Critical Thinking: Eliminating Race-based Practices in Clinical Medicine

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No Disclosures

For Kara Caruthers, Howard Straker or Susan LeLacheur

- *We will be utilizing tenets of Critical Race Theory (CRT)*
  - *CRT is a way of understanding how racism has shaped public policy, including medicine*

Objectives

- Examine how race is used in clinical algorithms, guidelines, and decision-making tools.
- Discuss how understanding race in clinical tools is important for health equity.
- Apply a 3-question test when teaching and applying clinical algorithms.

Case

- 64 yo man, with hx of HTN and hyperlipidemia presents for routine visit w/ labs
- No recent changes in overall health, consistent with taking medications (ACEI/diuretic combo and a statin)
- GFR Calculation
  - Non AA: 49 mL/min/1.73 m^2
  - AA: 60 mL/min/1.73 m^2
- Next steps?

How will you manage this patient?

- Adjustment of medication
- Referral to nephrology
- Continue regimen and monitor

Which eGFR did you use?

- African American
- Non-African American

How will your decision affect his care?

Definitions

Race - a **social classification** of humans based upon physical characteristics

- Used as proxy for culture, socioeconomic status, environment, racism
- There is more gene variability within a race than between races
- Seldom well operationalized in scientific/medical research and clinical care

