Patients

Same symptoms or medical information

Or

Residency Applicants

Same academic qualifications

Are all of our professional decisions truly impartial…

or

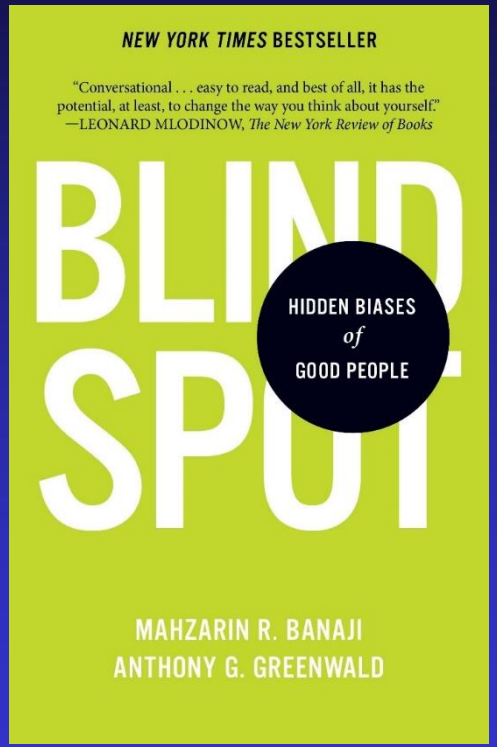
are there other factors in play?

Implicit Bias

Ronald W. Lindsey MD
Professor and Chair
Department of Orthopaedic Surgery & Rehabilitation
University of Texas Medical Branch
Galveston, Texas

utmb Health
Orthopaedic Surgery
& Rehabilitation

Help



Quinn Capers, IV, M.D.

UT Southwestern Medical Center

Venice Carnival

Implicit Bias

Unconscious biases are learned stereotypes, that are automatic, unintentional, deeply engrained, universal, and able to influence behavior

We are **ALL** subject to unconscious bias

Implicit Bias

Race and Gender

- Sexual Orientation
- Ethnicity
- Weight
- Age
- Social Class
- Height
- Handicapped
- Religion
- Professions
- Appearance

NOTA BENE

"Implicit" (unconscious) bias is not the "Explicit" (conscious) bias that would define someone as sexist, racist, ageist, homophobic, etc.

But Implicit Bias can cause harm!!!

- *We may earnestly believe that we are egalitarian in our thoughts and actions*
- *Often our "behavior" does not align with our "intentions"*

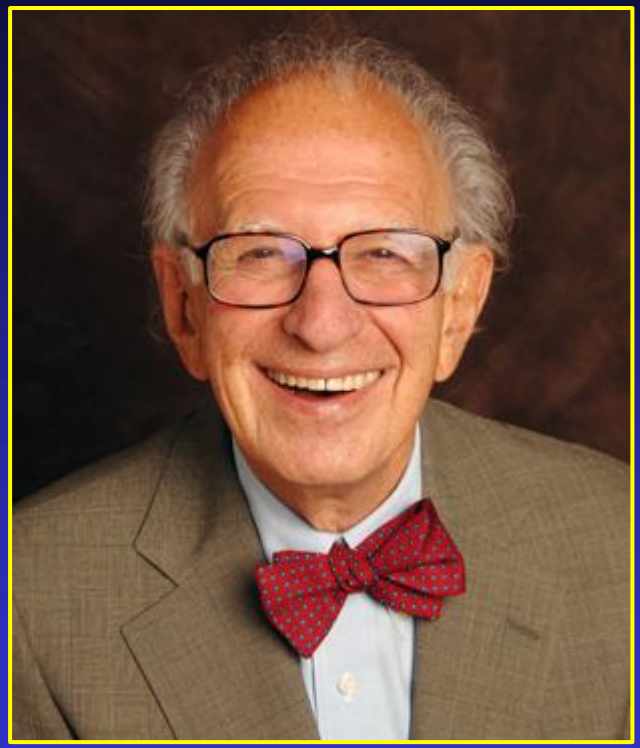
Unconscious Cognition

- In the past, most psychologists believed that human behavior was primarily guided by **conscious** thoughts and feelings
- Currently, it is believed that much of our judgment and behavior is produced **with little conscious thought**

The Unconscious Mind

Estimated that 80-90% of the mind works unconsciously

Our ability to have "conscious" access to this aspect of our minds is low

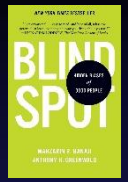


Eric Kandel
Nobel Prize Laureate

Implicit Attitudes Are Powerful

"…thoughts and feelings that exist outside of conscious awareness"

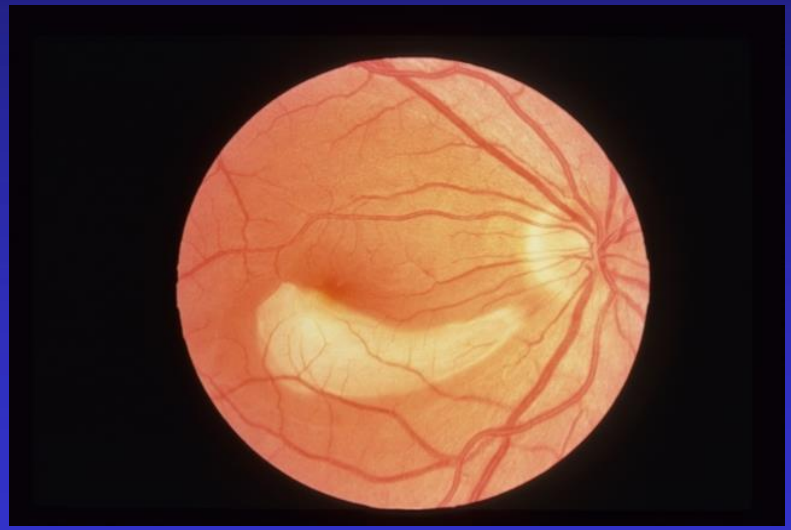
"…and thus are difficult to consciously acknowledge and control"



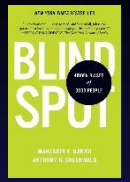
Mindbugs

"Ingrained habits of thought that lead to errors in how we perceive, remember, reason, and make decisions"

* • Visual (***blind spot***)
  • Memory
  • Availability
  • Anchoring
  • Social



Retinal Scotoma



Memory Mindbugs

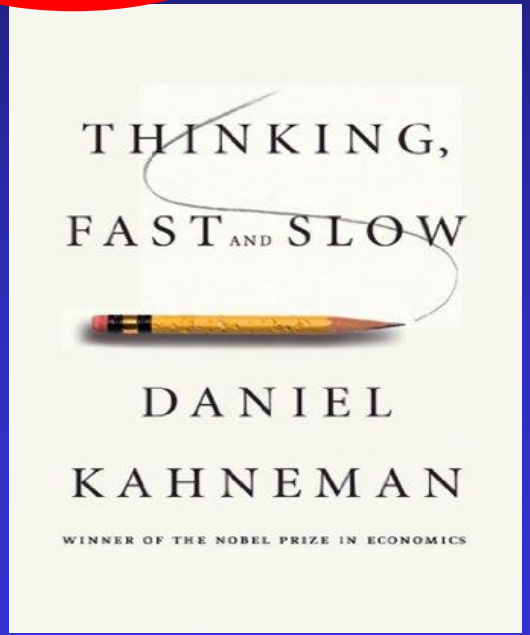
- Nonprofit legal group committed to overturning wrongful criminal convictions
- Innocence Project determined that nearly 75% of wrongful convictions are due to well-intended eyewitness memory errors!!!

