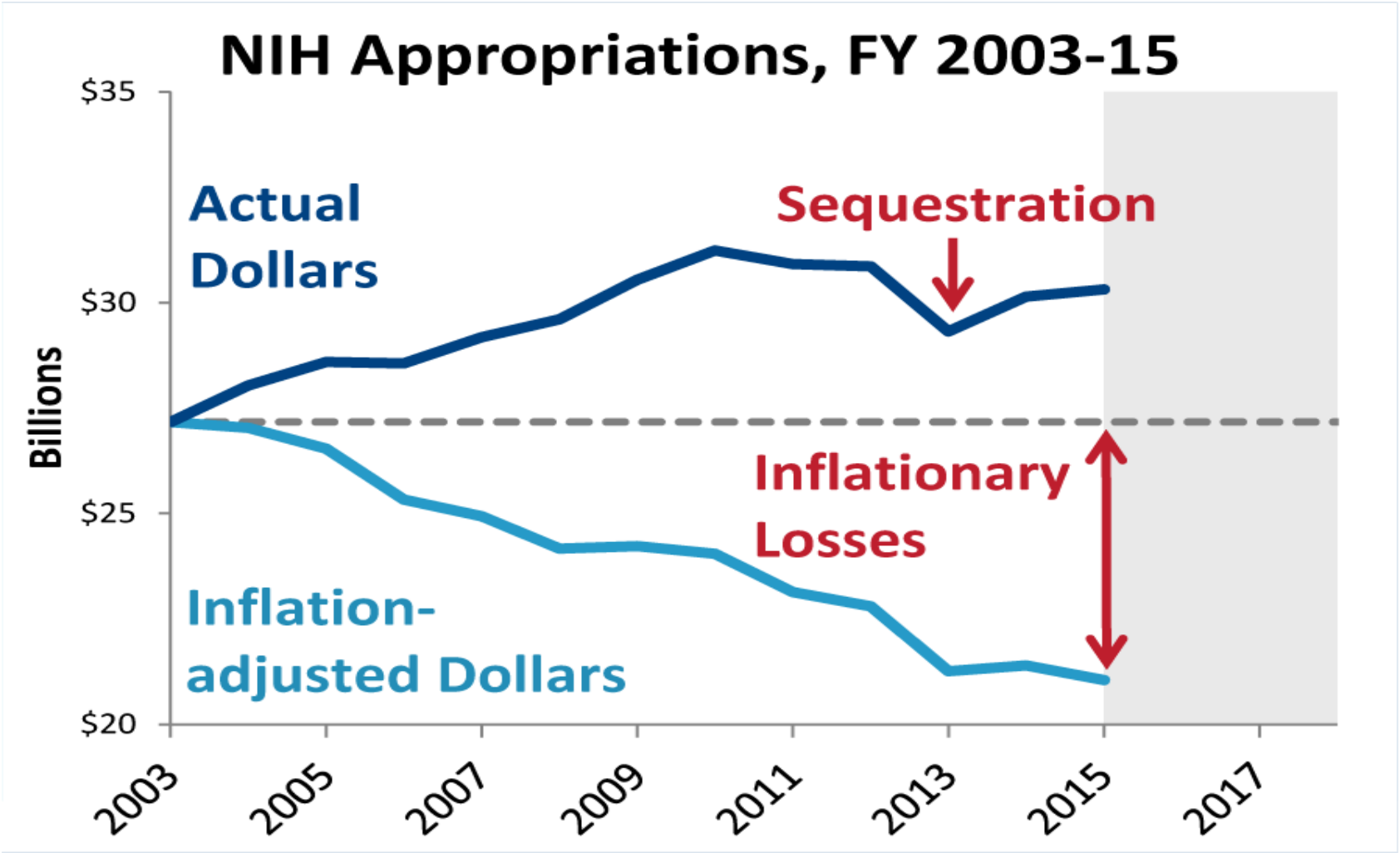
