



# Promoting Equity Through Research EMSAAC 2023

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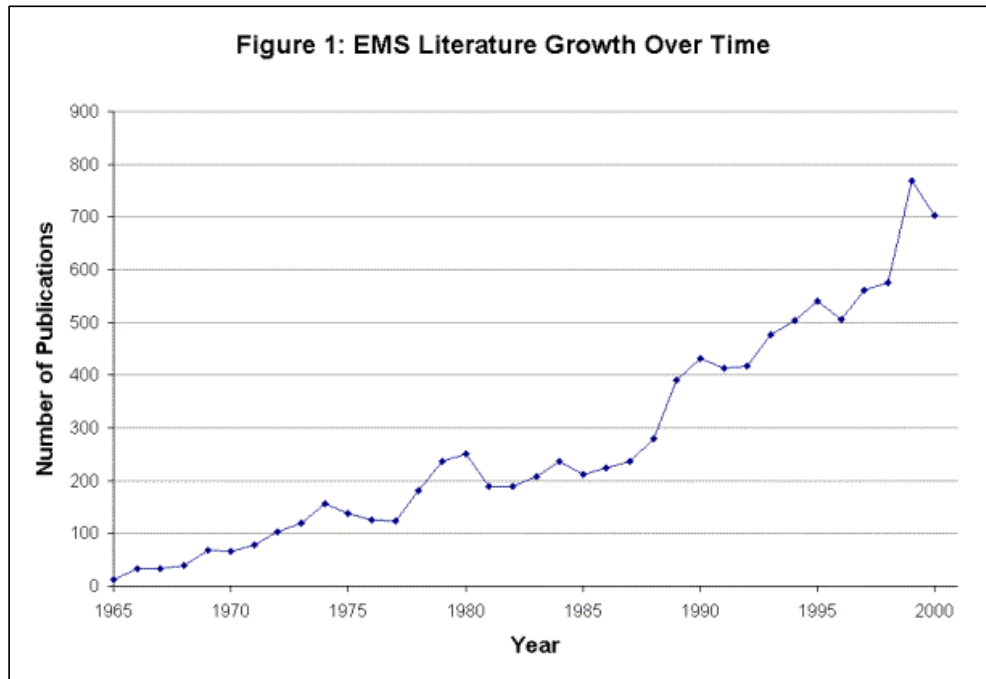
I have no disclosures

# Objectives

- How did we get here?
- Where are we now?
- Why an equity lens in EMS research matters
- How can we promote equity through EMS research?



# A Brief History of Prehospital Research



- Since 1970, EMS literature has increased at rate of ~200 articles per decade.
- In 2000, over 700 EMS-focused articles in medical press

Year of Publication	Total # Citations	# Citations Published in US	%s Citations Published in US
2010	735,005	315,000	43%

# 3 domains within spectrum of EMS research

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CLINICAL RESEARCH – STUDY OF  
DIRECT PATIENT CARE ACTIVITIES



SYSTEMS RESEARCH – EMS SYSTEM  
DESIGNS AND OPERATIONS




EDUCATIONAL RESEARCH

In prehospital care, the 3 domains are highly integrated

# 1999: EMS Outcomes Project (EMSOP I)

- “The benefits of prehospital care never have been demonstrated scientifically ... The time has come to prove the value of field care and determine the most cost-effective and medically sound treatments.”
- Outcome measures in EMS not clear/standard
  - Survival outcomes for sudden cardiac arrest
  - Survival not useful for most EMS studies -- almost all patients survive...
- Since 2000...
  - 2000-2020, 1839 prehospital studies published














Recent research  
in prehospital  
diversity and  
equity

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Original Contributions

# Disparities in Emergency Medical Services Care Delivery in the United States: A Scoping Review

Andra M. Farcas  , Anjni P. Joiner , Jordan S. Rudman , Karthik Ramesh, Gilberto Torres , Remle P. Crowe , Travis Curtis , Rickquel Tripp, Karen Bowers, Megan von Isenburg , Robert Logan, Lauren Coaxum, Gilberto Salazar , Michael Lozano Jr., David Page  & Ameera Haamid  [... show less](#)

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~3000 prehospital studies since 1970

- 61 years of prehospital research (1960-2021)
- 147 articles included
  - 25 studies investigated sex/gender
  - 61 race/ethnicity
  - 58 studies investigated both
  - 1 study investigated sexual orientation



