Disparity in Trauma Care

Amber Kyle, MSN, RN

Director of Trauma and Burn Services

University of Mississippi Medical Center

Objective

At the end of this presentation, the participant will be able to:

- Propose approaches to address disparities in trauma care

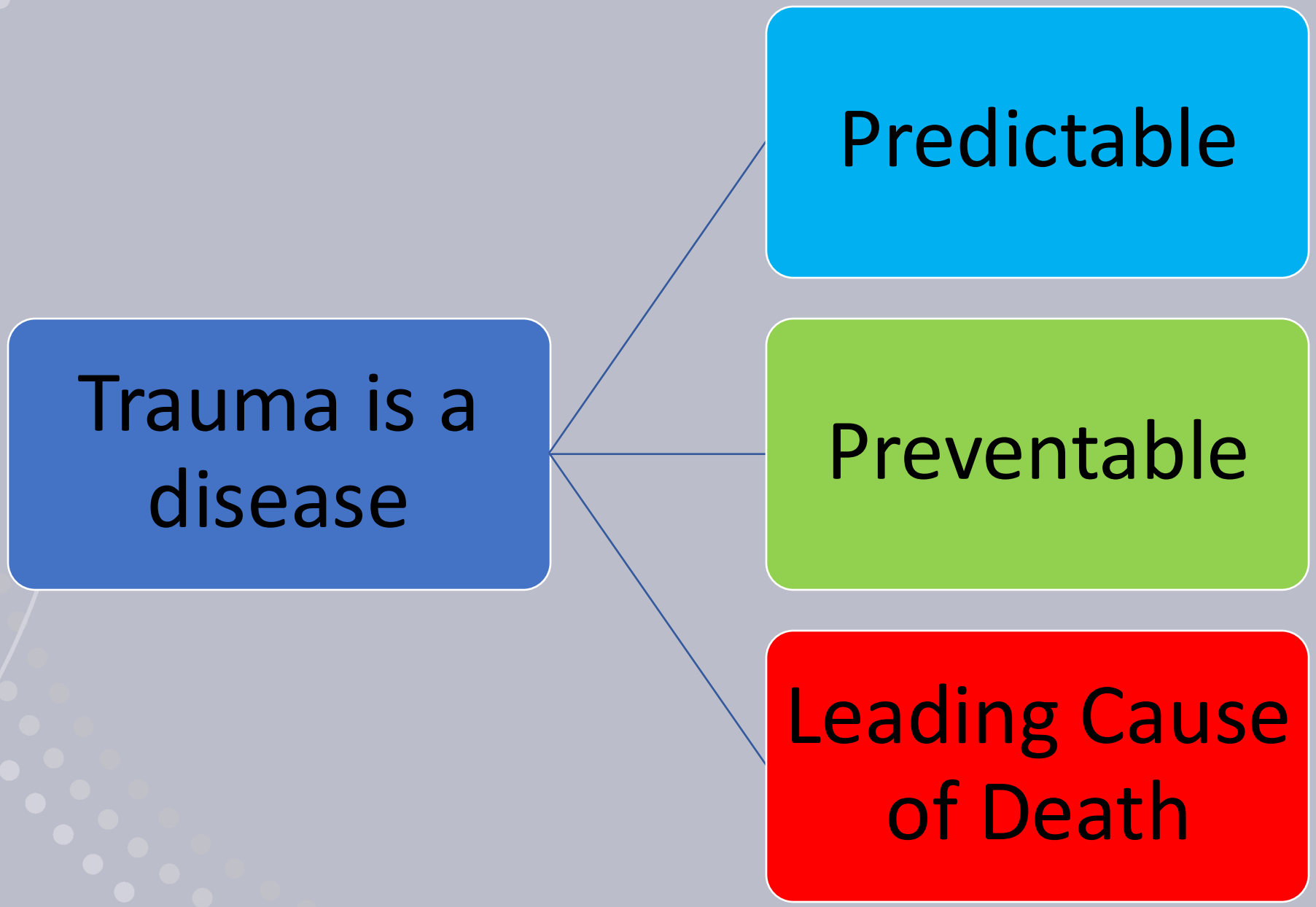
Disclosures

- None

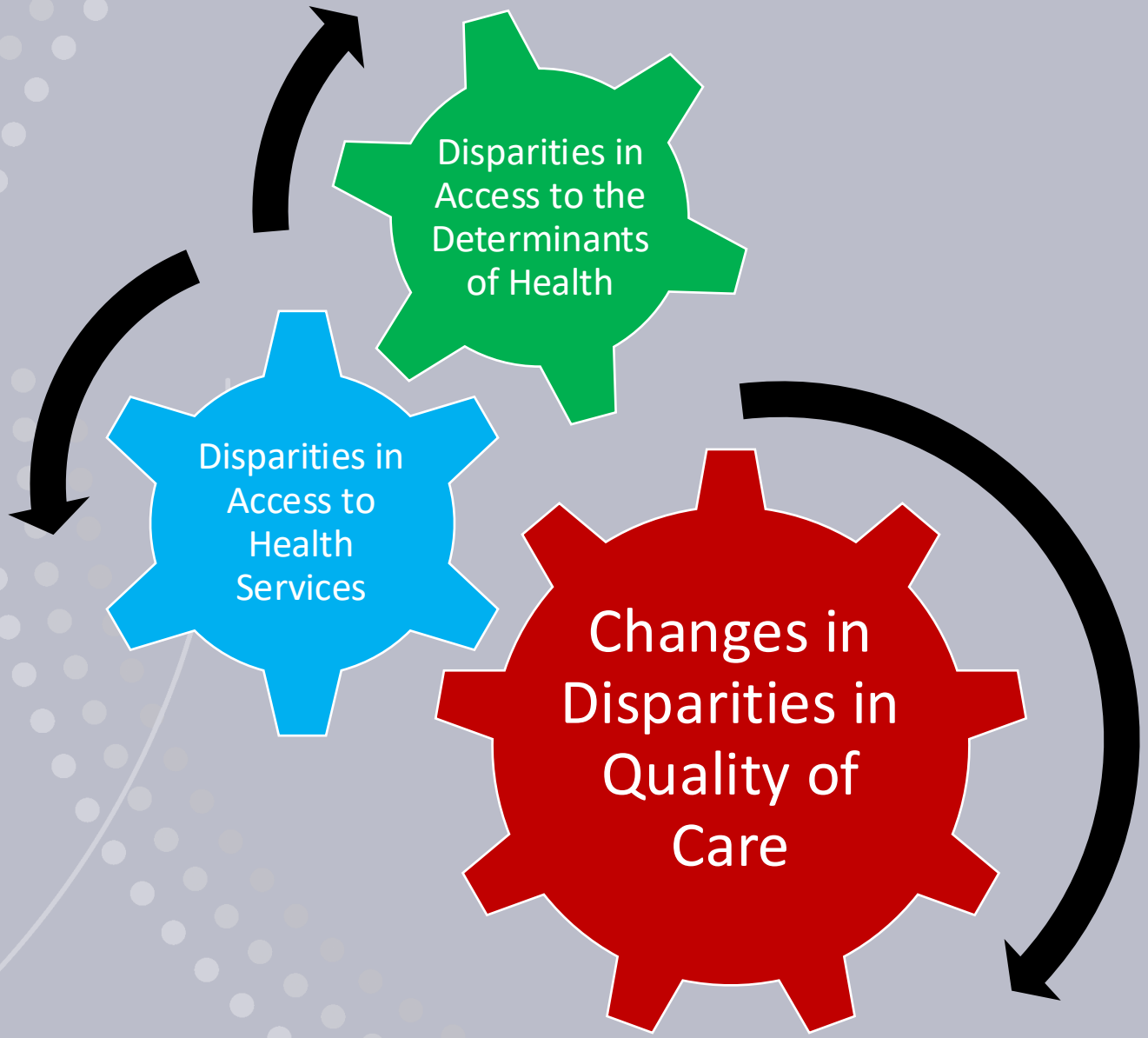
Poverty	National 9.2%	Mississippi 19.6%
Unemployment	National 3.5%	Mississippi 4.0%
High School Drop Out	National 5.4%	Mississippi 7.5%
Homicide Rate	National 7.8	Mississippi 20.8
Firearm Mortality	National 13.6	Mississippi 28.6
Rural Population	National 20%	Mississippi 54%

"Trauma is not uniformly experienced in society; rather it disproportionately affects the poor, minorities, and the uninsured."