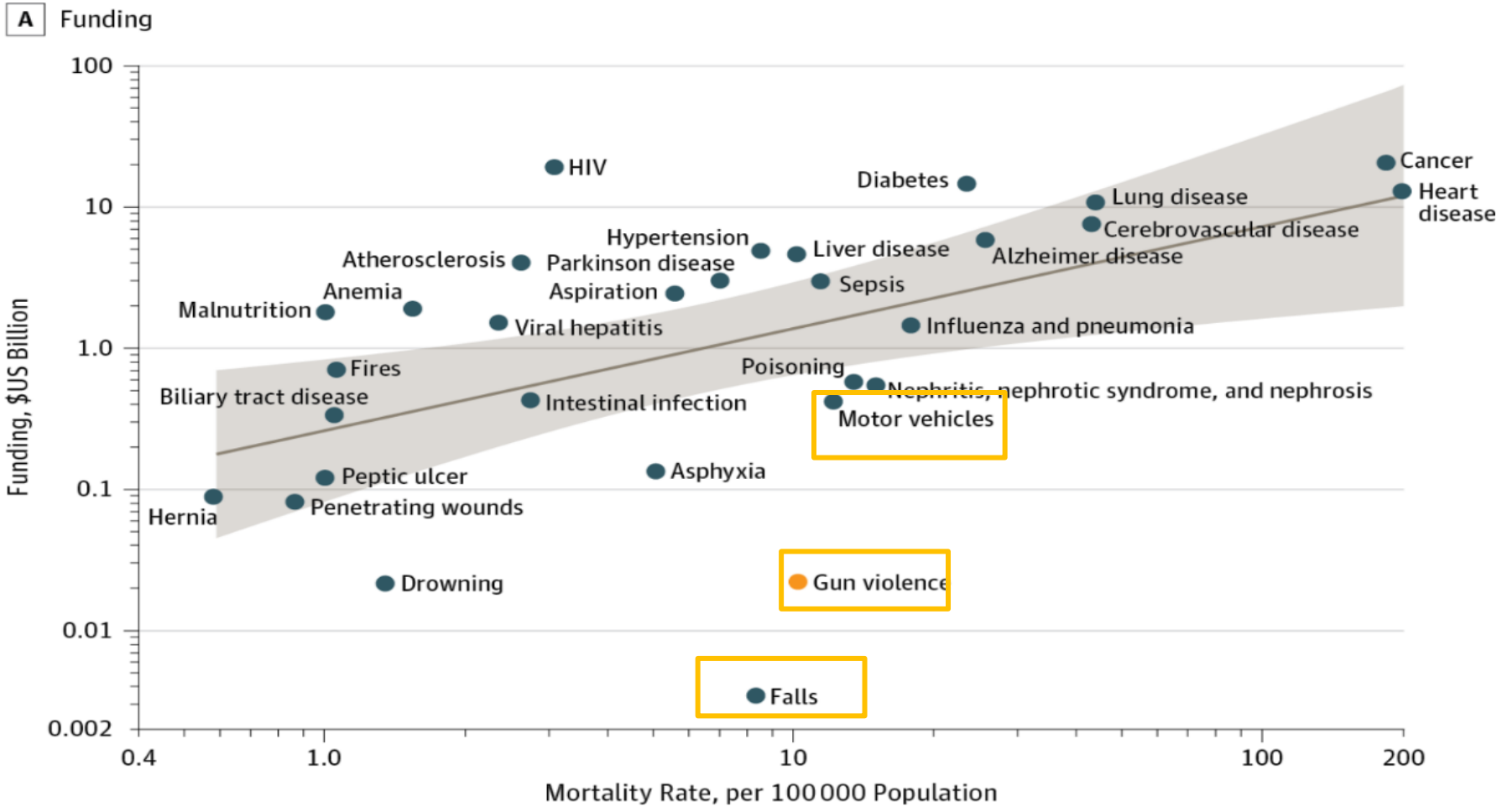
NIH Research Funding