INNOCENCE PROJECT

Availability Mindbugs

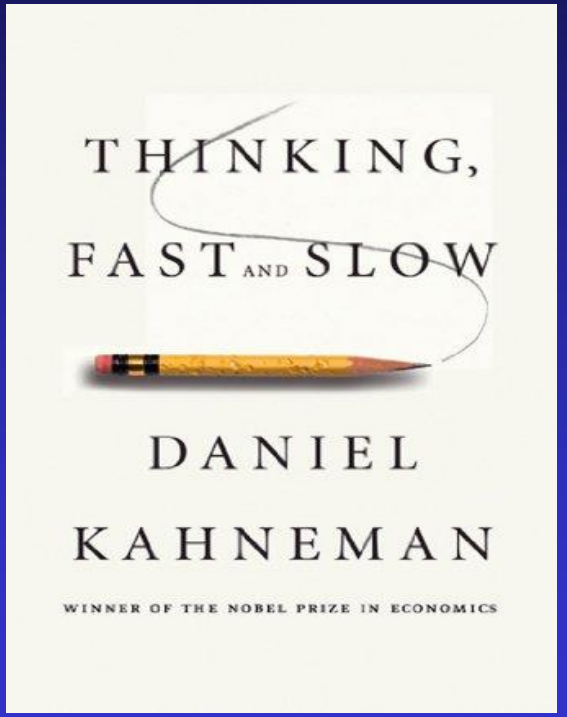
Which is the more common cause of death in the USA, murder or suicide?

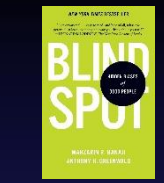
Because one event more easily comes to mind than another and we assume that it must occur more frequently!



Anchoring Mindbugs

- ***The mind is an automatic association-making machine***
- It does not search for information in a vacuum…
  it uses immediately available information as a reference point or anchor





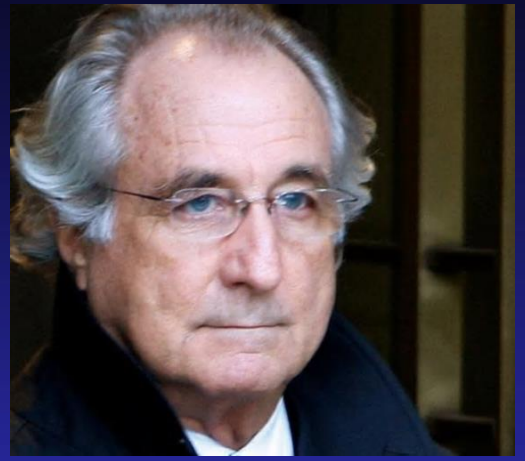
Social Mindbugs

Human beings are social animals

However, we fail to perceive individuals as individuals, but view them as members of "social groups"

Social Mindbugs

Feelings of faith in people we shouldn't trust



Bernie Madoff

Feelings of distrust toward those whom we should trust

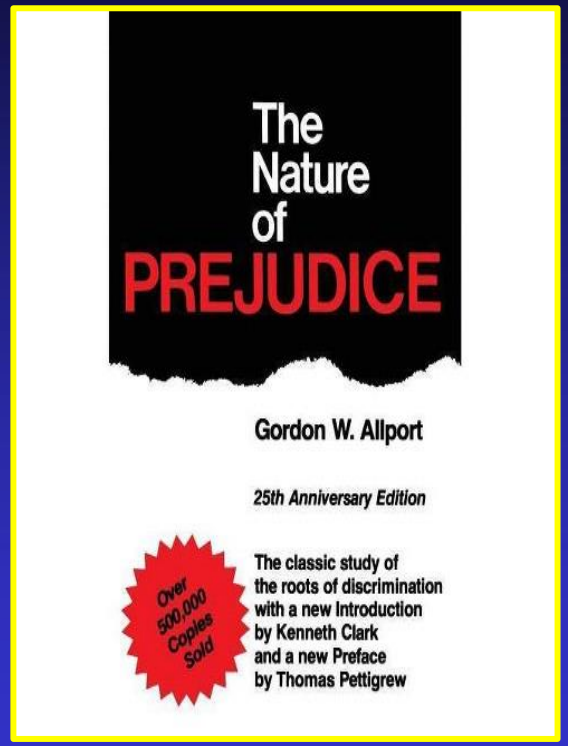
Omar Edwards

Solely based on social groups…

- Smile or suspicious look
- Bank loan approved or rejected
- Police decision to stop and search
- Employer decision to promote or terminate
- Physician decision to obtain additional medical tests, or not

Homo Categoricus (Mental Categories)

- *The mind must think with the aid of categories*
- *Once formed, these categories are the basis for normal prejudgment*



Gordon Allport
1954

“the cognitive effort to assess and process a person’s individual characteristics appear to be greater than that required to quickly categorize a person into a particular group”

Allport. 1954

Short cuts in thinking can be useful in certain situations

Waiter

Policeman

Nurse

Firefighter

Pilot

Mechanic

Stereotypes

Without any conscious thought, we use stereotypes of groups as the starting point for our perception of most individuals

Stereotyping allows us to more rapidly perceive total strangers and distinctive individuals

Stereotypes are biases and can be damaging ***even when they are not negative***

Implicit Bias (Preferences/Stereotypes)

In the spirit of delivering impartial care, healthcare professionals should be wary of any kind of negative evaluation that is linked to membership of a group or characteristic

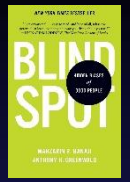
How Do We Detect Unconscious Bias in Ourselves?