# PREHOSPITAL EMERGENCY CARE

OFFICIAL JOURNAL OF THE NATIONAL ASSOCIATION OF EMS PHYSICIANS  
THE NATIONAL ASSOCIATION OF STATE EMS OFFICIALS  
THE NATIONAL ASSOCIATION OF EMS EDUCATORS  
THE NATIONAL ASSOCIATION OF EMTs

## DEMOGRAPHY OF THE NATIONAL EMERGENCY MEDICAL SERVICES WORKFORCE: A DESCRIPTION OF THOSE PROVIDING PATIENT CARE IN THE PREHOSPITAL SETTING

Madison K. Rivard, MPH, NREMT , Rebecca E. Cash, PhD, MPH, NRP ,  
Christopher B. Mercer, DC, MPAS, Kirsten Chrzan, MPH, NREMT,  
Ashish R. Panchal, MD, PhD

- NREMT data
- 142,751 EMS recertifications 2017-2019
  - EMT, AEMT, Paramedics
- <25% Female
- 15% Not White
  - 5% Latino
  - 5% Black/African American
  - 2% Native American/Alaskan
  - 2% Asian
  - 1% Pacific Islander

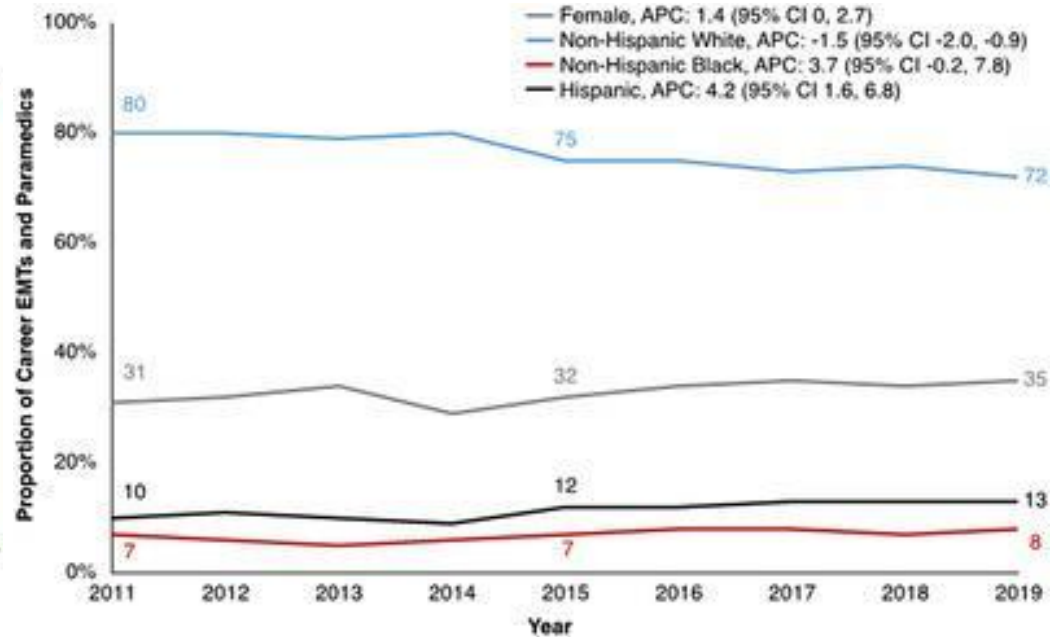
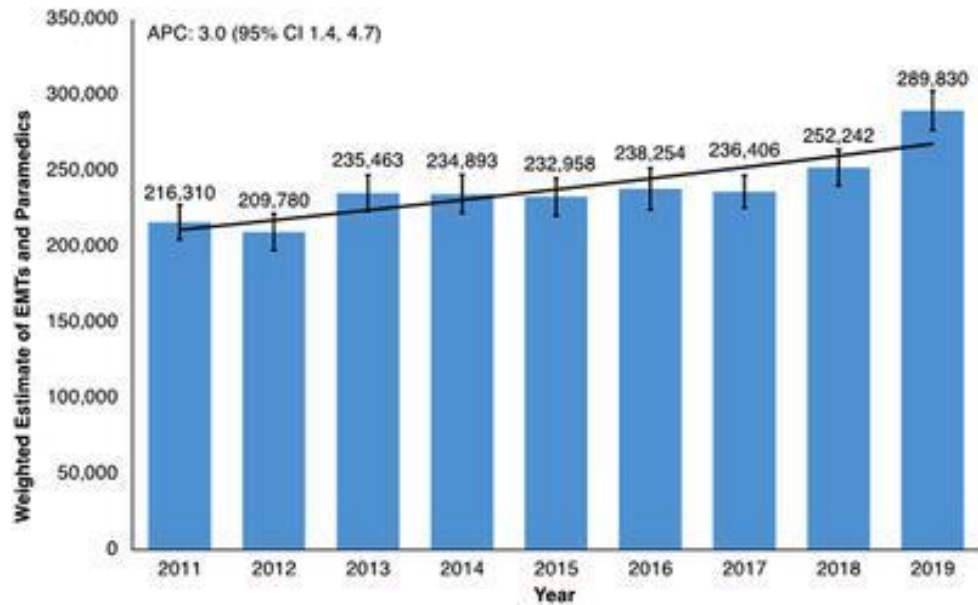
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	EMS (%)	US Pop. (%)
White	85	60
Latino	5	19
Black/African American	5	13
Native American/Alaskan	2	1.3
Asian	2	6
Pacific Islander	1	0.2
Female	24	50