Implicit bias – subconscious differentiation based on physical characteristics

- Can lead to systematic bias and stereotyping

Algorithm – a tool used to guide clinical decisions

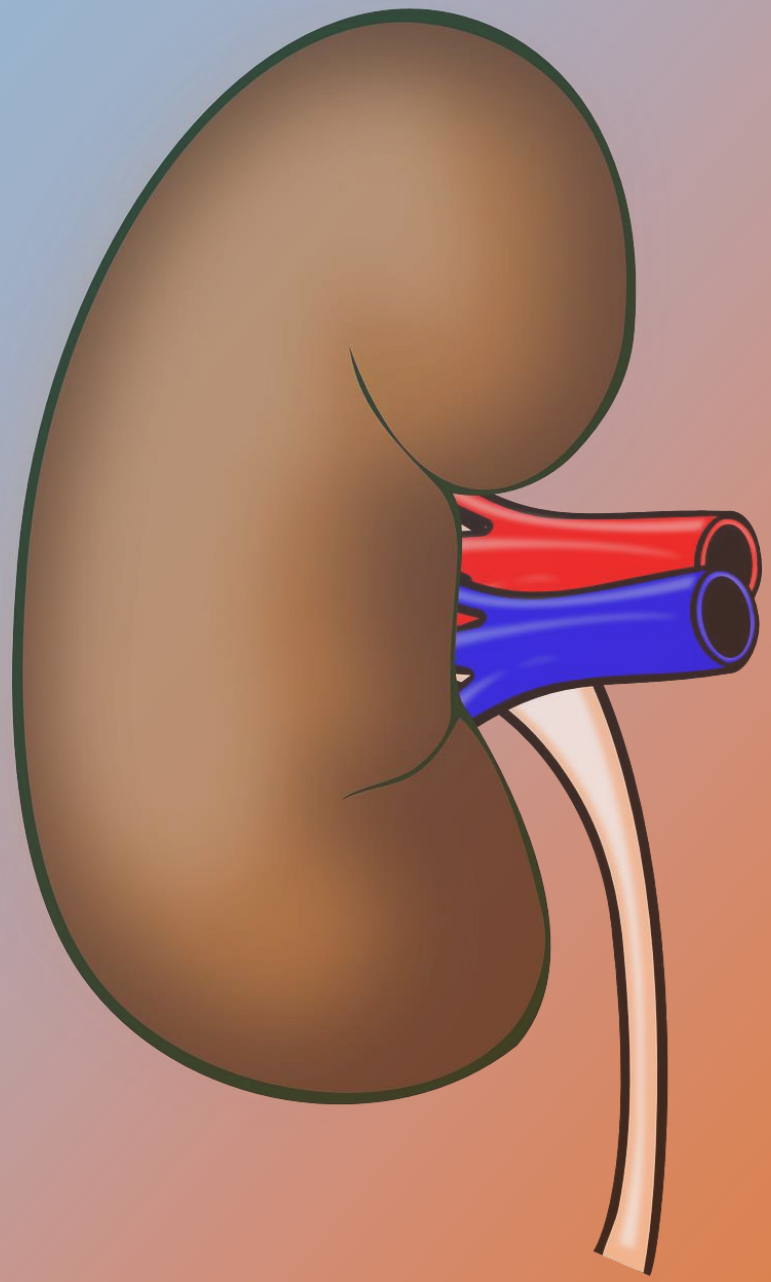
- Guidelines are types of algorithms

Race-based medicine – clinical decisions guided by patient race

- Implicitly or explicitly

Racism *is a system of structuring opportunity and assigning value based on the social interpretation of how one looks (which is what we call "race"), that unfairly disadvantages some individuals and communities, unfairly advantages other individuals and communities, and saps the strength of the whole society through the waste of human resources.*

Jones CP, Truman BI, Elam-Evans LD, et al. . Using "socially assigned race" to probe white advantages in health status. *Ethn Dis*. 2008;18(4):496-504.



Use of Race in Kidney Function Equations

1976

Cockcroft-Gault

- No mention of race

1999

Modification of Diet in Renal Disease

- Race used as a "substantial & statistically significant predictor"

2009

CKD Epidemiology Collaborative

- "AA race as a predictor of measured GFR"