Harvard Implicit Association Test (IAT)

- Permits us to not simply *confirm that "blind spots" exist*
- Provides us some *insight on what these blind spots contain*

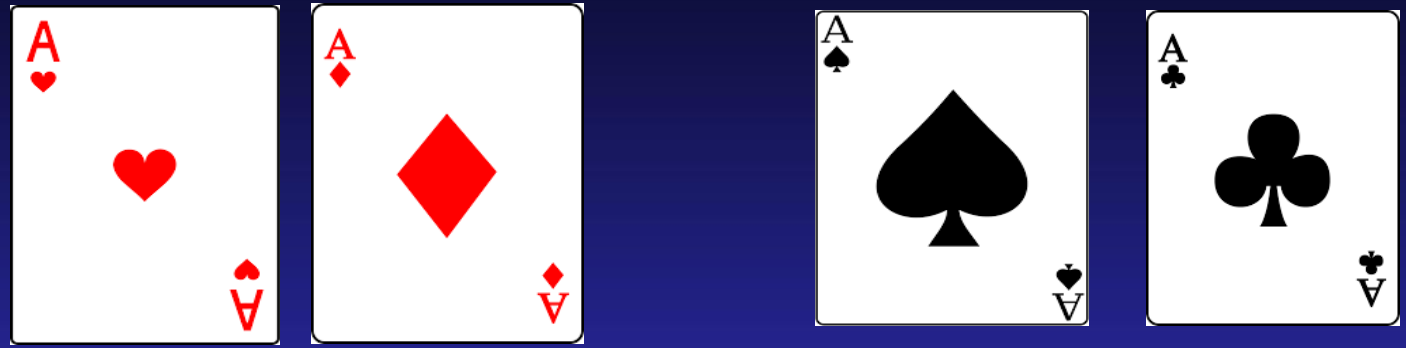
Implicit Association Test (IAT)

- *Developed 1995*
- *Computer based tool*
- *Subjects quickly categorize two target concepts with an attribute*
- *Quicker response times interpreted as more strongly associated*
- *Measures attitudes/preferences*



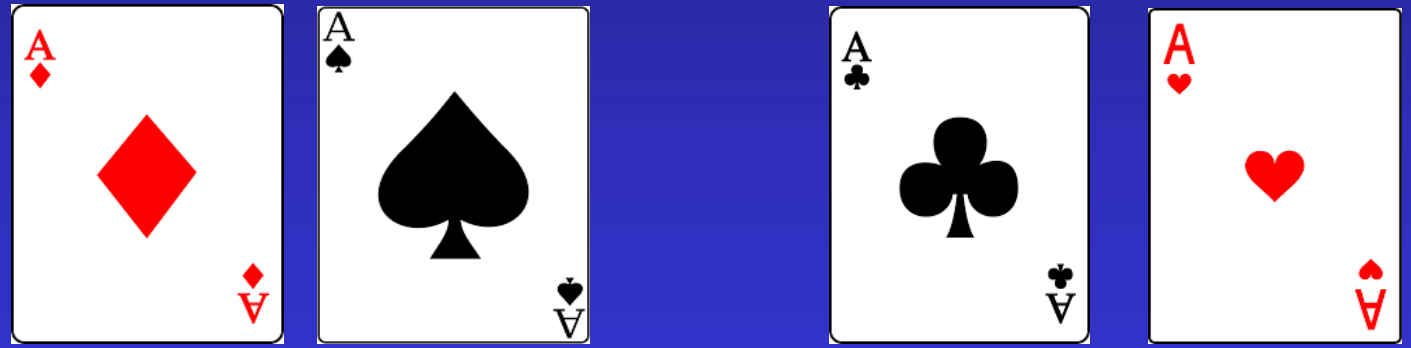
Playing Card Test

Task A



Average 24 seconds

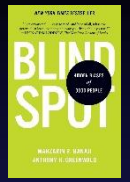
Task B



Average 33 seconds

Implicit Association Test (IAT)

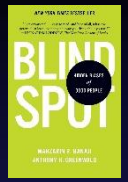
- ***Most validated instrument available***
- **Relies on the fact that your brain has stored past experiences that cannot be ignored with the timed IAT storing tasks**



Implicit Association Test (IAT)

Strong race and gender preferences are often revealed by those who take the race/gender tests

Significant white and male preferences…even by non-whites and females!!!



Age IAT

- *94% of Americans prefer "young" to "old"*
- *Ageism is one of the strongest implicit biases that exists*

Even old people don't like old people!

Impact of Implicit Bias on Healthcare?

In the United States, people of color face disparities in

- Access to healthcare
- Quality of healthcare received
- Treatment outcomes
- Disease incidence and prevalence
- Life expectancy
- Mortality

FitzGerald and Hurst *BMC Medical Ethics* (2017) 18:19
DOI 10.1186/s12910-017-0179-8

BMC Medical Ethics

RESEARCH ARTICLE Open Access

CrossMark

Implicit bias in healthcare professionals: a systematic review

Chloë FitzGerald* and Samia Hurst

Do healthcare professionals display implicit bias toward certain types of patients?

Healthcare professionals exhibit the same level of implicit bias as the general population

BMC Medical Ethics. 2017

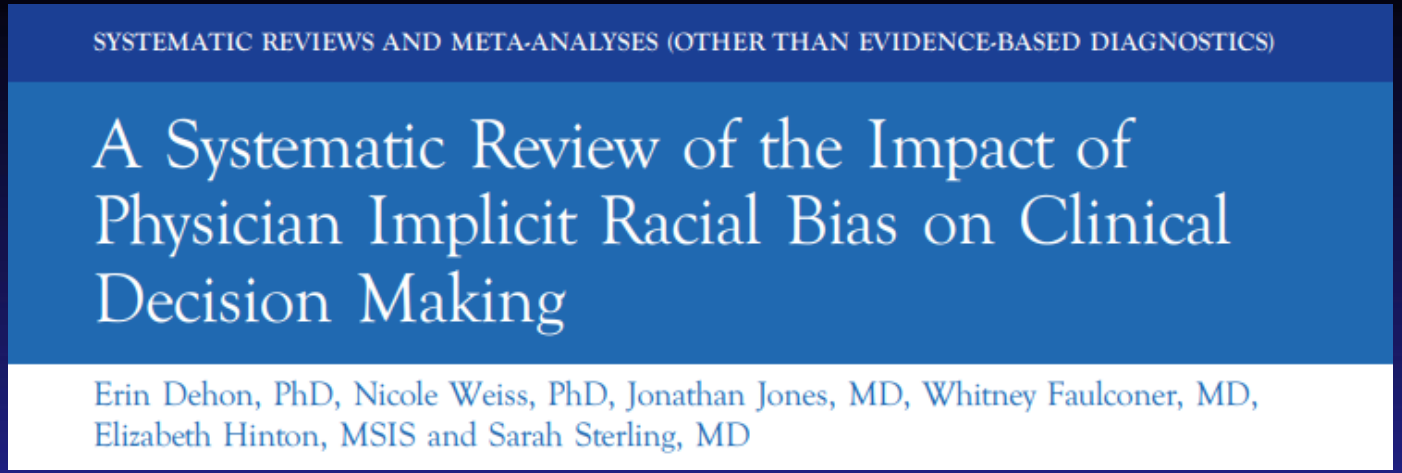
SYSTEMATIC REVIEW

Implicit Racial/Ethnic Bias Among Health Care Professionals and Its Influence on Health Care Outcomes: A Systematic Review