Haider, A. H., et al. (2013). Disparities in trauma care and outcomes in the United States: A systematic review and meta-analysis. *The Journal of Trauma and Acute Care Surgery, 74(5),* 1195-1205.



D'Huyvetter, G. (2002). The trauma disease. *Journal of Trauma Nursing, 7(1),* 5-12.



Disparities in health outcomes

Link Quality and Equity

Quality

- The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.

Equity

- The state in which everyone has a fair and just opportunity to attain their highest level of health.

Predictors

- Insurance
- Race
- Geography
- Education
- Ethnicity
- Income

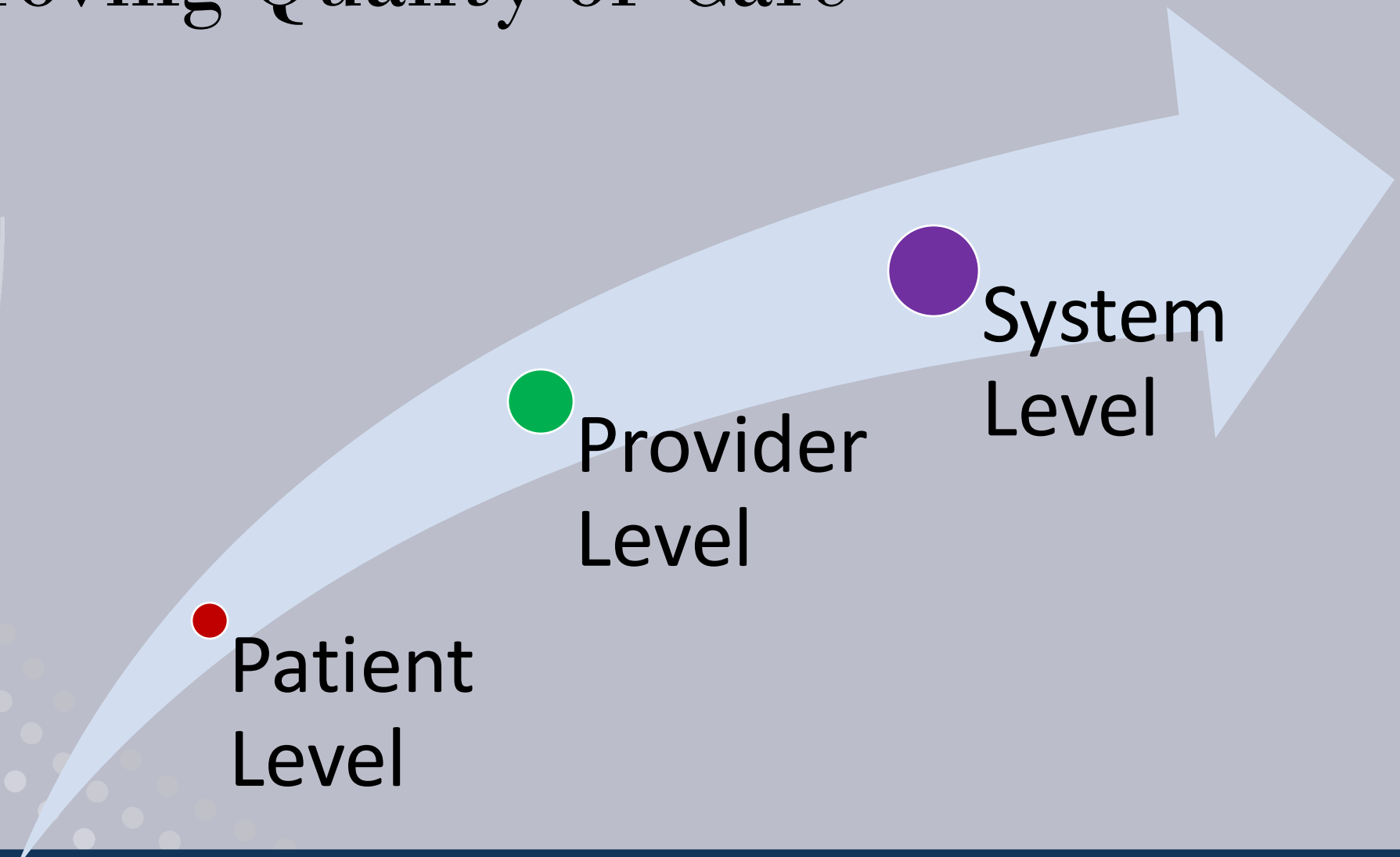
NO INSURANCE

- Trauma brain injury
  - Higher mortality
  - Higher hospital length of stay (HLOS)
- Penetrating trauma
  - Fewer ICU days
  - Higher HLOS
- Pelvic fractures
  - Fewer studies
  - Fewer interventions (ex: embolization)
  - Higher mortality
- Spinal cord injury
  - Higher mortality
- Hospital Events
  - Higher rate of anastomotic leak
  - Higher rate of facial dehiscience
  - Higher rate of failure to rescue

RACE

- Spinal cord injury
  - Fewer discharges to rehabilitation
  - Higher HLOS
- Finger amputations
  - Higher rate…impacts vocation
- Facial fractures
  - Fewer surgical interventions
- Falls
  - Higher post-discharge mortality (30 days)
- Isolated vascular injuries
  - Death
  - Amputation
- Pain management (EMS)
- Trauma brain injury
  - Hispanic: higher mortality
  - Hispanic or Black: higher ISS
  - Fewer post discharge rehabilitation visits
- Hospital Events
  - Sepsis
  - Acute kidney injury
  - Unplanned re-intubation
  - Re-admission
- Mechanism of injury
  - Unrestrained/higher ISS
  - Un-helmeted

Improving Quality of Care



Patient	• Improving patient health literacy
Provider	• Cultural competency training • Coordinator and Navigator roles
System	• Quality improvement and audit • Reducing health literacy demands on patients

CHANGES IN QUALITY OF CARE FOR DISADVANTAGED AND ADVANTAGED

OUTCOMES OVER OBSTACLES

Ways To Improve Outcomes

- Look at processes and outcomes
- Audit filters
- System of care
- Technology
- Data
- Advocacy
- Injury prevention
- Access
- Healthcare Coverage

Consistency In Processes And Outcomes

- Clinical practice guidelines
- Order sets
- Templates

- Risk-adjusted benchmarking
  - TQIP
  - Ped TQIP
  - Collaboratives

Equity Audit Filters

- Time from injury to time of definitive care
- Destination guideline adherence
- Hospital event drilldown
- Time to Transfer Departure
  - Race
  - Gender
  - Insurance status
  - Mode of transport to higher level of care
  - Arrival to disposition to acceptance to departure

System Of Care

- Communicates expectations beforehand
- Contingency planning
- Sum of the parts
  - First responders
  - EMS
  - Outside hospital
  - Definitive care
  - Rehabilitation
- Field Destination Guidelines
- Education
  - Rural Trauma Team Development Course
- Benchmarking
  - Basic
  - Risk-adjusted
- Funding
- Transparent data collection

Virtual Technology

- Improved evaluation
- Improved management
- More efficient and timely transfer
- Decreased costs
- Tele-presence
- Physician commitment required

Data Enrichment

- Automatic systems
  - Race/ethnicity/income/zip code/insurance status
- Clinical decision support
  - Ex: VTE rates
- Adjusting performance for race and ethnicity minimizes the impact of pay for performance and public reporting
- Z-code documentation and coding
- Community Health Needs Assessment

Advocacy

- Improving equitable resource allocation to hospitals caring for complex trauma patients
- Mental health impact
  - Depression
  - Post traumatic stress disorder
  - Functional capability 3 months after discharge
- Organizational strategies with funding
  - Workforce, patients, community
- Promote education

"The single most effective way to improve health and reduce disparities is to invest in helping young people reach their full academic potential."