# Demographic Changes in the EMS Workforce

Cash RE, Powell JR, Peters GA, Goldberg SA, Panchal AR, Camargo CA Jr. Trends in demographic and employment characteristics of US emergency medical technicians and paramedics, 2011-2019. *J Am Coll Emerg Physicians Open*. 2022 Jul 7;3(4):e12776..

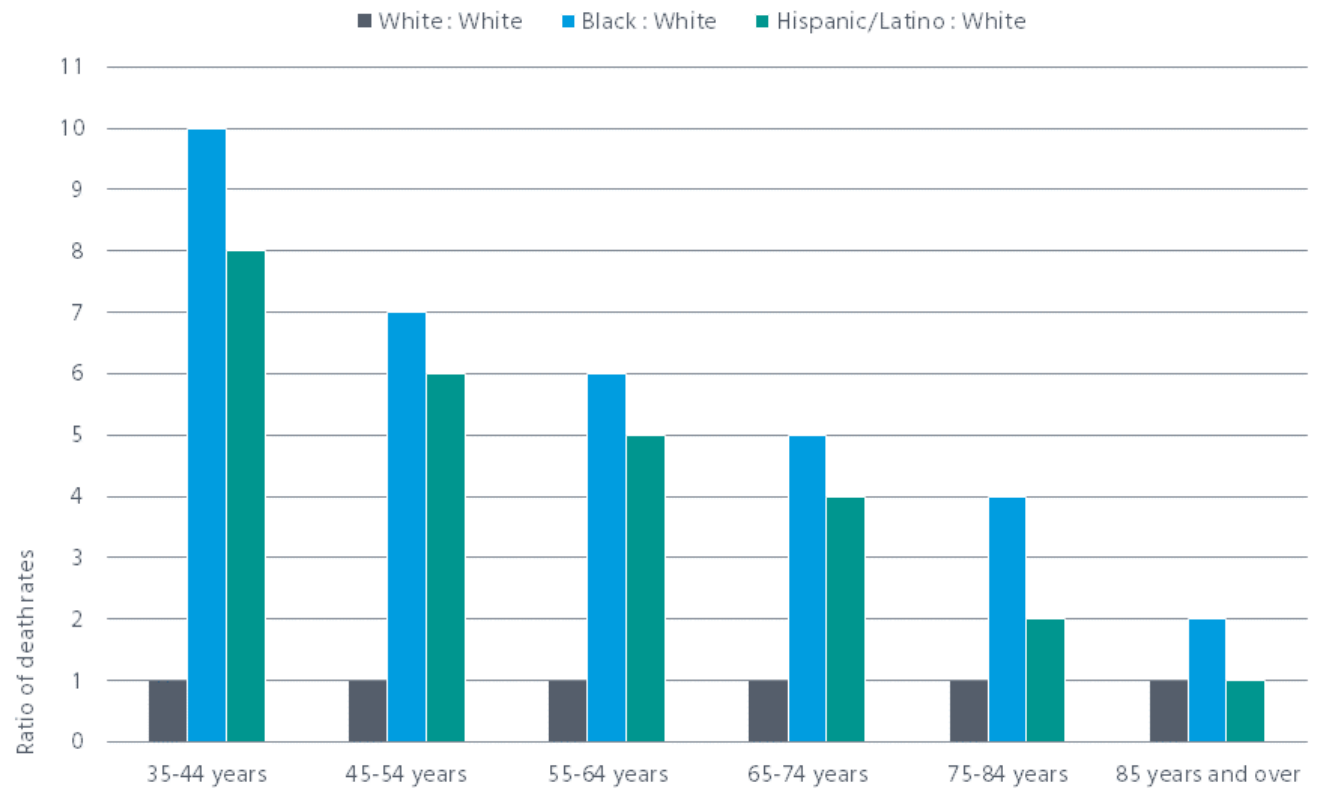
Does it matter?