William J. Hall, PhD, Mimi V. Chapman, PhD, Kent M. Lee, MS, Yesenia M. Merino, MPH, Tainayah W. Thomas, MPH, B. Keith Payne, PhD, Eugenia Eng, DrPH, Steven H. Day, MCP, and Tamera Coyne-Beasley, MD

Healthcare providers appear to have implicit bias in terms of positive attitudes toward white and negative attitudes toward people of color

Am J Public Health. 2015



Nonwhite patients are:

- More likely to wait longer
- Less likely to receive analgesic medication
- Less likely to be admitted
- Less likely to receive laboratory evaluation for chest pain/acute coronary syndrome

Acad Emerg Med. 2017

NURSING IN 3D: DIVERSITY, DISPARITIES, AND SOCIAL DETERMINANTS

Addressing Health and Health-Care Disparities: The Role of a Diverse Workforce and the Social Determinants of Health

[a]U.S. Department of Health and Human Services, Office of Minority Health, 2014

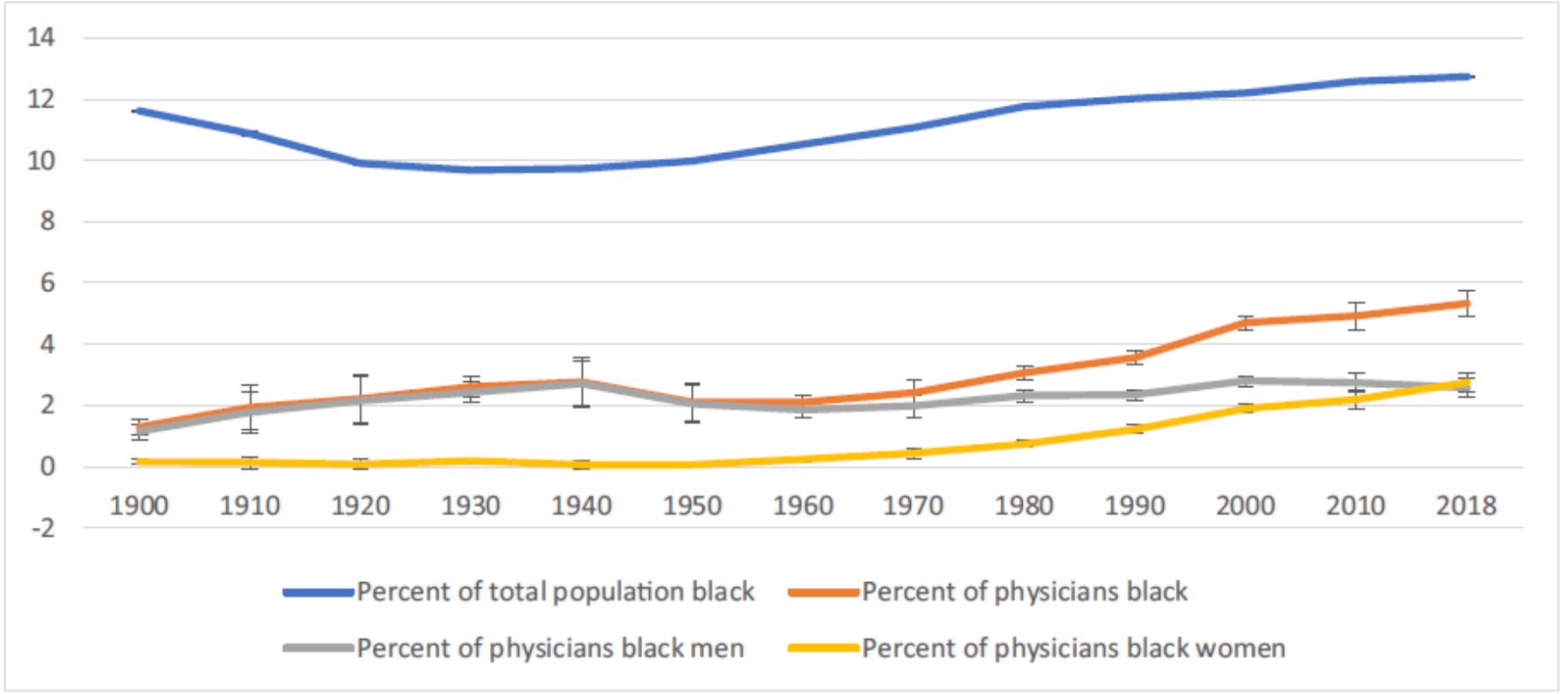
Lack of diversity in medicine is a significant driver of healthcare disparities

Chazeman S. Jackson, PhD, MAa and J. Nadine Gracia, MD, MSCE

Public Health Report 2014

Impact of Implicit Bias on Healthcare Diversification?

Historical Trends in the Representativeness and Incomes of Black Physicians, 1900–2018



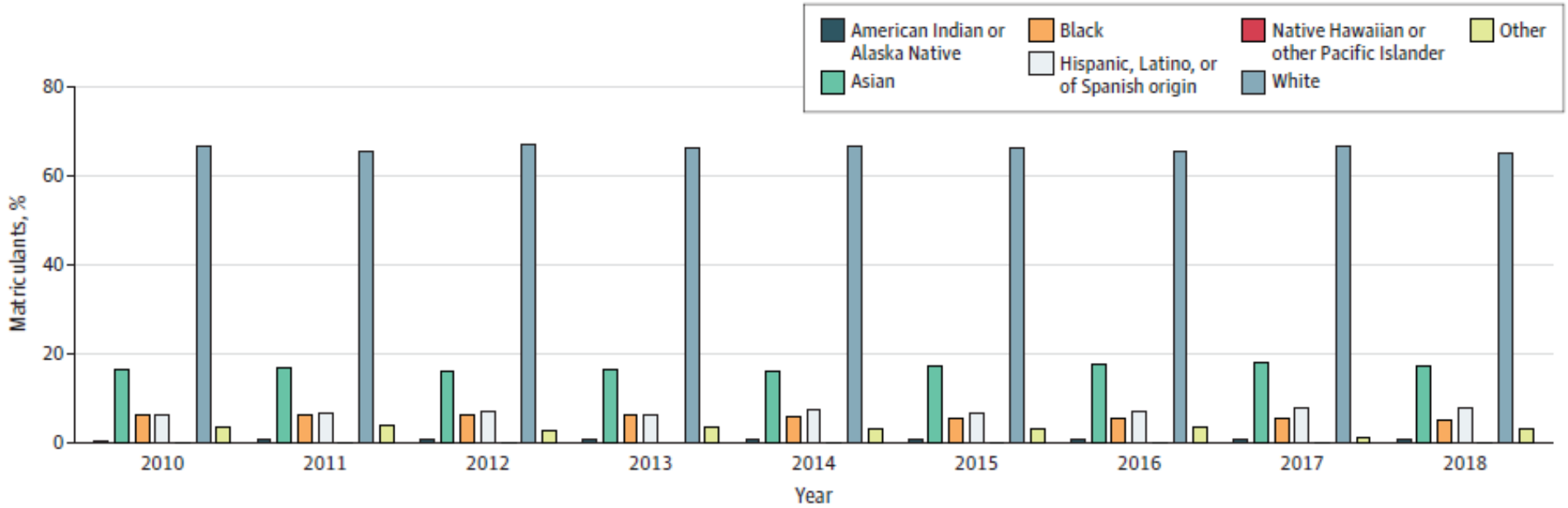
JAMA Network | Open

Original Investigation | Medical Education

Trends in Race/Ethnicity Among Applicants and Matriculants to US Surgical Specialties, 2010-2018