World Health Organization

Intentional Injury Prevention

- Pivotal in efforts to reduce death and disability
- Benefits of living a healthier lifestyle exceed prevention of disease
- May require new ideas of how to reach the community

Improve Access

- Pre-hospital setting
- Definitive care
- Post-hospital rehabilitation
- Technology

- Place trauma centers in “deserts”…high demand vs low supply

- 0.5% increase in survival for each 5 minute decrease in transport time

Expand Healthcare Coverage

Military insurance:

- Reduced injury complications
- Reduced hospital re-admissions
- Reduced mortality
- Reduced post-discharge healthcare utilization

- Mixed data on Affordable Care Act
  - Reduction in uninsured rates
  - Not reduced in-hospital mortality/re-admissions

"…improvement in the health of individuals and families does lead to improved health of society."

Florence Nightingale

Thank you!

Disparities in Trauma

Judy N. Mikhail PhD, MBA, RN

Program Manager

Michigan Trauma Quality Improvement Program (MTQIP)

University of Michigan

Editor-in-Chief

Journal of Trauma Nursing

OBJECTIVES

At the end of this presentation, the participant will be able to:

- Describe disparities in trauma care
- Identify contributing factors to disparities in trauma care
- Propose approaches to address disparities in trauma care

Terminology

- **Disparities** – differences in incidence, prevalence, mortality, and burden of disease and other adverse conditions

- **Health Disparities** – difference in outcomes linked to disadvantage

- **Health Care Disparities** – difference in amount or quality of services

Health Equity:

One size does not fit all

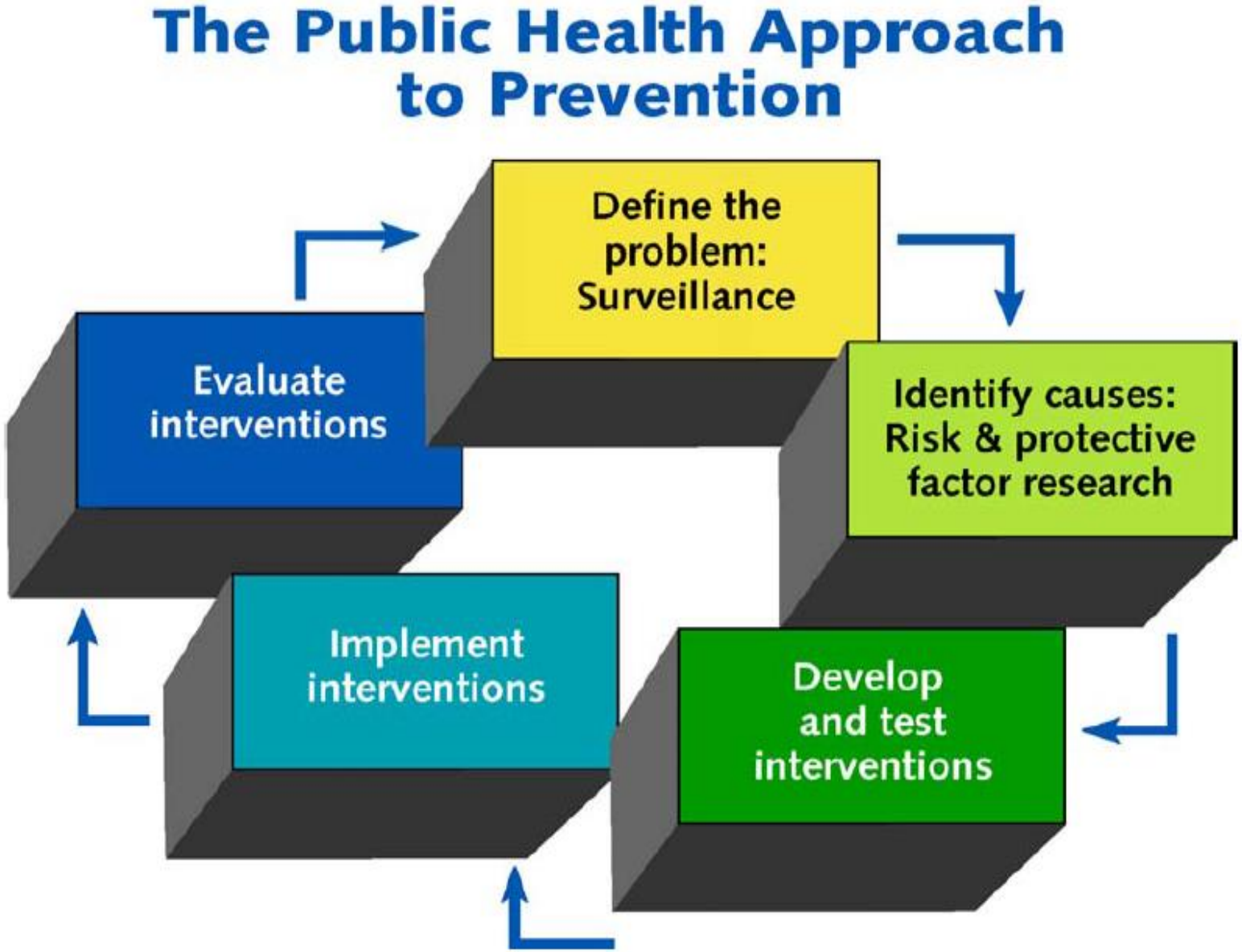
ALL people achieve highest attainable level of health.

Public Health Approach

Public Health Model

Versus

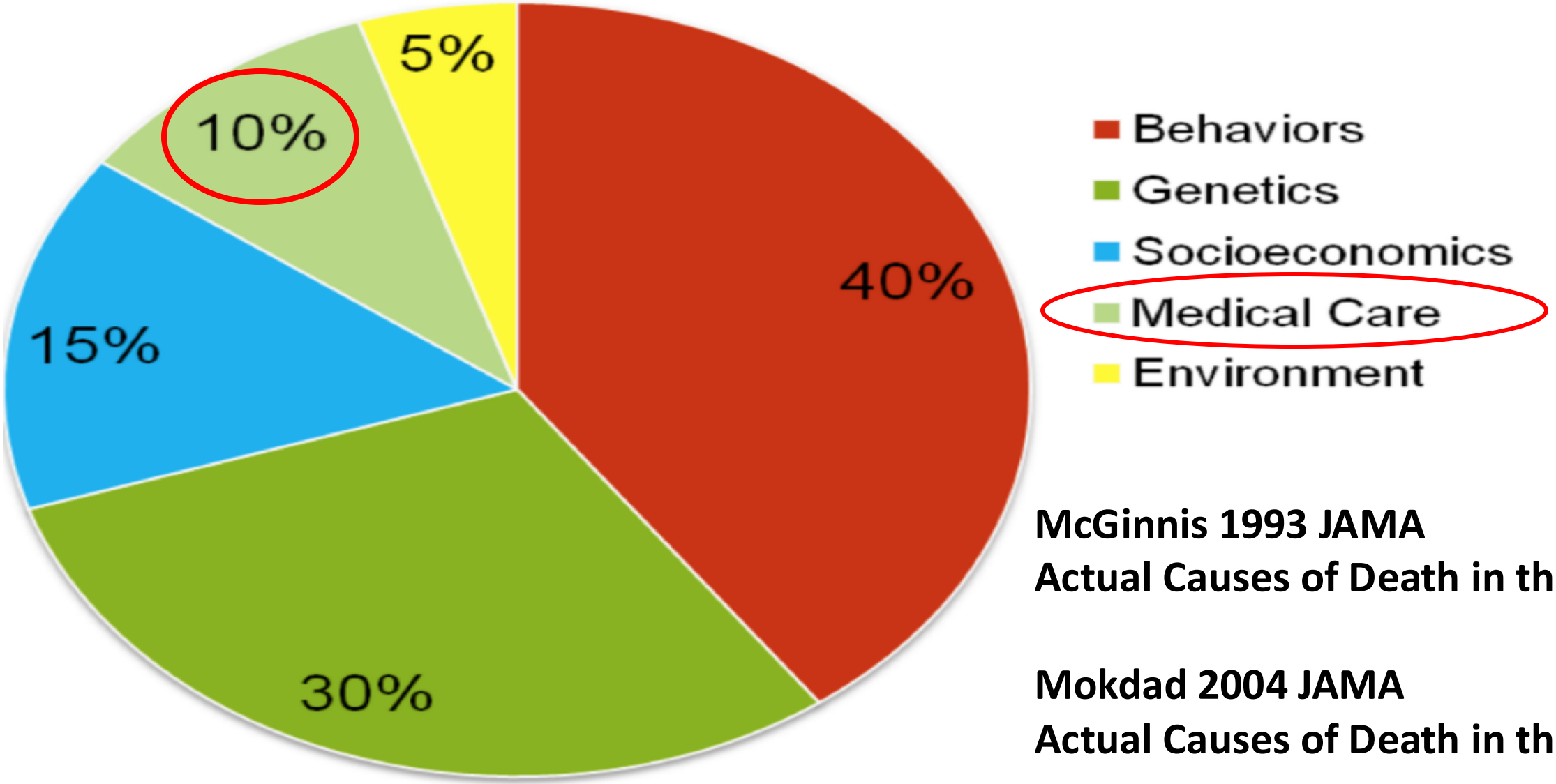
Medical Model


The Public Health Approach to Prevention
Define the problem: Surveillance
Identify causes: Risk & protective factor research
Develop and test interventions
Implement interventions
Evaluate interventions