If we all just follow our protocols when responding to emergencies, does stratifying personnel & outcomes matter?

Medicine may  
Perpetuate  
Inequity

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## Race gaps in COVID-19 death rates



Source: Brookings analysis of CDC data from 2/1/20 - 6/6/20 and 2018; Census population estimates for USA, <https://www.brookings.edu/blog/up-front/2020/06/16/race-gaps-in-covid-19-deaths-are-even-bigger-than-they-appear/>

# Medicine Perpetuates Inequity

## Pulse Oximeter Accuracy and Limitations: FDA Safety Communication

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### FDA warns pulse oximeters less accurate for people with darker skin

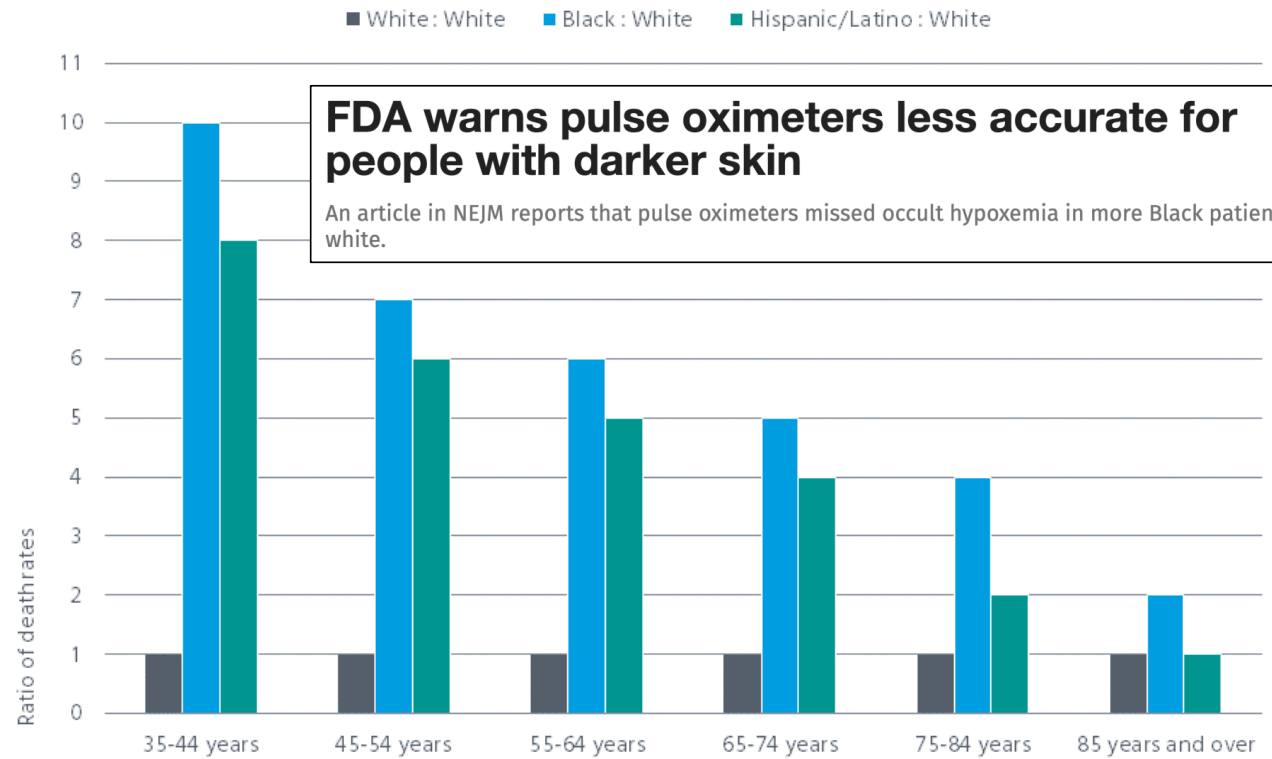
An article in NEJM reports that pulse oximeters missed occult hypoxemia in more Black patients than white.