Edwin Nieblas-Bedolla, MPH; John R. Williams, MD; Briana Christophers, AB; Christopher Y. Kweon, MD; Estell J. Williams, MD; Nathalia Jimenez, MD, MPH 2020

Figure 3. Matriculants to US Surgical Specialties Combined by Race/Ethnicity, 2010-2018

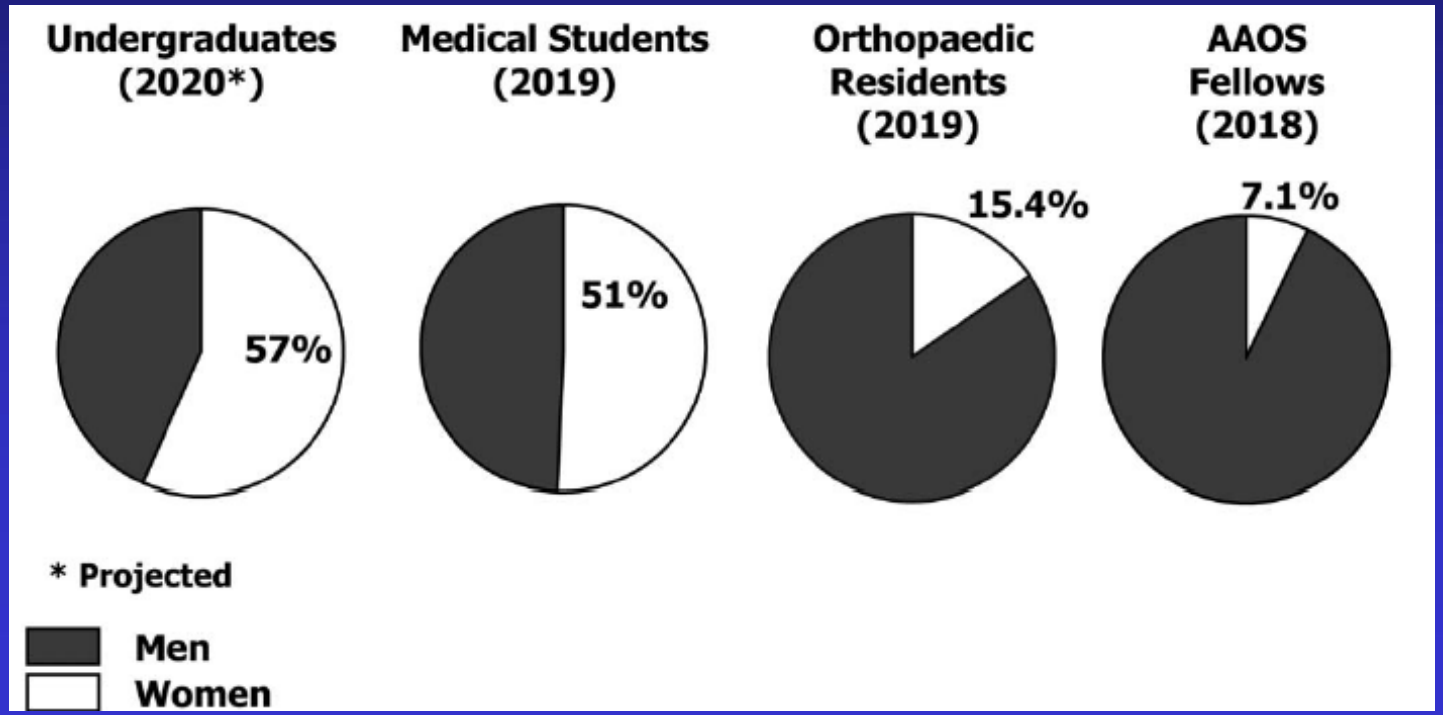


JB&JS
OPEN ACCESS
AOA Critical Issues in Education
AMERICAN ORTHOPAEDIC ASSOCIATION

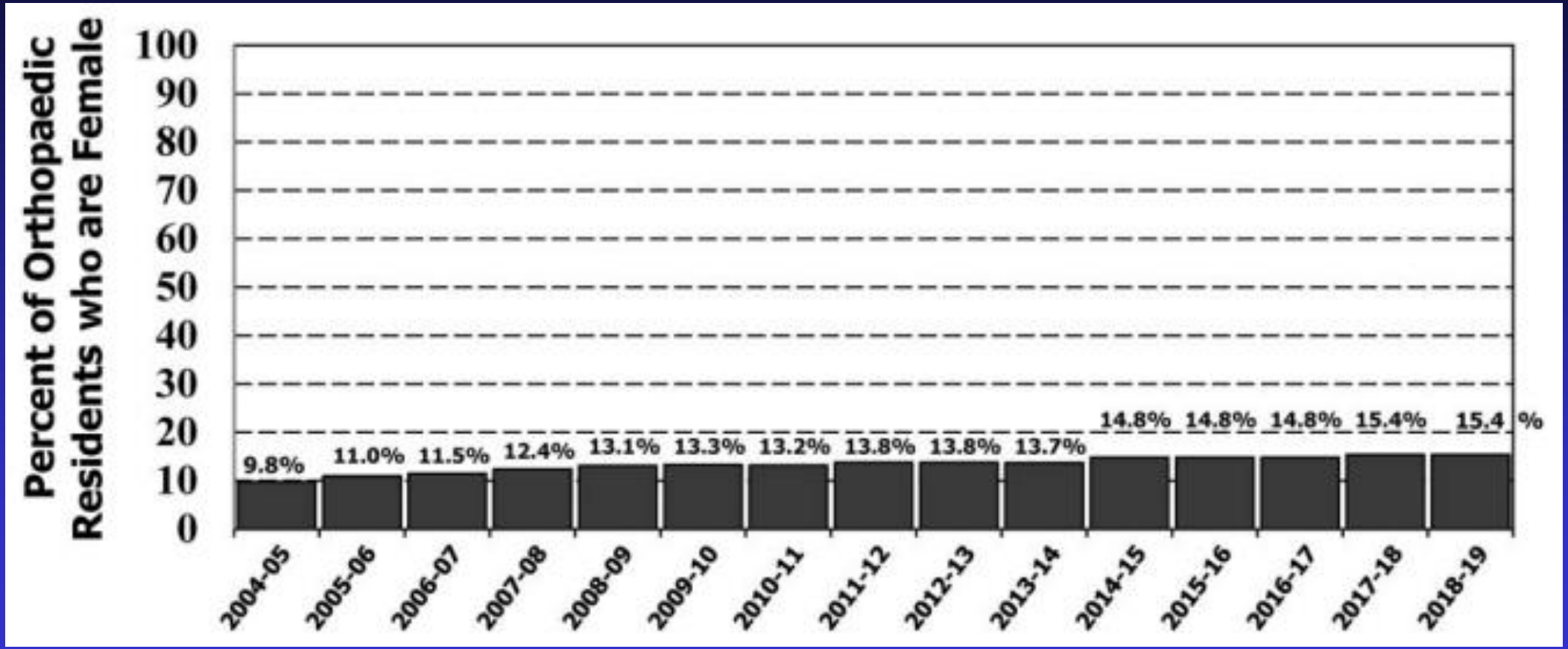
A 15-Year Report on the Uneven Distribution of Women in Orthopaedic Surgery Residency Training Programs in the United States