Like good PI

Determinants of Health

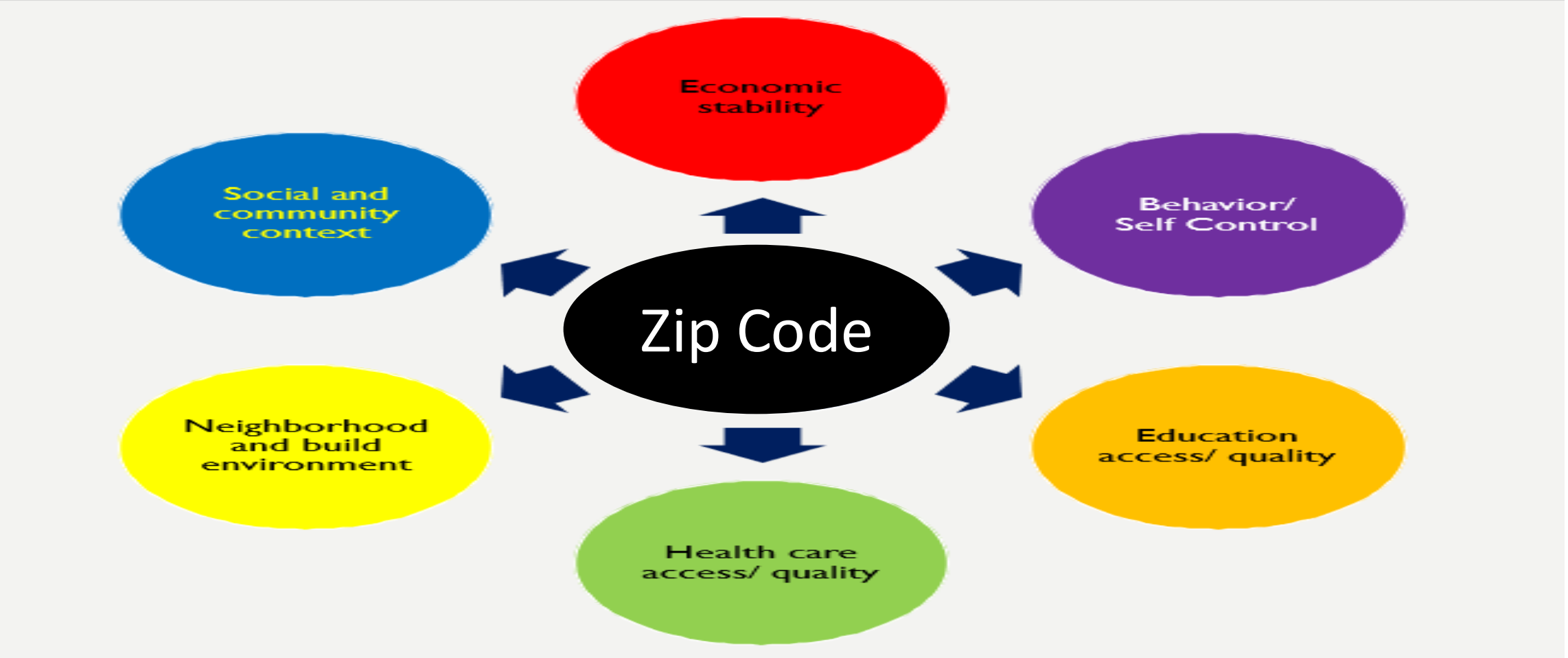
My ah ha moment



McGinnis 1993 JAMA
Actual Causes of Death in the US

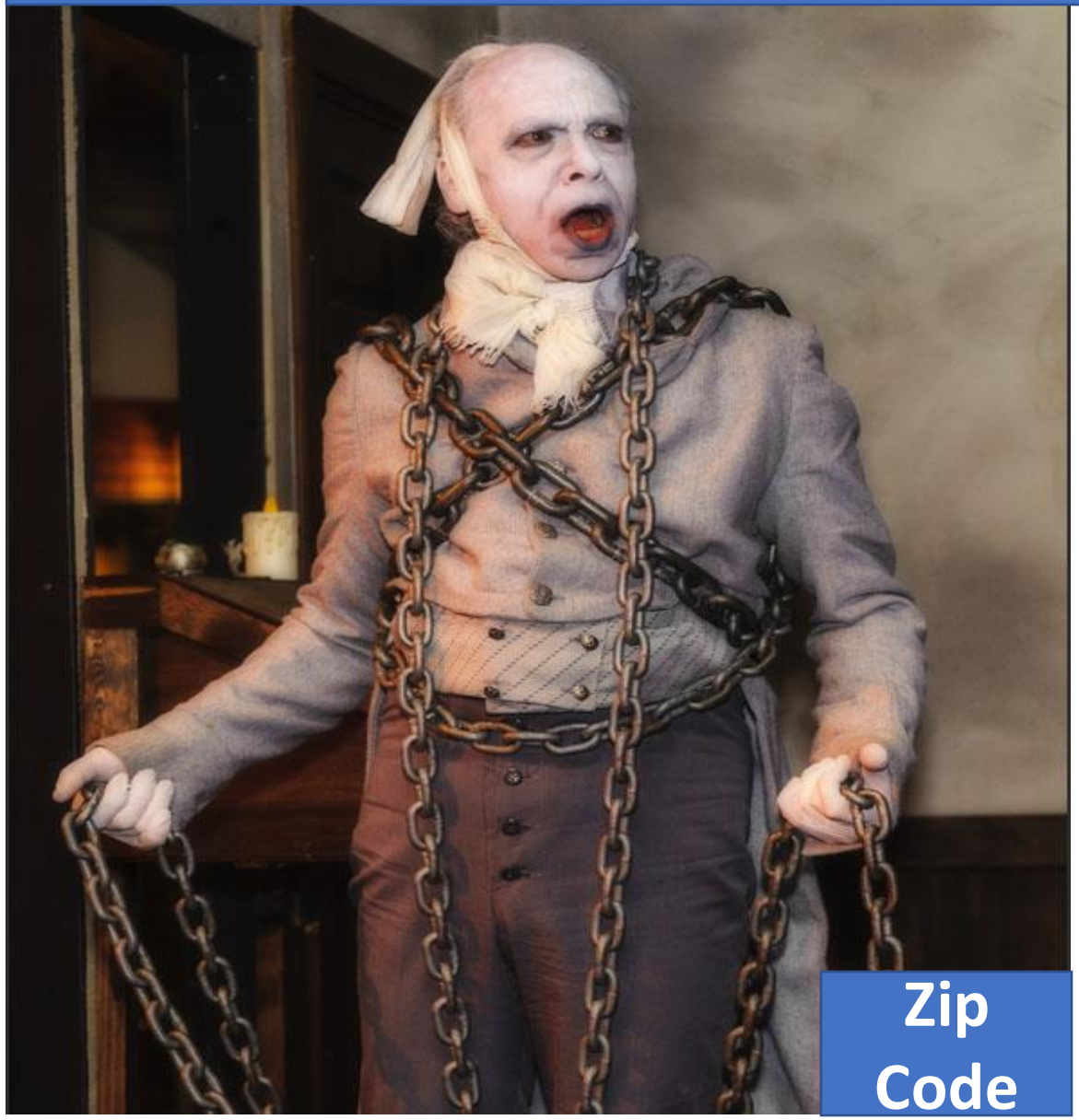
Mokdad 2004 JAMA
Actual Causes of Death in the US