Source: FASEB

Mortality rate vs. Funding

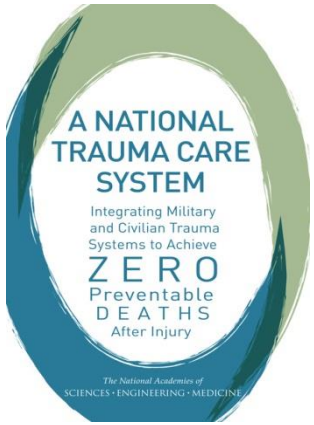


Stark & Shah. 2017. JAMA

Manley, Croce et al, WTA 2017

NIH Funding for medical conditions relative to their total disease burden.

HIV/AIDS +17%
Cancer +11%
Injuries -12%



Relationship Between Amount of NIH Funding and Burden of Disease

Not from lack of trying

ACS tqip TRAUMA QUALITY IMPROVEMENT PROGRAM

NTDB NATIONAL TRAUMA DATA BANK

ATLS ADVANCED TRAUMA LIFE SUPPORT

rttdc RURAL TRAUMA TEAM DEVELOPMENT COURSE

ATOM ADVANCED TRAUMA OPERATIVE MANAGEMENT

ASSET ADVANCED SURGICAL SKILLS FOR EXPOSURE IN TRAUMA

STOP THE BLEED SAVE A LIFE

THE COMMITTEE ON TRAUMA

TRAUMA SYSTEMS Consultation Program

AMERICAN COLLEGE OF SURGEONS
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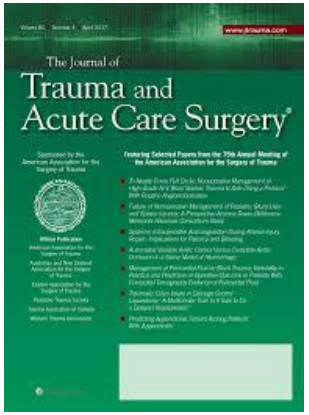
BLEEDINGCONTROL.ORG

VRC VERIFICATION REVIEW CONSULTATION
for excellence in trauma centers

DISASTER MANAGEMENT AND EMERGENCY PREPAREDNESS COURSE©



Coalition for National Trauma Research
National Trauma Institute
American Association for the Surgery of Trauma
Eastern Association for the Surgery of Trauma
Western Trauma Association
Hospital Trauma Life Support - NAEMT
Trauma Evaluation and Management

Development of 2016 NASEM Recommendations

- 2016 National Academies of Sciences Engineering and Medicine (I.O.M)
- Military & Civilian Surgeons
- Fellows of the American College of Surgeons & AAST members
- NASEM is the latest of four such reports to recommend significantly increasing trauma federal research funding
- 1966 National Academy of Science White Paper: “Injury: The Neglected Disease”