Ann E. Van Heest, MD, Julie Agel, MA, and Julie Balch Samora, MD, PhD

2021



Women in Orthopaedic Surgery Residency



Van Heest, et al. 2021

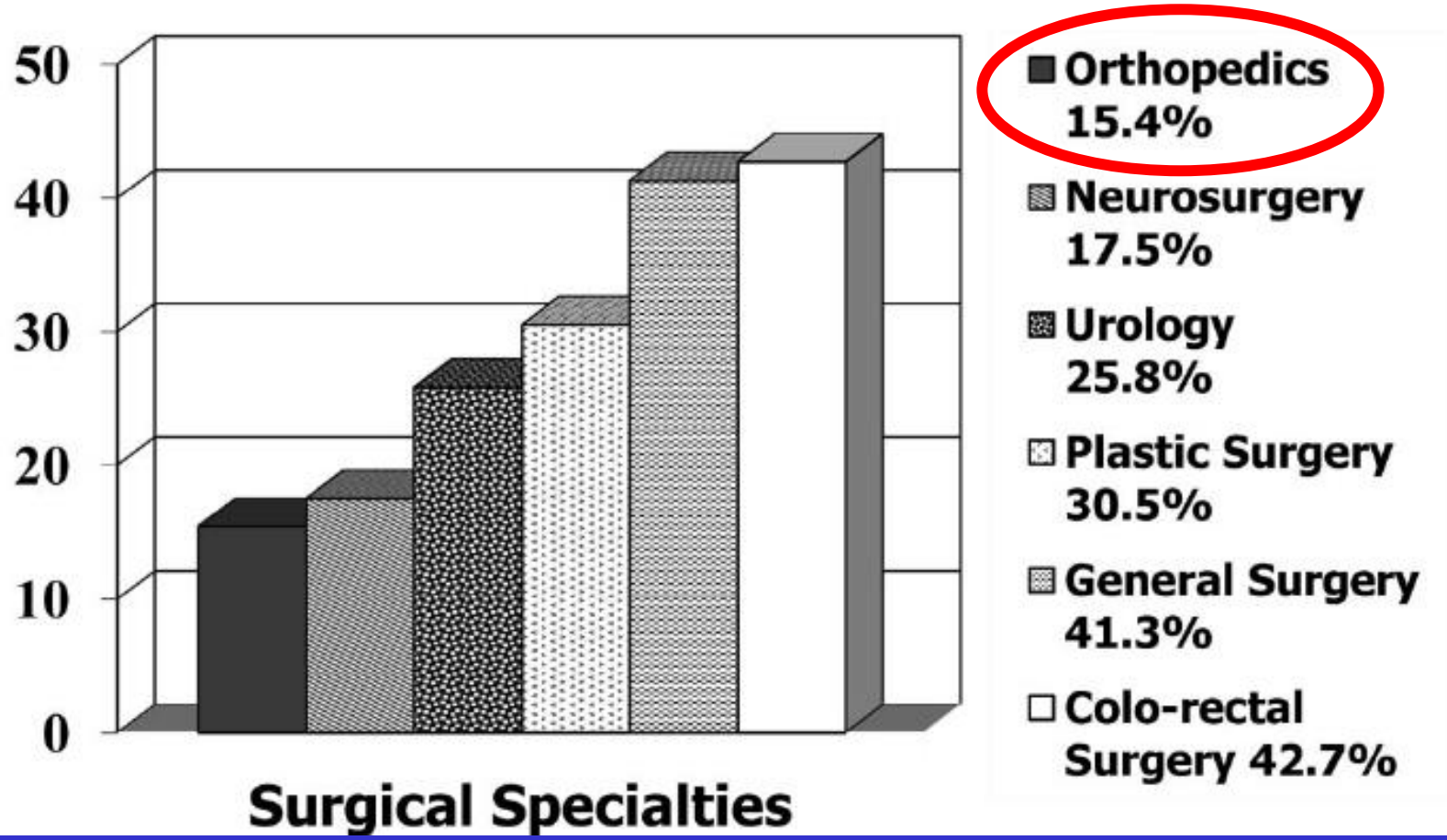
TABLE I 2019 Top 10 Specialties by Size

Specialty	No. of Residency Positions	Percent of All Residency Positions	No. of Female Residents	Percent of Female Residents
Internal medicine	27,179	20	11,474	42
Family medicine	12,441	9	6,670	54
General surgery	9,303	7	3,839	41
Pediatrics	8,950	7	6,449	72
Emergency medicine	7,681	6	2,722	35
Anesthesiology	6,141	5	2,065	34
Psychiatry	6,014	4	2,999	50
Obstetrics/gynecology	5,453	4	4,550	83
Radiology	4,362	3	1,171	27
Orthopaedic surgery	4,021	3	619	15

Source: Brotherton and Etzel, Graduate Medical Education, 2018-2019. JAMA. 2019;322:996-1016.[7]

Van Heest, et al. 2021

Percentage of Females



Van Heest, et al. 2021

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Topics in Training

The Distribution of Underrepresented Minorities in U.S. Orthopaedic Surgery Residency Programs

Muyibat A. Adelani, MD, Melvyn A. Harrington, MD, and Corey O. Montgomery, MD

ACGME accredited programs for a 15-year period (2002-2003 thru 2016-2017)

- % URMs in medical school averaged ***16.3%***
- % URMs among Orthopaedic Surgery applicants ***14.4%***
- % URMs in Orthopaedic Residencies ***6.3%***
  [***9.3%*** (2002) to ***5.9%*** (2016)]