Social Determinants of Health

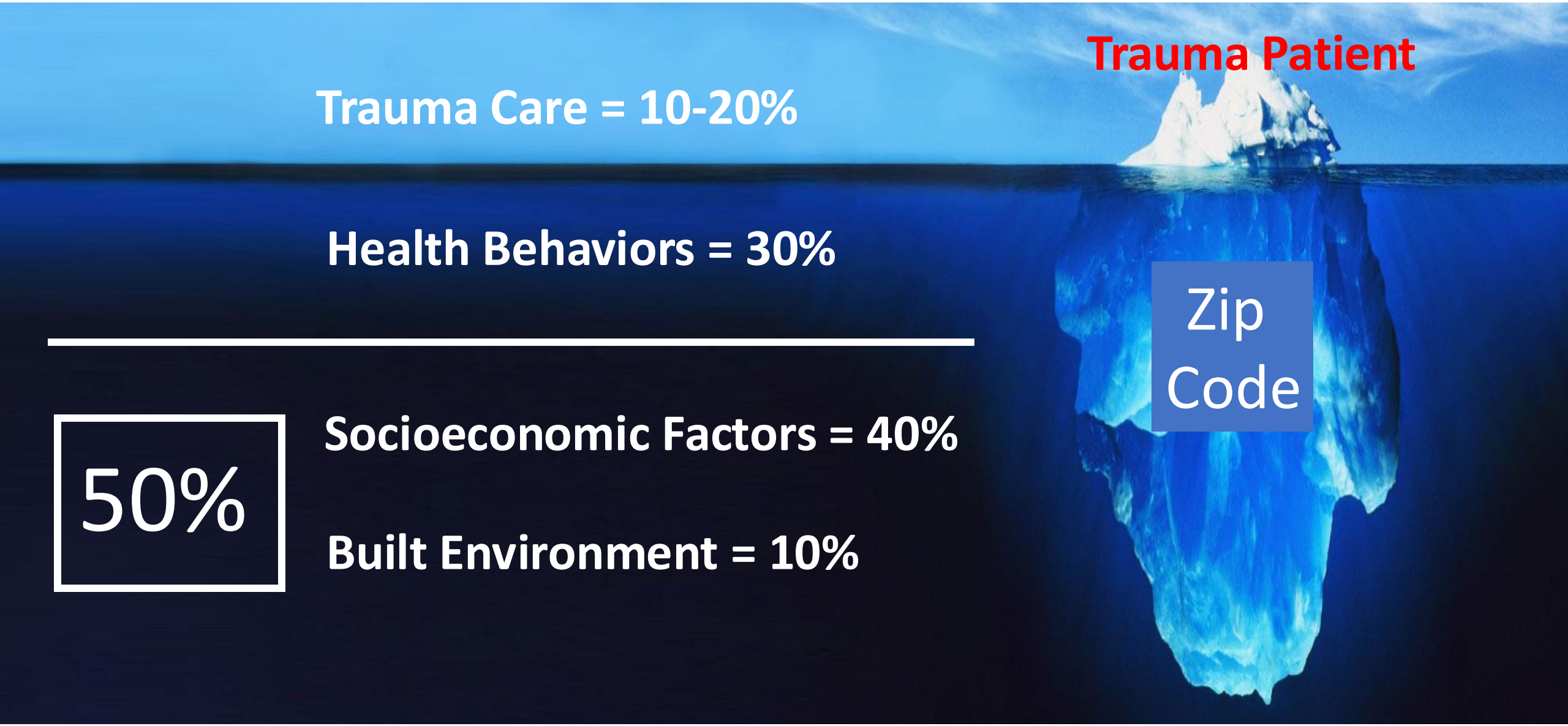


US Dept Health & Human Services Health People 2030

Social Determinants of Health



Trauma Determinants of Health



Trauma Disparities

- Is Trauma Immune to disparities?
- Are we different?

Trauma Disparities

- Patient Factors
- System Access
- Clinical Quality
- Provider Factors
- Hospital Quality
- Rehab Access

The Patient

Race?
Insurance?
SES?

ORIGINAL ARTICLE

Race and Insurance Status as Risk Factors for Trauma Mortality 2008 Arch Surg

Adil H. Haider, MD, MPH; David C. Chang, MPH, MBA, PhD; David T. Efron, MD; Elliott R. Haut, MD; Marie Crandall, MD, MPH; Edward E. Cornwell III, MD

NTDB
N=429,751

Race and insurance each independently predict outcome disparities after trauma

Does Insurance Status Matter at a Public, Level I Trauma Center? J Trauma 2010

Ali Salim, MD, Marcus Ottochian, MD, Joseph DuBose, MD, Kenji Inaba, MD, Pedro Teixeira, MD, Linda S. Chan, PhD, and Daniel R. Margulies, MD

- Despite being younger and less severely injured
- Uninsured had a significantly higher mortality rate

Background: It has ... f insurance impedes access to he... s important medical events. Very... nd chronic outcomes after traum... whether insurance sta... egarding the admitted to a publicly... ; a situation **Patients:** This is a ret... pendent on or older) admitted bet... y of South-

2010 Surgery

Pedestrians struck by motor vehicles further worsen race- and insurance-based disparities in trauma outcomes: The case for inner-city pedestrian injury prevention programs

Rubie Sue Maybury, MD, MPH,[a] Oluwaseyi B. Bolorunduro, MD, MPH,[b] Cassandra Villegas,[c] Elliott R. Haut, MD,[c] Kent Stevens, MD, MPH,[c] Edward E. Cornwell III, MD,[b] David T. Efron, MD,[c] and Adil H. Haider, MD, MPH,[c] *Washington, DC, and Baltimore, MD*

Background. *Pedestrian trauma is the most lethal blunt trauma mechanism, and the rate of mortality in African Americans and Hispanics is twice that compared with whites. Whether insurance status and differential survival contribute to this disparity is unknown.*
Methods. *This study is a review of vehicle-struck pedestrians in the National Trauma Data Bank, v7.0. Patients <16 years and ≥65 years, as well as patients with Injury Severity Score (ISS) <9, were excluded. Patients were categorized as white, African American, or Hispanic, and as privately insured, government insured, or uninsured. With white and privately insured patients as reference, logistic regression was used to evaluate mortality by race and insurance status after adjusting for patient and*

NTDB Study
N=26,404

Compared to Whites:
Black 22% & Hispanics 33% higher odds of mortality

The Association of Race, Socioeconomic Status, and Insurance on Trauma Mortality

2016

Judy N. Mikhail, PhD, MSN, MBA, RN ■ Lynne S. Nemeth, PhD, RN ■ Martina Mueller, PhD ■ Charlene Pope, PhD, MPH, RN ■ Elizabeth G. NeSmith, PhD, APRN-BC ■ Kenneth L. Wilson, MD ■ Michael McCann, DO ■ Samir M. Fakhry, MD

10 yrs Trauma Registry Data + area-level SES measures

N = 4,007 pts

Separately Race, SES, Insurance each ↑ mortality

After controlling for clinical variables:

MOI, ISS, GCS, BP, Hypotension, H-AIS >3

Insurance is associated with mortality

significant and varied by insurance type with age. Odds of

Socioeconomic status, Trauma mortality

Trauma Disparities

2013
JTACS

Systematic Review
1990-2011

35 studies

Published in final edited form as:
J Trauma Acute Care Surg. 2013 May ; 74(5): 1195–1205. doi:10.1097/TA.0b013e31828c331d.

Disparities in trauma care and outcomes in the United States: A systematic review and meta-analysis

Adil H. Haider, MD, MPH, Paul Logan Weygandt, MPH, Jessica M. Bentley, BS, Maria

Black patients **19%** higher mortality than white patients (OR 1.19; 95%CI, 1.09-1.31), independent of other proxies for socioeconomic status.