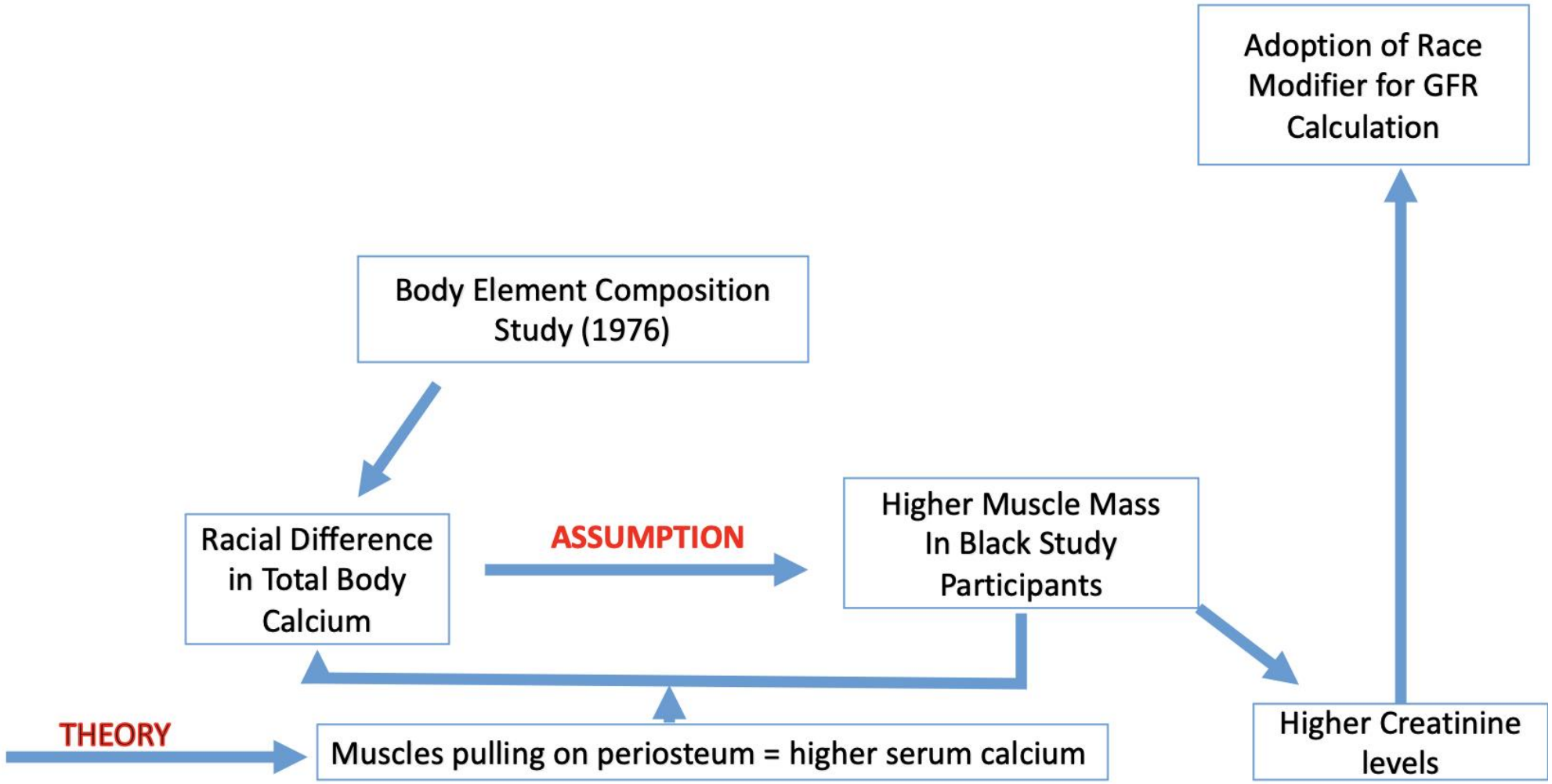
2021

Taskforce, National Kidney Foundation & American Society of Nephrology Fall 2021 "urges an immediate shift to the eGFR 2021 CKD EPI creatinine equation that estimates kidney function without a race variable"

Evidence-Based Medicine?

- Body element composition study 1976
- Reference standards for determining skeletal mass were altered based on race
  - Difference in total body calcium between Black and White research participants
- Led to belief Black men and women have higher muscle mass which contributes to higher serum creatinine levels
  - Theory that increased muscle mass and the force exerted on bone influences calcium levels

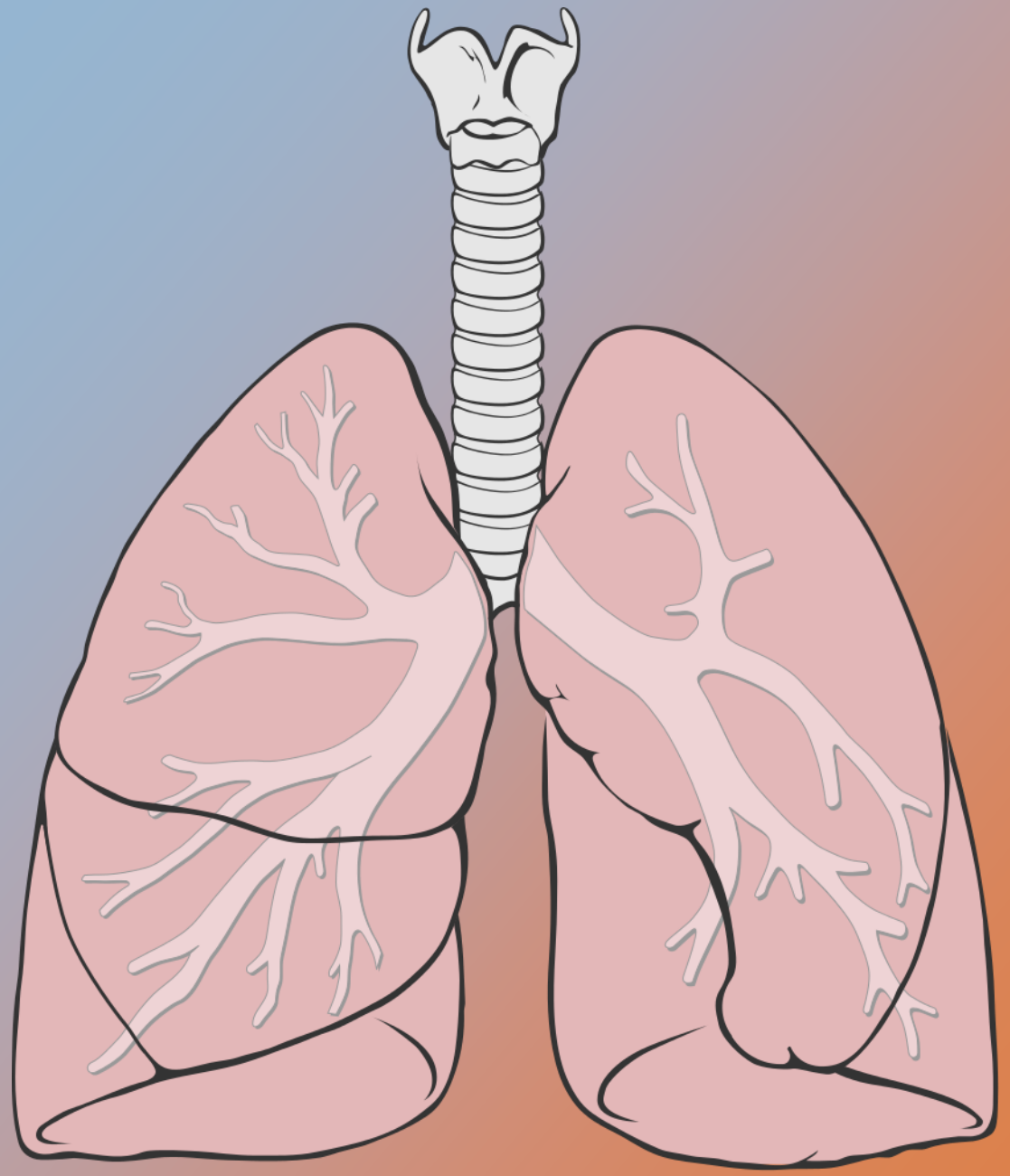
Evidence-Based Medicine?