URMs in Orthopaedic Surgery Residency

(2002-2003 thru 2016-2017)

Residency Programs Without a Single URM

40 *(2002)* ***76*** *(2011)* ***60*** *(2016)*

18 Programs had no URMs throughout the entire study period

Adelani, et al. 2019

Evaluation of Sex, Ethnic, and Racial Diversity Across US ACGME–Accredited Orthopedic Subspecialty Fellowship Programs

Selina Poon, MD; Daniel Kiridly, MD; Levi Brown; Stephen Wendolowski, BS; Rachel Gecelter; Alexa Vetere, PA; Myriam Kline, PhD; Lewis Lane, MD

- *2003-2017*
- *Female Fellows % increased in proportion to increase female residents (13%)*
- *Racial and ethnic minority representatives did not increase*

Poon et. al, Orthopaedics. 2018

Table

Fellow Demographics

Characteristic	No. (%)
Race/ethnicity (n=3722)[a]	
White	2551 (68.5)
Asian	648 (17.4)
Hispanic	175 (4.7)
Black	161 (4.3)
Native Hawaiian/ Pacific Islander	8 (0.21)
American Indian/ Alaskan Native	3 (0.08)
Other/unknown	351 (9.4)
Sex	
Female	479 (12.9)
Male	3243 (87.1)

Why?

Implicit Racial Bias in Medical School Admissions

Quinn Capers IV, MD, Daniel Clinchot, MD, Leon McDougle, MD,
and Anthony G. Greenwald, PhD

Academic Medicine, Vol. 92, No. 3 / March 2017

Quinn Capers, IV, M.D.

- *All 140 members of the Ohio State University College of Medicine Admissions Committee took the Implicit Association Test (IAT)*
- *The Committee demonstrated*
  - *strong negative associations with blacks or homosexuals*
  - *associated men with career professionals*
  - *associated women with homemakers*

Critique more harshly the credentials of "qualified" women, blacks, and LGBTQ applicants

Bias in Radiology Resident Selection: Do We Discriminate Against the Obese and Unattractive?

Charles M. Maxfield, MD, Matthew P. Thorpe, MD, PhD, Terry S. Desser, MD, Darel E. Heitkamp, MD, Nathan C. Hull, MD, Karen S. Johnson, MD, Nicholas A. Koontz, MD, Gary W. Mlady, MD, Timothy J. Welch, MD, and Lars J. Grimm, MD

Academic Medicine, Vol. 94, No. 11 / November 2019

- *Simulated resident selection process*
- *74 faculty, 5 geographically diverse academic programs*
- *Reviewed 5,447 mock applications*
- *Pre-specified distribution of facial attraction, obesity combined with randomized academics supportive variables*
- *"Applications" scored to determine selection for interview*

Strongest Predictor of Selection for Interview

- *USMLE Step 1 Score*
- *Pre-clinical class rank*
- *Clinical clerkship grades*
- *AOA membership*
- *Abstract poster presentations*
- *Medical school*
- *Place of birth*
- *Pre-medical awards*
- *Grade in radiology elective*
- *Research publications*
- *Volunteer activities*
- *College major*
- *Photograph/appearance*
- *Date of birth*

How do we mitigate our implicit bias in the selection process?

Classical Music Industry

- As late as 1970 orchestras were almost entirely male
- In the 70's and 80's music schools and orchestras instituted ***blind auditions to eliminate gender bias***

Orchestrating Impartiality: The Impact of "Blind" Auditions on Female Musicians

By Claudia Goldin and Cecilia Rouse*

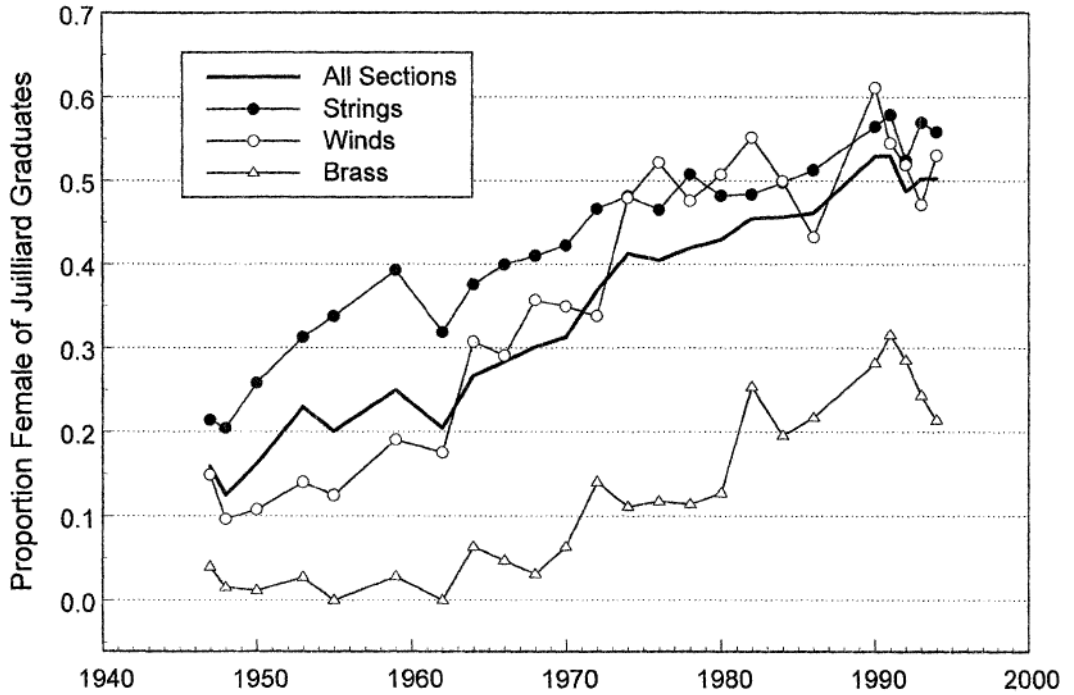
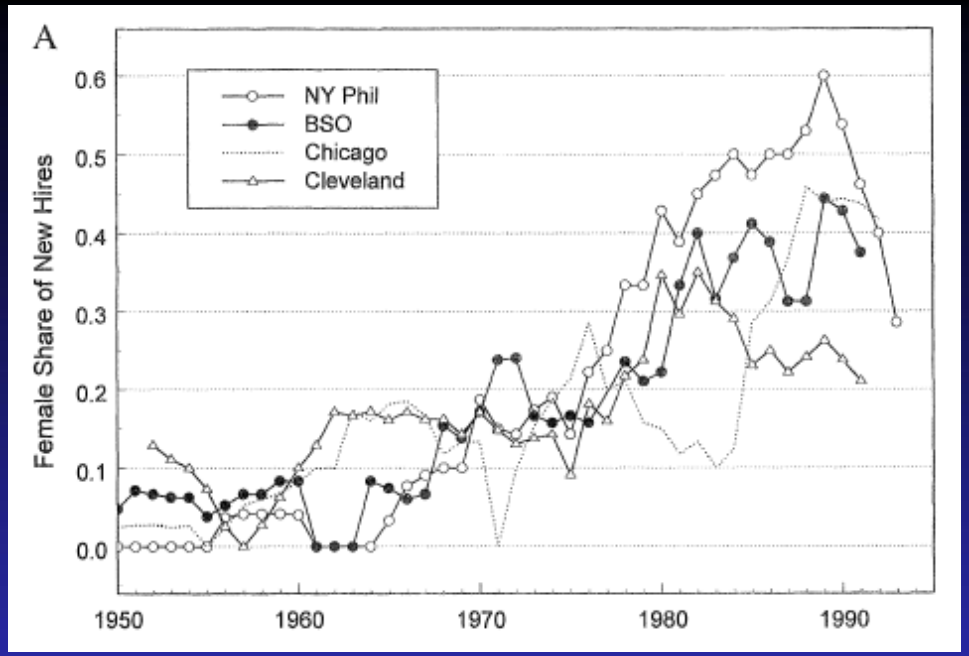