Trauma Disparities

Systematic Review
2009-2019

World J Surg (2020) 44:3010–3021
https://doi.org/10.1007/s00268-020-05591-2 2020

SCIENTIFIC REVIEW

Disparities in Adult and Pediatric Trauma Outcomes: a Systematic Review and Meta-Analysis

Carol Sanchez[1] · Saamia Shaikh[1] · Brianna Dowd[1] · Radleigh Santos[2] · Mark McKenney[1,3] · Adel Elkbuli[1]

- 41 studies Comparing Race & Insurance in trauma

- Uninsured patients had 22% greater odds of death than insured patients (OR 1.22; CI 1.21–1.24).
- Non-Caucasian patients had 18% greater risk of death than Caucasian patients (OR 1.18; CI 1.17–1.20).

Trauma Disparities

Comparative Study › JAMA Surg. 2014 May;149(5):422-30. doi: 10.1001/jamasurg.2013.4398.

Factors associated with the disposition of severely injured patients initially seen at non-trauma center emergency departments: disparities by insurance status

Insurance impacts transfer of trauma patients

M Kit Delgado, Michael A Yokell, Kristan L Staudenmayer, David A Spain, Tina Hernandez-Boussard, N Ewen Wang

- Uninsured more likely to be transferred to Trauma Center
- Insured kept at 1st facility

Pennsylvania Trauma System Study 2021 Peds Emerg Care

ORIGINAL ARTICLE

The Association of Race, Sex, and Insurance With Transfer From Adult to Pediatric Trauma Centers

Afif N. Kulaylat, MD, MSc, Christopher S. Hollenbeak, PhD,*†‡ Scott B. Armen, MD,**
Robert E. Cilley, MD, and Brett W. Engbrecht, MD, MPHS*

Race, Female Sex, Uninsured = Transferred More

Objecti
or payer-

survival,
[4] Given
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Trauma Disparities

Prehospital Pain Management Disparities

6-year Review of EMS service. N=2476 trauma patients, No difference in ISS

JACS 2023

Racial and Ethnic Disparity in Prehospital Pain Management for Trauma Patients

James M Bradford, BS, Tatiana CP Cardenas, MD, FACS, Allison Edwards, BSN, RN, Tye Norman, BS, MS, Pedro G Teixeira, MD, FACS, Marc D Trust, MD, FACS, Joseph DuBose, MD, FACS, James Kempema, MD, Sadia Ali, MPH, Carlos VR Brown, MD, FACS

BACKGROUND: Although evidence suggests that racial and ethnic minority (REM) patients receive inadequate pain management in the acute care setting, it remains unclear whether these disparities also occur during the prehospital period. The aim of this study is to assess the impact of race

Although minority patients reported higher subjective pain rating (7.2 vs 6.6; $p = 0.002$), they were less likely to get prehospital pain medication (24% vs 35%; $p < 0.001$), and that difference remained significant after controlling for baseline characteristics, transport method, pain rating, prehospital hypotension, and payor status

Pain Management Disparities US ED's

Systematic Review

American Journal of Emergency Medicine 37 (2019) 1770–1777

Contents lists available at ScienceDirect

American Journal of Emergency Medicine

journal homepage: www.elsevier.com/locate/ajem

Review

763 articles screened, 14 met inclusion, N=7070 patients

Racial and ethnic disparities in the management of acute pain in US emergency departments: Meta-analysis and systematic review

Paulyne Lee [a], Maxine Le Saux [b], Rebecca Siegel [b], Monika Goyal [c], Chen Chen [d], Yan Ma [d], Andrew C. Meltzer [b,*]

[a] The George Washington University School of Medicine and Health Sciences, Washington, DC, United States of America

- Black patients: 40% less likely to receive analgesia
- Hispanic patients: 25% less likely to receive analgesia

Disparities in Insurance Status Are Associated With Outcomes but Not Timing of Trauma Care

Paolo de Angelis, BA,[a,] Elinore J. Kaufman, MD, MSHP,[b] Philip S. Barie, MD, MBA,[a] Nicole E. Leahy, MPH, BSN,[a] Robert J. Winchell, MD,[a,c] and Mayur Narayan, MD, MPH, MBA, MHPE[a]*

[a] *Division of Trauma, Burns, Acute and Critical Care, Department of Surgery, Weill Cornell Medicine, New York, New York*

[b] *Divi*

Philad

[c] *Divi*

Single center
N-1,219

No effect on ED time to OR/ICU: ISS, Pen, Activations
Uninsured less likely to be admitted & shorter LOS

No disparity in the timing of intrafacility transfer,
perhaps indicating that initial management protocols preserve equity.

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Bell *et al. BMC Medical Imaging* (2016) 16:61
DOI 10.1186/s12880-016-0146-8

BMC Medical Imaging

RESEARCH ARTICLE Open Access

Variation in type and frequency of diagnostic imaging during trauma care across multiple time points by patient insurance type

Nathaniel Bell[1*], Laura Repáraz[1], William R. Fry[2], R. Stephen Smith[3] and Alejandro Luis[4]

No difference in number of radiographic studies among the uninsured or among Medicaid patients during the first 24-hours of care.

Clin Orthop Relat Res (2020) 478:455-461
DOI 10.1097/CORR.0000000000001091

Clinical Orthopaedics and Related Research®
A Publication of The Association of Bone and Joint Surgeons®

Clinical Research

Racial Disparities are Present in the Timing of Radiographic Assessment and Surgical Treatment of Hip Fractures

Iman Ali BS, Saisanjana Vattigunta BA, Jessica M. Jang BS, Casey V. Hannan BS, M. Shafeeq Ahmed MD, MBA, Bob Linton MD, MBA, Melinda E. Kantsiper MD, Ankit Bansal MD, Uma Srikumaran MD, MBA, MPH

- After adjusting for patient characteristics
- Blacks: longer times to imaging & surgical fixation
- Hospitals should consider evaluating racial disparities in the timing of hip fracture care

Trauma Surgery & Acute Care Open

2019

Racial disparities and the acute management of severe blunt traumatic brain injury

NTDB Study
N=1064

Rohit Sharma,[1] Arianne Johnson,[1] Jing Li,[2] Zach DeBoard,[1] Isabella Zikakis,[2] Jonathan Grotts,[2] Stephen Kaminski[1]

[1]Trauma, Santa Barbara Cottage Hospital, Santa Barbara, California, USA
[2]Research, Santa Barbara Cottage Hospital, Santa Barbara, California, USA

Correspondence to
Dr Rohit Sharma, Trauma, Santa Barbara Cottage Hospital, Santa Barbara, California 93015, USA; rsharma@sbch.org

Received 12 July 2019
Revised 15 August 2019
Accepted 25 August 2019

ABSTRACT

Background Traumatic brain injury (TBI) is a significant source of morbidity and mortality. In patients with TBI, racial disparities have been shown to exist in patient outcomes. Identifying where disparities occur along the patient conti… interventions. Thi… exists for neurom… patients with sev…

Methods The N… to identify patien… through 2016 wi… Coma Scale score… Scale score of 3 … Injury Scale score… matching (CEM)… white and non-w… and neurosurgical interventions were compared between groups. Secondary outcomes were days spent in the intensive care unit (ICU), total hospital length of stay (LOS), and mortality.

Results A total of 3692 patients with severe isolated TBI due to blunt injury were identified. After applying CEM, 1064 patients were analyzed (644 white, 420 non-white). No differences were observed between white and non-white patient groups for neuromonitoring, neurointervention, mortality, or ICU LOS. White patients had a shorter hospital LOS (8 days vs. 9 days, p <0.05)

TBI
No difference in race for
ICP or OR

Numerous studies have examined the initial triage and workup of trauma patients to assess whether this may reveal a source of disparity. When investigating the initial assessment and management of trauma patients in emergency departments … no differ… Brunduro *et* … fractures, … uninsured … presented by …lly, Wall *et* … initial head … ngle-center … by Natale … ents under… …her races as … numerous studies have shown worse outcomes for non-white patients after a TBI, no study has identified where along the pathway of care these disparities occur.[8–11] Identifying the source of these disparities is a crucial investigatory step that will allow for targeted interventions to reduce disparities in care and improve patient outcomes. The acute operative management of blunt TBI is a small but important component along this pathway and merits evaluation as a potential source of disparity.