Impact of Race-Based Kidney Function Calculations

- Black race coefficient adds a median of 11 ml/min/1.73m^2 to a calculated eGFR that would be <60 mL/min
- Results in the possibility of a missed diagnosis of moderate CKD for 3.3 million Black Americans
  - Threshold for Stage 3 CKD
  - Level at which complications of HTN, anemia, and bone disease develops
- Black Americans less likely to receive management and treatment for Stage 3 CKD
  - Presenting symptoms are often vague and clinicians may overlook

Evaluating the Impact and Rationale of Race-Specific Estimations of Kidney Function: Estimations from U.S. NHANES, 2015-2018
JW Tsai, et al https://doi.org/10.106/j.eclinm.2021.101197



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Spirometry Correction - History

1787

Thomas Jefferson (enslaver)

- “Differences” (deficiencies) of enslaved people including of the “pulmonary apparatus.”

1846

John Hutchinson, MD

- Invented spirometry
- Promoted occupation to account for differences

1860

Samuel Cartwright, MD (enslaver)

- 20% difference attributed to biology.

Spirometry Correction - History

1869

Apthorp Gould, MD

- Union Army soldiers.
- “full Blacks” lower lung function

Wilson, MD & Edwards, MD

- “Colored” children with significantly lower lung volumes and excluded from the normal values calculation

1922

Spirometry Correction - History

1925

Jay Arthur Myers, MD

- Published handbook
- Established calculations & dismissed occupation or environmental influences.

Spirometers use a race-based correction

- ***10–15% smaller lung capacity for Black patients***
- ***4–6% smaller lung capacity for Asian patients***

Spirometry Correction - Current Discussions

2000

Braun, Lujan, Kumar, Roberts and many others 2000-current

Question the validity of the “race adjustment” in PFTs.

Others argue its necessity

Meredith A. Anderson, Atul Malhotra, Amy L. Non 2/ 2021

During the COVID-19 pandemic, these race adjustments could potentially cause clinicians to miss important diagnoses, such as restrictive complications.

2021

Race-based corrections are likely biasing clinical reports of COVID-19

Reinforce assumptions about innate biological differences

Spirometry Correction – Current Discussions

2021

Alexander Moffett, MD

”The removal of race correction led to an increase in the percentage of patients with any pulmonary defect from 59.5 percent to 81.7 percent,

2022

Elmaleh-Sachs, A et al.

3, 344 participants of various races, no difference in chronic lower respiratory disease events with or without race calculation

Kaiser Family Foundation December

Removing race correction leads to finding more prevalent and severe lung disease among Black patients.