# Medicine may Perpetuate Inequity




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# Influence of patient race on administration of analgesia by student paramedics

Bill Lord<sup>1\*</sup>  and Sahaj Khalsa<sup>2</sup>

*BMC Emergency Medicine* (2019)

- Question: Does race effect the administration of pain medication?
- FISDAP records from paramedic students in Minnesota
- 17,729 Trauma & Burn patients AOx4 with complete data
- Controlled for other factors (age, pain score, type of injury)
- OR 0.6 for African Americans (CI 0.53-0.69) and 0.81 for Latino patients (CI 0.70-0.93) to receive analgesia
  - The odds of receiving pain meds after Trauma or Burn is significantly lower for African American and Latino patients.



# Racial/Ethnic Disparities in Pain Treatment

## *Evidence From Oregon Emergency Medical Services Agencies*

*Jamie Kennel, MAS,\*†‡ Elizabeth Withers, MS,‡ Nate Parsons, MS,‡ and Hyeyoung Woo, PhD‡*

- 25,732 EMS encounters, 2015-2017
- Adult patients with traumatic injury
- Controlled for confounding factors (blood pressure, GCS, transport time, etc)
- Hispanic patients 21% less likely **to receive *pain assessment***. Asian patients 31% less likely (P<0.001)
- For those who received pain assessment, black patients 32% less likely **to receive *pain medications***. Hispanic patients 21% less likely, Asian patients 24% less likely (all p <0.05)



Original Investigation | Emergency Medicine

## Association of Race/Ethnicity With Emergency Department Destination of Emergency Medical Services Transport

Amresh D. Hanchate, PhD; Michael K. Paasche-Orlow, MD, MA, MPH; William E. Baker, MD; Meng-Yun Lin, PhD, MPH; Souvik Banerjee, PhD; James Feldman, MD, MPH

September 6, 2019

HEALTH EQUITY

By Genevieve P. Kanter, Andrea G. Segal, and Peter W. Groeneveld

# Income Disparities In Access To Critical Care Services

HEALTH AFFAIRS AUGUST 2020

EDUCATION/TRAINING



## Diversity in EMS: Recognizing Implicit Bias in the Prehospital Environment

Brad Keating, MPH, NRP, and Lorie Fridell, PhD

August 2021

# Barriers to bystander CPR in deprived communities: Findings from a qualitative study

**Fiona Dobbie**<sup>1</sup><sup>\*</sup>, **Isa Uny**<sup>2</sup><sup>©</sup>, **Douglas Eadie**<sup>2</sup><sup>©</sup>, **Edward Duncan**<sup>3</sup><sup>‡</sup>, **Martine Stead**<sup>2</sup><sup>‡</sup>, **Linda Bauld**<sup>1</sup><sup>‡</sup>, **Kathryn Angus**<sup>2</sup><sup>‡</sup>, **Liz Hassled**<sup>4</sup><sup>‡</sup>, **Lisa MacInnes**<sup>4</sup><sup>‡</sup>, **Gareth Clegg**<sup>4</sup><sup>‡</sup>

**1** Usher Institute, College of Medicine and Veterinary Medicine, University of Edinburgh, Edinburgh, United Kingdom, **2** Institute for Social Marketing and Health, School of Health Sciences, University of Stirling, Stirling, United Kingdom, **3** Nursing Midwifery and Allied Health Professionals Research Unit, Faculty of Health Sciences and Sport, University of Stirling, Stirling, United Kingdom, **4** Resuscitation Research Group, The University of Edinburgh, Edinburgh, United Kingdom



- Qualitative Study in Scotland
- 10 focus groups of individuals from “deprived communities”
- Stakeholder interviews from EMS agencies in UK, US and Europe
- Barriers largely focused on confidence & limited self-efficacy
  - Knowledge gaps
  - Anticipated failure
- Concerns about physical violence in environments (not disease transmission)





Towards the future:  
Performing research  
with diversity

# How Your Agency Can Be Involved

1

Collect race & ethnicity data

- Colorism?