The objective of this study was to determine if

TQIP Study

Racial Disparity in Placement of Intracranial Pressure Monitoring: A TQIP Analysis

JACS 2022

James A Zebley, MD, Jordan M Estroff, MD, FACS, Maximilian Peter Forssten, MD, Nicolas Leighton, BA, Gary Alan Bass, MD, MBA, FEBS (Em Surg), Babak Sarani, MD, FACS, Shahin Mohseni, MD, PhD

BACKGROUND: The Brain Trauma Foundation recommends intracranial pressure (ICP) monitoring in patients with severe traumatic brain injury (TBI). Race is associated with worse outcomes after TBI.

STUD

RESU

After controlling for confounders:
No difference in Black vs White Race
Asian pts 19% more likely to have ICP
American Indians 38% less likely to have ICP

JAMA Network | Open

Fractures

23 trauma centers: US/Canada
Hip and femur fxs
Benchmark for time to OR w/I 24 hrs

Original Investigation | Orthopedics

Association of Patient-Level and Hospital-Level Factors With Timely Fracture Care by Race

Ida Leah Gitajn, MD, MS; Paul Werth, PhD; Eseosa Fernandes, MD; Sheila Sprague, PhD; Nathan N. O'Hara, PhD; Sofia Bzovsky, MSc; Lucas S. Marchand, MD; Joseph Thomas Patterson, MD; Christopher Lee, MD; Gerard P. Slobogean, MD, MPH; for the PREP-IT Investigators

Abstract

After controlling for clinical variables:
No difference between race and time to OR
But
Insurance status and Hospitals caring for high % of minorities
Were associated with not meeting time to OR benchmark

EXPOSURES Patient-level and hospital-level race, ethnicity, and insurance status.

Key Points

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association between proportion of

Disparities in trauma care: are fewer diagnostic tests conducted for uninsured patients with pelvic fracture?

Oluwaseyi B. Bolorunduro, M.D., M.P.H.[a,*], Adil H. Haider, M.D., M.P.H.[b], Tolulope A. Oyetunji, M.D., M.P.H.[a], Amal Khoury, M.D.[a], Maricel Cubangbang, B.S.[a], Elliot R. Haut, M.D.[b], Wendy R. Greene, M.D.[a], David C. Chang, M.P.H., M.B.A., Ph.D.[a], Edward E. Cornwell III, M.D.[a], Suryanarayana M. Siram, M.D.[a]

[a]*Department of Surgery, Howard-Hopkins Center For Outcomes Research, Howard University College of Medicine, 2041 Georgia Avenue Northwest, Washington, DC 20060, USA;* [b]*Center for Surgical Trials and Outcomes Research, Johns Hopkins School of Medicine, Baltimore, MD, USA*

KEYWORDS:
Pelvic fracture;
Disparities;
Uninsured;
Procedures;
Trauma;
Diagnostic tests

Abstract

BACKGROUND: Research from other medical specialties suggests that uninsured patients experience treatment delays, receive fewer diagnostic tests, and have reduced health literacy when compared with their insured counterparts. We hypothesized that these disparities in interventions would not be present among patients experiencing trauma. Our objective was to examine differences in diagnostic and therapeutic procedures administered to patients undergoing trauma with pelvic fractures using a national database.

METHODS: A retrospective analysis was conducted using the National Trauma Data Bank (NTDB), 2002 to 2006. Patients aged 18 to 64 years who experienced blunt injuries with pelvic fractures were analyzed. Patients who were dead on arrival, those with an injury severity score (ISS) less than 9, those with traumatic brain injury, and patients with burns were excluded. The likelihood of the uninsured receiving select diagnostic and therapeutic procedures was compared with the same likelihood in the insured. Multivariate analysis for mortality was conducted, adjusting for age, sex, race, ISS, presence of shock, Glasgow Coma Scale (GCS) motor score, and mechanism of injury.

RESULTS: Twenty-one thousand patients met the inclusion criteria; 82% of these patients were

with their insured counterparts; this disparity is much greater for more invasive and resource-intensive

Pelvic Fractures

NTDB Study N=21,000

Disparities in Dx Tests?

- Uninsured less likely to receive:
  - Abd CT
  - Doppler US
  - More plain X-rays
  - Less transfusions
  - CVP monitoring

Uninsured patients with pelvic fractures get fewer diagnostic procedures

Trauma Disparities

Original Investigation

Unconscious Race and Social Class Bias Among Acute Care Surgical Clinicians and Clinical Treatment Decisions

Adil H. Haider, MD, MPH; Eric B. Schneider, PhD; N. Sriram, PhD; Deborah S. Dossick, MD; Valerie K. Scott, MSPH; Sandra M. Swoboda, RN; Lia Losonczy, MD, MPH; Elliott R. Haut, MD; David T. Efron, MD; Peter J. Pronovost, MD, PhD; Pamela A. Lipsett, MD; Edward E. Cornwell III, MD; Ellen J. MacKenzie, PhD; Lisa A. Cooper, MD, MPH; Julie A. Freischlag, MD

IMPORTANCE Significant health inequities persist among minority and socially disadvantaged patients. Better understanding of how unconscious biases affect clinical decision making may help to illuminate clinicians' roles in propagating disparities.

OBJECTIVE To determine whether clinicians' unconscious race and/or social class biases correlate with patient management decisions.

DESIGN, SETTING, AND PARTICIPANTS We conducted a web-based survey among 230 physicians from surgery and related specialties at an academic, level I trauma center from December 1, 2011, through January 31, 2012.

RESULTS In total, 215 clinicians were included and consisted of 74 attending surgeons, 32 fellows, 86 residents, 19 interns, and 4 physicians with an undetermined level of education. Specialties included surgery (32.1%), anesthesia (18.1%), emergency medicine (18.1%), orthopedics (7.9%), otolaryngology (7.0%), neurosurgery (7.0%), critical care (6.0%), and urology (2.8%); 1.9% did not report a departmental affiliation. Implicit race and social class biases were present in most respondents. Among all clinicians, mean IAT D scores for race and social class were 0.42 (95% CI, 0.37-0.48) and 0.71 (95% CI, 0.65-0.78), respectively. Race and class scores were similar across departments (general surgery, orthopedics, urology, etc), race, or age. Women demonstrated less bias concerning race (mean IAT D score, 0.39

Supplemental content at jamasurgery.com

CME Quiz at jamanetworkcme.com

Surgeon implicit bias not associated with clinical decision making

Unconscious Race and Class Biases among Registered Nurses: Vignette-Based Study Using Implicit Association Testing

Adil H Haider, MD, MPH, FACS, Eric B Schneider, PhD, N Sriram, PhD, Valerie K Scott, MSPH, Sandra M Swoboda, RN, MS, Cheryl K Zogg, MSPH, MHS, Nitasha Dhiman, MSPH, Elliott R Haut, MD, PhD, FACS, David T Efron, MD, FACS, Peter J Pronovost, MD, PhD, Julie A Freischlag, MD, FACS, Pamela A Lipsett, MD, FACS, Edward E Cornwell III, MD, FACS, FCCM, Ellen J MacKenzie, PhD, Lisa A Cooper, MD, MPH

BACKGROUND: Implicit bias is an unconscious preference for a specific social group that can have adverse consequences for patient care. Acute care clinical vignettes were used to examine whether implicit race or class biases among registered nurses (RNs) impacted patient-management decisions.

STUDY DESIGN: In a prospective study conducted among surgical RNs at the Johns Hopkins Hospital, partic- s were s) for mong cients

RESULTS: -5%])

and white (n = 203 [82.9%]). Most reported that they had no explicit race or class preferences (n = 174 [71.0%] and n = 108 [44.1%], respectively). However, only 36 nurses (14.7%) demonstrated no implicit race preference as measured by race IAT, and only 16 nurses (6.53%) displayed no implicit class preference on the class IAT. Implicit association tests scores did not statistically correlate with vignette-based clinical decision making. Spearman's rank coefficients comparing implicit (IAT) and explicit preferences also demonstrated no statistically

Surgical Nurses Implicit bias no correlation to clinical decision making

Trauma Disparities

Arch Surg. 2012 January ; 147(1): 63–70. doi:10.1001/archsurg.2011.254.