2021

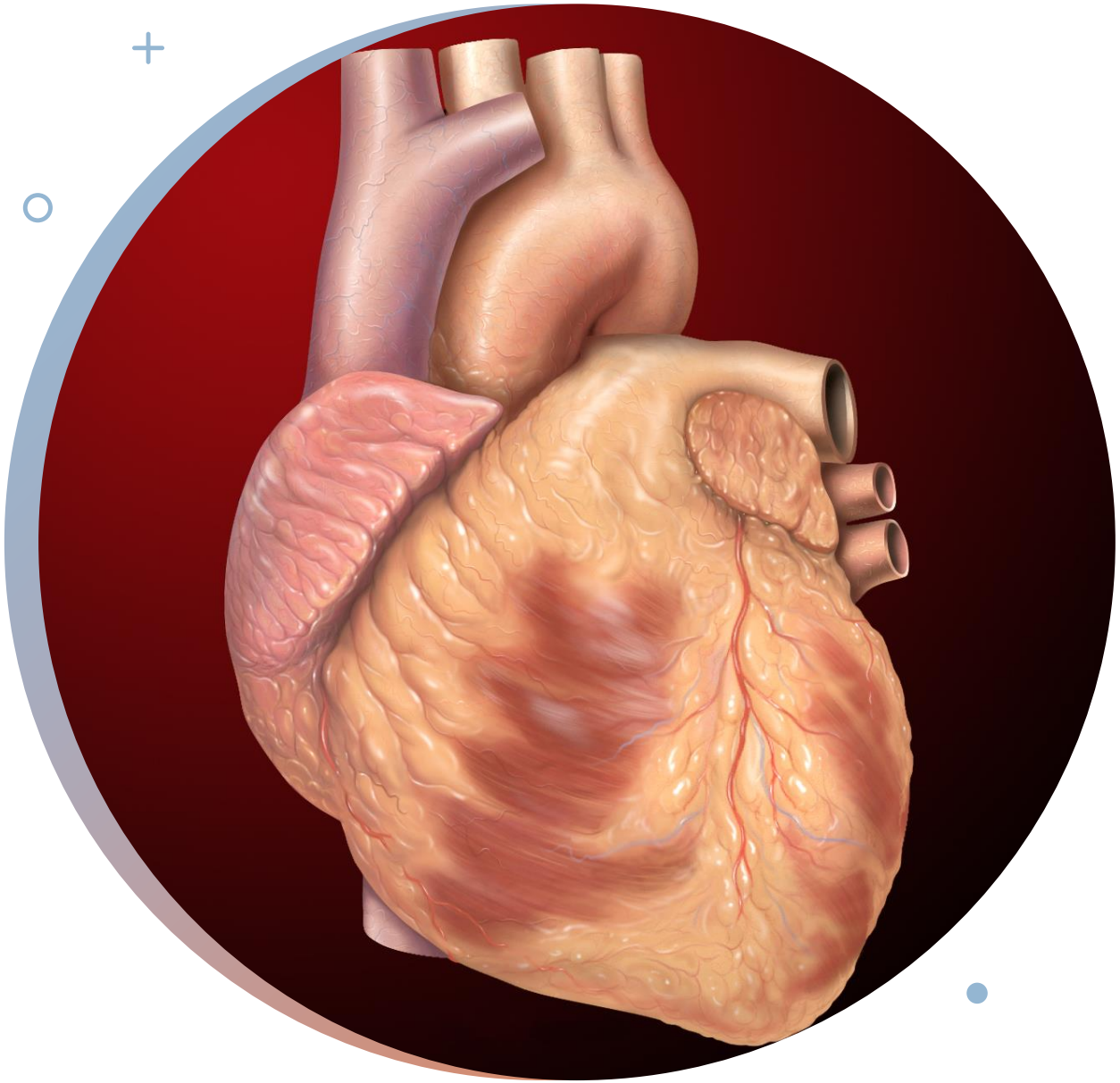
Spirometry Correction – Current Guidelines

American Thoracic Society Spirometry Guidelines 2019 Update

- Guides providers to input race/ethnicity into spirometry calculators

The race correction is hardwired into EMRs, spirometers and procedures across multiple systems and institutions.