2

Stratify Quality Improvement by Race/Ethnicity

3

Evaluate for implicit bias

- Be aware of symbolism

4

Engage the community

# NEMESIS 3.5

## Race/Ethnicity Categories

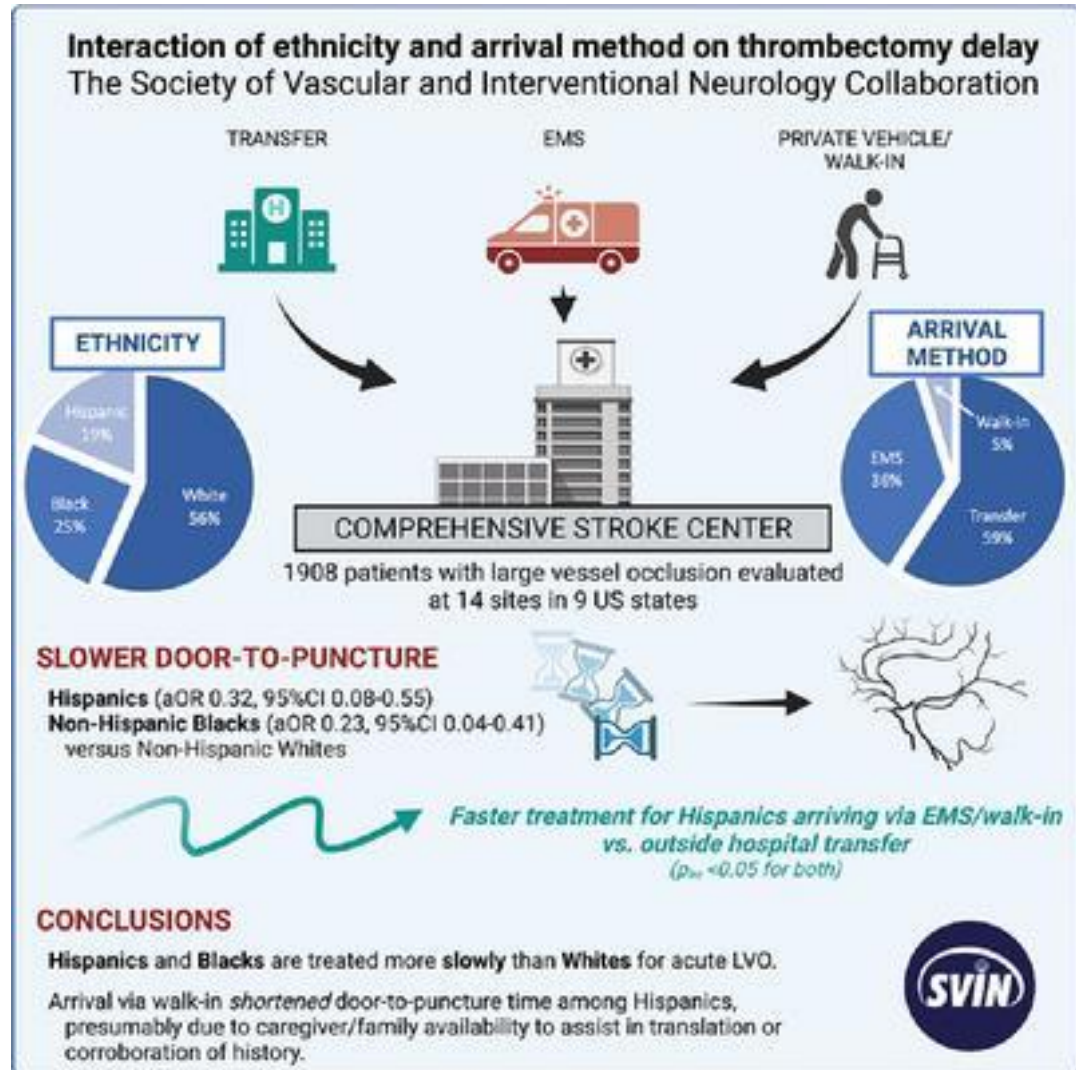
- American Indian or Alaska Native
- Asian
- Black or African American
- Hispanic or Latino
- Native Hawaiian or Other Pacific Islander
- White

Self-disclosed? EMS-perceived?

A proxy for colorism?



QI evaluations should stratify by race/ethnicity/gender/SVI





# Implicit Bias in Prehospital Care

Implicit bias is NOT racism

## TYPES OF UNCONSCIOUS BIAS



### Affinity Bias

Feeling a connection to those similar to us



### Perception Bias

Stereotypes and assumptions about different groups



### Halo Effect

Projecting positive qualities onto people without actually knowing them



### Confirmation Bias

Looking to confirm our own opinions and pre-existing ideas.