2012

Association Between Hospitals Caring for a Disproportionately High Percentage of Minority Trauma Patients and Increased Mortality:

A Nationwide Analysis of 434 Hospitals

Dr. Adil H. Haider, MD, MPH, Dr. Sharon Ong'uti, MD, MPH, Dr. David T. Efron, MD, Dr. Tolulope A. Oyetunji, MD, MPH, Dr. Marie L. Crandall, MD, MPH, Ms. Valerie K. Scott, BA, Dr. Elliott R. Haut, MD, Dr. Eric B. Schneider, PhD, Dr. Neil R. Powe, MD, MPH, Dr. Lisa A. Cooper, MD, MPH, and **Dr. Edward E. Cornwell III, MD**
Center for Surgery Trials and Outcomes Research, Department of Surgery (Drs Haider, Efron,

- Hospitals with higher proportions of minority trauma patients have increased odds of dying, even after adjusting for potential confounders.
- Differences in outcomes between trauma hospitals may partly explain racial disparities.

2013 Annals of Surgery

Minority Trauma Patients Tend to Cluster at Trauma Centers with Worse-Than-Expected Mortality

Can This Phenomenon Help Explain Racial Disparities in Trauma Outcomes?

Adil H. Haider, MD, MPH,† Zain G. Hashmi, MBBS,* Syed Nabeel Zafar, MBBS, MPH,‡ Xua*
Eric B. Schneider, PhD, David T. Efron, MD,* Elliott R. Haut, MD,* Lisa A. Cooper, M*
Ellen J. MacKenzie, PhD,† and Edward E. Cornwell, III, MD‡

NTDB Study
N=556,720

Minority trauma patients are clustered at hospitals with significantly higher than expected mortality

Objectives: To determi
monly treated at trauma
survival.
Background: Racial di
described. However, the
understood.
Methods: Analysis of l
Bank 2007–2010. White
taining blunt/penetrating
were included. TCs with
fied as predominantly mi
for several patient/injury
ber of deaths for each TC. O/E mortality ratios were then generated and used to rank individual TCs as low (O/E <1), intermediate, or high mortality (O/E >1).
Results: A total of 556,720 patients from 181 TCs were analyzed; 86 TCs (48%) were classified as low mortality, 6 (3%) intermediate, and 89 (49%) as high mortality. More of the predominantly minority TCs [(82% (22/27)

D acial disparities in outcomes have been well described for a host
traumatic injury, in the United
ggests that Black and uninsured
rauma even after controlling for
, severity of injury, and preinjury
g cause of death for persons 1 to
w estimated as the third largest
n the United States, making it an
ning the exact mechanisms that
omes is a critical prerequisite in
ntions aimed at reducing racial

Empirical evidence from other areas in health care and prior trauma literature cite poor access to care, discrepant health care utilization, preexisting medical conditions, and potential provider biases as some of the reasons for these disparate outcomes.[11,14] Along with these patient and provider factors, increasingly, institutional and health system–associated parameters have also been described as

Racial Disparities at Mixed-Race and Minority Hospitals: Treatment of African American Males With High-Grade Splenic Injuries

2020

The American Surgeon
2020, Vol. 86(5) 441–449

DOI: 10.1177/0003134820918262
journals.sagepub.com/home/asu
SAGE

Christopher J. Tignanelli, MD[1], Bradly Watarai, MPH[2], Yunhua Fan, MPH[2], Ashley Petersen, PhD[3], Mark Hemmila, MD[4], Lena Napolitano, MD[4], Stephanie Jarosek, PhD, RN[2], and Anthony Charles, MD, MPH[5]

NTDB (2007-2015) N=24,855 High Grade ≥3 Splenic Injuries
AA vs WH males & by hospital percent of AA pts
Minority Hosp (>50%), Mixed race (25%-50%), Majority (<25%).

Spleen Study Key Take Aways

- AA patients more likely to undergo surgery at low-quality hospitals
- Strong relationship: residential segregation & low-quality hospitals
- Minority hospitals: higher failed non-operative management spleen
- AA males in mixed and minority hospitals with penetrating injuries were more likely to be managed by angiography compared with white males
- This finding is concerning as the standard of care is operative intervention

Structural Racism

By Justin Dimick, Joel Ruhter, Mary Vaughan Sarrazin, and John D. Birkmeyer

Black Patients More Likely Than Whites To Undergo Surgery At Low-Quality Hospitals In Segregated Regions

2013

2021

Association of Historic Housing Policy, Modern Day Neighborhood Deprivation and Outcomes After Inpatient Hospitalization

Adrian Diaz, MD, MPH,‡§✉ *Rachel O'Reggio, MPH,*† *Marc Norman, MUP,*¶ *Jyothi R. Thumma, MPH,*§ *Justin B. Dimick, MD, MPH,*†§ *and Andrew M. Ibrahim, MD, MSc*†§¶

JAMA Network | Open™

2023

Original Investigation | Surgery

Association of Hospital Quality and Neighborhood Deprivation With Mortality After Inpatient Surgery Among Medicare Beneficiaries

Adrian Diaz, MD, MPH; Stacy Tessler Lindau, MD, MAPP; Samilia Obeng-Gyasi, MD; Justin B. Dimick, MD, MPH; John W. Scott, MD, MPH; Andrew M. Ibrahim, MD, MSc

Trauma Disparities

JNS 2015

CLINICAL ARTICLE
J Neurosurg 122:595–601, 2015

NTDB Study
N=299,205

Racial and ethnic disparities in discharge to rehabilitation following traumatic brain injury

Ashley D. Meagher, MD, MPH,[1,2] Christopher A. Beadles, MD, PhD,[2–4] Jennifer Doorey, MSc,[1,5] and Anthony G. Charles, MD, MPH[1,2,5]

[1]Department of Surgery; [2]Cecil G. Sheps Center for Health Services Research; [3]Department of Health Policy and Management, Gillings School of Global Public Health; and [5]School of Medicine, University of North Carolina at Chapel Hill; and [4]Center for Health Services Research in Primary Care, Department of Veterans Affairs Medical Center, Durham, North Carolina

OBJ been identified, but l ck patients compare n (inpatient rehabilita e and methods to a

MET ing National Trau llowed by ordere care. Likelihood of di hospital variables was

RES and 37,202 blac .71, 95% CI 0.68 ed to a higher level of rehabilitation than were non-Hispanic whites. The subgroup analysis indicated that Hispanic (adjusted OR 0.79, 95% CI 0.71–0.86) and black (OR 0.87, 95% CI 0.81–0.94) populations were still less likely to receive a higher level of rehabilitation, despite uniform insurance coverage (Medicare).

CONCLUSIONS Adult Hispanic and black patients with TBI are significantly less likely to receive intensive rehabilitation than their non-Hispanic white counterparts; notably, this difference persists in the Medicare population (age ≥ 65 years), indicating that uniform insurance coverage alone does not account for the disparity. Given that insurance coverage and a wide range of prehospital characteristics do not eliminate racial disparities in discharge destination, it is crucial that additional unmeasured patient, physician, and institutional factors be explored to eliminate them.

Blacks and Hispanics ↓ Access to Rehab
Even with Medicare

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Racial disparities in post-discharge healthcare utilization after trauma

Shelby Chun Fat [a], Juan P. Herrera-Escobar [a], Anupamaa J. Seshadri [b], Syeda S. Al Rafai [a], Zain G. Hashmi [a], Elzerie de Jager [a], Constantine Velmahos [c], George Kasotakis [d], George Velmahos [c], Ali Salim [b], Adil H. Haider [a, b], Deepika Nehra [b, *]

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3 Level I Trauma Centers:
Black patients less likely than white patients
-Rehab access
-Follow up outpatient visits

ARTICLE IN

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were less likely to use rehabilitation services [OR:0.64 (95% CI:0.43–0.95)] and had fewer injury-related outpatient visits [OR:0.59 (95% CI:0.40–0.86)] after discharge.
Conclusions: This study shows the existence of racial disparities in post-discharge healthcare utilization after trauma for otherwise similarly injured, matched patients.

“But trauma is different… or is it?”