Medical reparations require not only its removal but systematic efforts to reeducate clinicians and track down and address the needs of affected patients.



https://upload.wikimedia.org/wikipedia/commons/a/a0/Heart_anterior_exterior_view.jpg

"Get with the Guidelines - Heart Failure" (AHA)

- Decision making tool for in hospital therapy
  - predicts in-hospital mortality for acute heart failure patients
- Race – Black vs non-Black
  - 3 points added for non-Black

Peterson PN, et al. *Circulation Cardiovascular quality and outcomes*. 2010.

(ASCVD)Atherosclerotic Cardiovascular Disease Risk Calculation

- Estimates risk of ASCVD event over next 10 years
- Race is part of the equation to determine risk
  - Black vs White
  - Race coefficient is multiplied into the equation
- Basis:
  - Studies showing higher number of ASCVD events for Black patients than others with same burden of risk

Goff J, et al. *Journal of the American College of Cardiology*. 2014

Risk of Cardiac Surgery 2018 – Society of Thoracic Surgeons (STS)

- Calculates risk of mortality and death for common cardiac surgery
- Race/ethnicity are variables in calculations with White set as default
- Increased mortality risk scores for Blacks
  - Infers increased complications with surgery
- Increased complication risk scores for other patients of Color.

Shahian DM, et al. *The Annals of Thoracic Surgery*. 2018

https://commons.wikimedia.org/wiki/File:Gout_Signs_and_Symptoms.jpg

Allopurinol Prescribing

- American College of Rheumatology gout guidelines recommends:
  - Genetic screening (HLA B*5801) for African American and Southeast Asians prior to initiating allopurinol
  - Against genetic screening for others
- Purpose - to avoid Allopurinol Hypersensitivity Syndrome (AHS) – severe cutaneous adverse reaction (SCAR)
  - Seen as cost effective in Asian & Black populations

FitzGerald JD, et al. *Arthritis Care & Research*. 2020

Race-based Prescribing – Allopurinol

- Highest HLA B*5801 frequency in Han Chinese and Korea (not part of Southeast Asia)
- Wide range of allele frequency across African populations
- What about mixed ancestry?

"File:Southeast Asia (orthographic projection).svg" by Keepscases is licensed under CC BY-SA 3.0

Case

- How would you treat this patient?
- Would that be determined by race?
- What race is this patient?

Cameroon, Congo, & Southern Bantu Peoples	40%
Benin/Togo	19%
England, Wales & Northwestern Europe	16%
Ivory Coast/Ghana	7%
Nigeria	5%
Mali	4%
Germanic Europe	3%
Ireland & Scotland	2%
Norway	2%
Sweden	1%
Native American—North, Central, South	1%


ASTO
ROBINSON

Questions to Critically Analyze Race-based Algorithms

1. Is the need for race correction based on robust evidence & statistical analysis? (consider internal & external validity, confounders, bias)

2. Is there a plausible mechanism of racial difference to justify race correction?

3. *Will implementing this race correction relieve or exacerbate the health inequities?

Vyas DA, Eisenstein LG, Jones DS, NEJM 2020.

Call to Action

Structural Racism in Medicine (CRT)

1. **Recognize racism**
2. **Look for opportunities**
3. **Work to deconstruct and reconstruct the system**
    a) Identify personal beliefs and challenge how/why we practice
    b) Challenge processes at practice site
    c) Engage colleagues to shift clinical processes

What Has Been Done

- MedCalc acknowledgement
- Change in CHF referral and treatment at Brigham & Women's Hospital (Mass General)
- Removal of race from the American Academy of Pediatrics clinical practice guidelines for UTIs in infants and young children with fever
  - Led by pediatric residents
- American Society of Nephrology & National Kidney Foundation call for eGFR without race
  - Some systems have removed race from eGFR