MILITARY

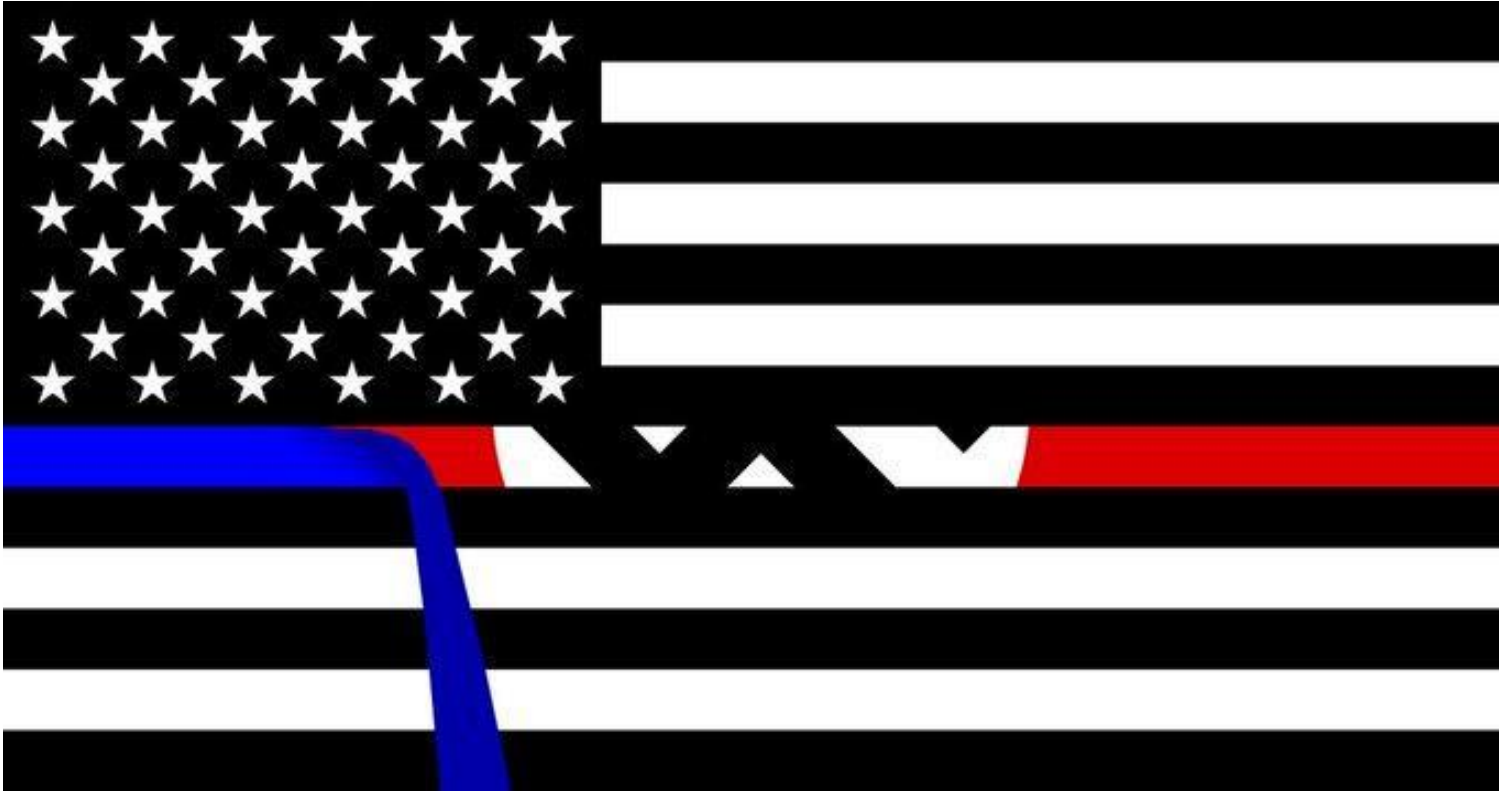
LAW ENFORCEMENT

FIREFIGHTER

DISPATCH

CORRECTIONS

EMS/RESCUE



# Build Community Trust





# ACADEMY



# COMMUNITY



Community Engaged Research

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LEMSAs & Provider Agencies  
may inform changes to  
improve equity of care.

The power lies with you

Thank you!