History Repeating Itself

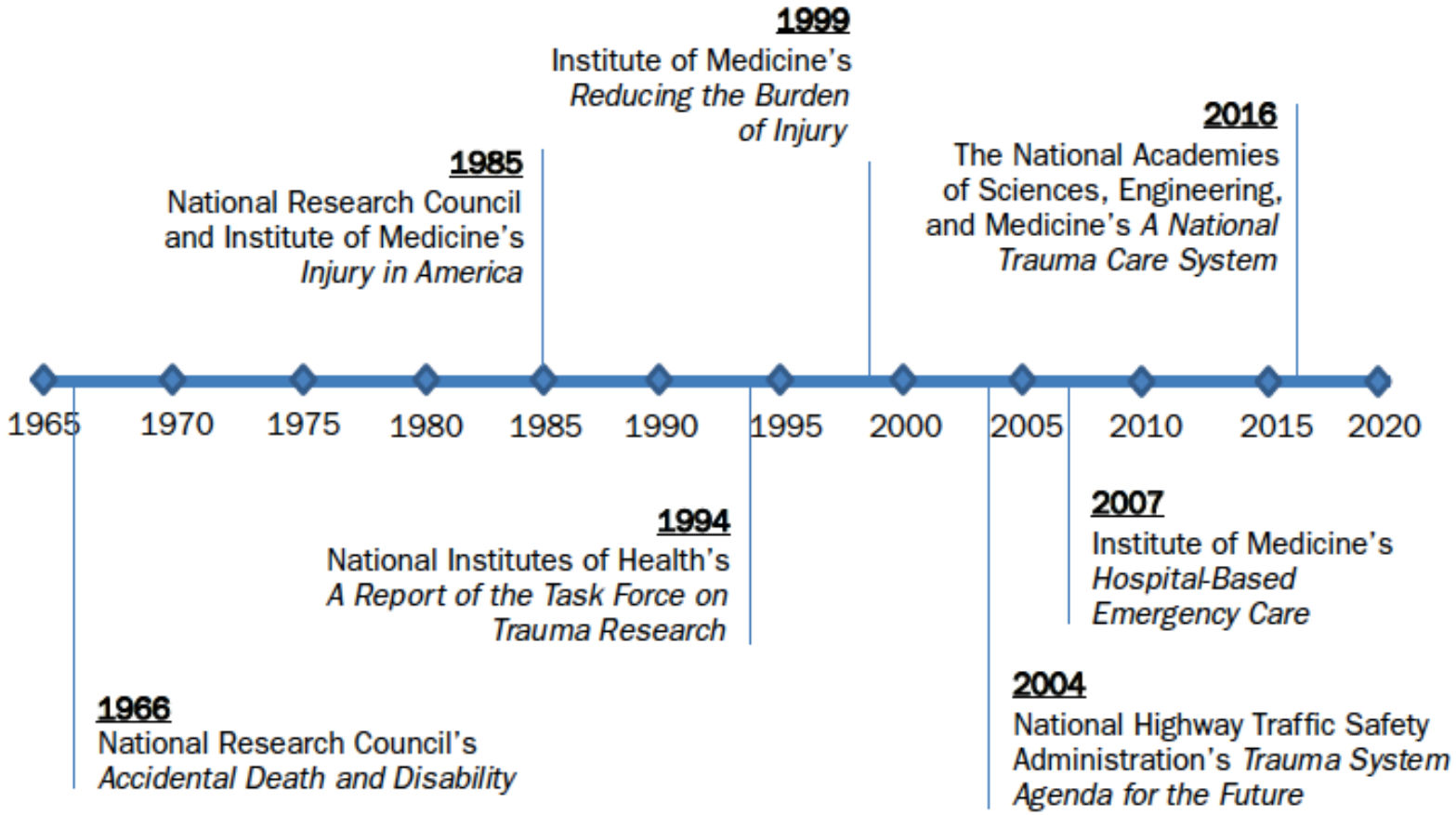


FIGURE 4-4 Timeline of assessments relevant to civilian trauma research.

SOURCES: IOM, 1999, 2007b; NHTSA, 2004; NIH, 1994; NRC, 1966; NRC and IOM, 1985.

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The Committee on Trauma
NHTSA
NIH

50 years later: Same problems. Why?

- Efforts at organized clinic care, not research?
- Lack of investigators?
- “Problem is definitely not one of research dollars…we have plenty of money to fund this research...you have a lack of investigators”
- Dept of Defense viewed at primary funding source?
- CDC has abandoned clinical trauma research funding?
- Policy & Politcs driven? Leadership driven?
- Circular reasoning: Inadequate funding to drive research?