Figure 4. Proportion Female of Juilliard Graduates, Total and by Section: 1947 to 1995

Source: Juilliard Music School files.

The American Economic Review. 2000



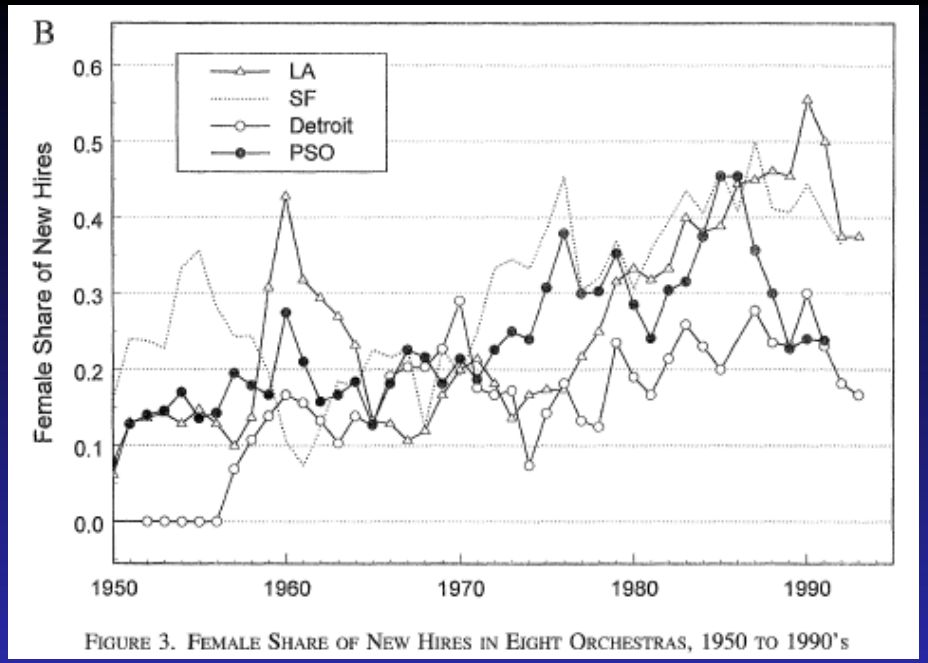


FIGURE 3. FEMALE SHARE OF NEW HIRES IN EIGHT ORCHESTRAS, 1950 TO 1990's

Today women constitute almost *30%* of all major orchestras

Implicit Racial Bias in Medical School Admissions

Quinn Capers IV, MD, Daniel Clinchot, MD, Leon McDougle, MD,
and Anthony G. Greenwald, PhD

2017

- Step 1 – Eliminate physical features/photos from applications
- Step 2 – Remove all academic metrics (MCAT scores, GPA) from applications
- Step 3 – Admission Committee had to complete IATs in Race, Sexual Orientation, and Gender
- Step 4 – Admission Committee participate in Implicit Bias workshop
- Step 5 – Created implicit bias reduction "cheat sheet"

Applicants Screened and Deemed Qualified

Quinn Capers, IV, M.D.

UT Southwestern Medical Center

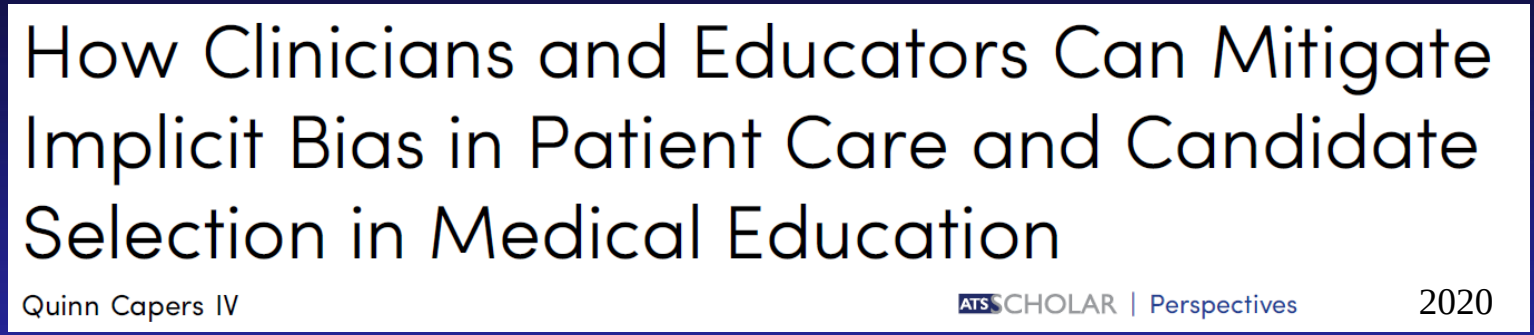
UTMB

Lindsey Explicit Bias in Trainee Selection

- I don’t support lowering trainee selection standards
- I don’t support URM quotas
- I do demand impartiality!

Disparities in healthcare will persist until we understand and address the behavioral issues that propagate the problem.

Underrepresented Minority (URM) Challenges



"In medicine URM underrepresentation is not solely due to unconscious bias in the Graduate Medical Education (GME) selection process…

compared with their proportion of society, URM's are underrepresented at every step of the kindergarten to medical school pipeline"

“The road to becoming a physician has many gates tended by gatekeepers”

2020

Capers IV. 2020

Patients

Same symptoms or medical information

Or

Residency Applicants

Same academic qualifications

Conclusions

- Implicit bias impacts all of our professional decisions
- We should all become more aware of our specific biases
- We should try to base our decisions on “conscious” evidence as opposed to “unconscious” associations

Thank You!

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