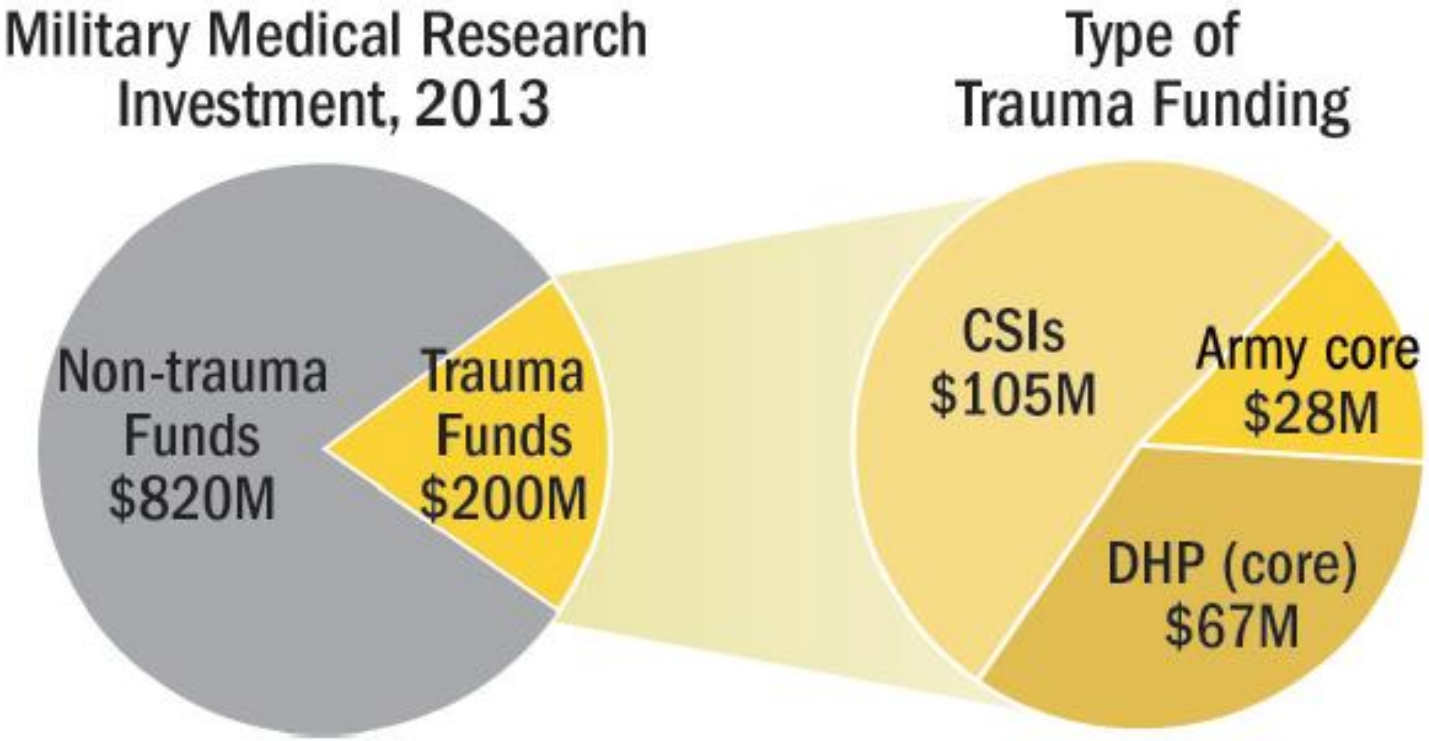
Why is this?

- Lack of centralized, organized infrastructure to guide the direction and dispersal of research funding
- Research topics unfocused and not prioritized
- Multicenter trials critical, but very few and underfunded
- Many studies that require a multicenter approach are done as single-center studies, without cohesive use of funds and resources
- Military's battlefield innovations not reliably transferred to the civilian setting
- Maybe we are counting research spending incompletely or inaccurately?

Military Trauma Research Investment

FIGURE 4-6 Military medical research investment in trauma care, 2005-2013.
SOURCE: Adapted from GAO (2013, p. 5).

Military trauma research funding



CSI = Congressional special interests; DHP = defense health program

FIGURE 4-5 Funding sources for military medical research, 2013.
SOURCE: Data from Rasmussen, 2015.

Research Networks do exist

- Resuscitation Outcomes Consortium (ROC)
  - 12 centers in US and Canada
  - Focus on Prehospital research in cardiac arrest and life threatening trauma
  - Funded by NIH/DOD/CIHR/AHA for past 10 yrs
  - SUNSETTING in 2017

Research networks do exist

- Neurological Emergency Treatment Trials Network (22 hubs)
  - Focused on neurologic emergencies including TBI
  - Funded by NIH for 10 yrs
  - Sunsetting in 2017

Other networks

- SIREN
  - NIH funded, multicenter hub/spoke networks
  - Includes all emergency care issues
- LITES
  - DOD funded
  - Focus on trauma research relevant to military

Congressionally funded (earmarks)

- METRC: orthopedic injuries
- ABA: Burn research
- CNTR: MIMIC (civilian mortality)
- Limitations
  - Not enduring - requires annual begging (appropriation)
  - Funneled through DoD - - - -

CNTR

Coalition for National Trauma Research

AAST
NTI
EAST
ACS COT
WTA

- Organized collaboration of key trauma research stakeholder organizations
- Goal to increase quality and quantity of trauma research to improve patient care
- Match research funding to the burden of the health problem
- Stymied at comprehensive funding efforts

Gaps Identified at Implementation Strategy Meeting

- Research funding is not commensurate with the burden of the problem
- No standard definition of trauma research
- No comprehensive research agenda
  - Injury prevention, acute care, rehabilitation, long term outcomes
- No federal home for comprehensive trauma research
- No National Trauma Research Action plan

Thank You!

Ronnie Stewart

Eileen Bulger