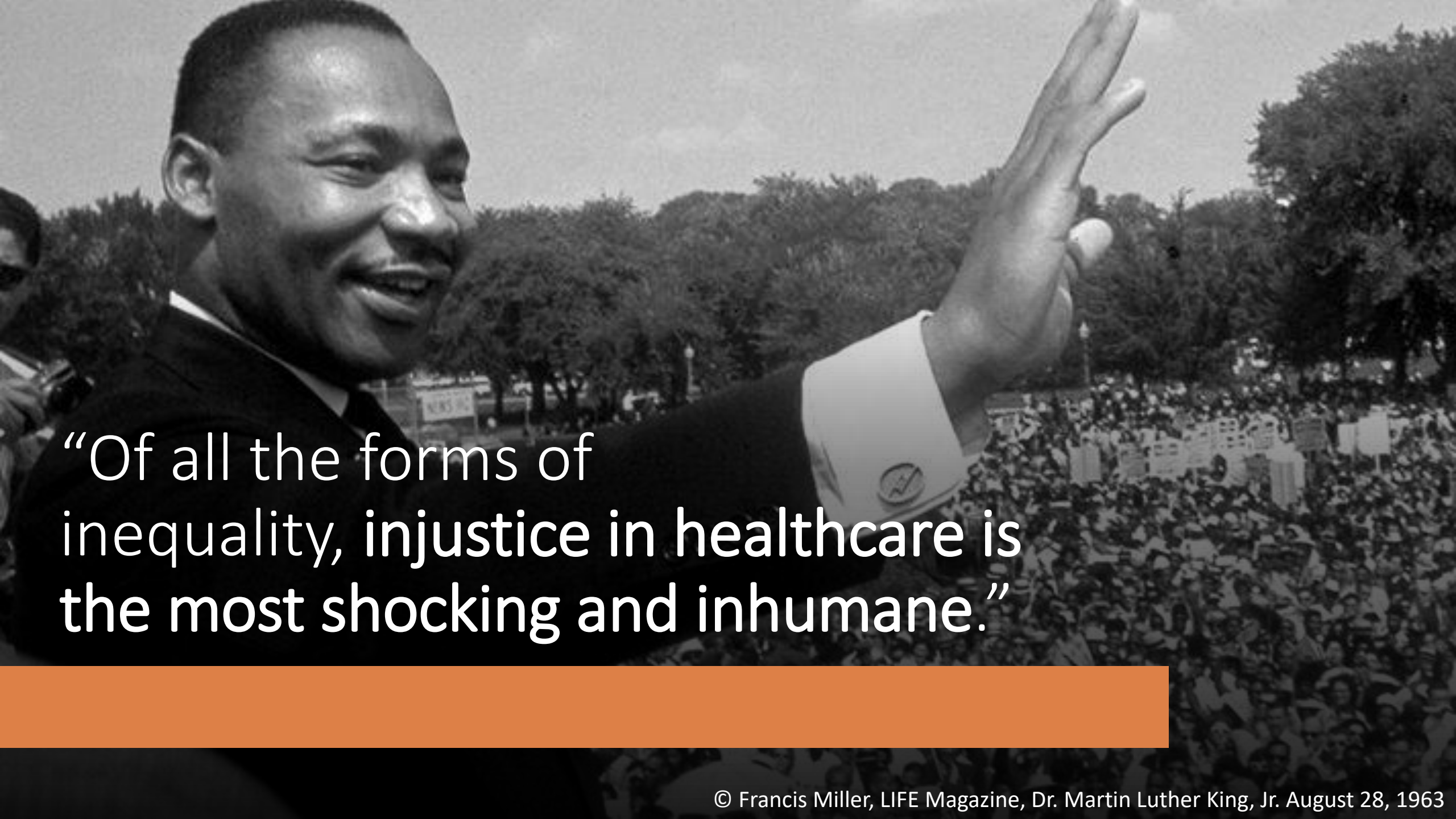
Late Breaking News

- American Academy of Pediatrics, Policy Statement May 2, 2022

- “The AAP will critically examine all policies and practice guidelines for the presence of race-based approaches in their development and deconstruct, desist and retire, if necessary, all policies and practice guidelines that include race assignment as a part of clinical decision-making.”

What Can We Do?

Reframe	Reframe patient presentations
Discuss	Discuss how assumption of race can be deadly with students you precept
Challenge	Challenge pain protocols
Incorporate	Incorporate the 3 questions into decision-making and in M&M discussions
Advocate	Advocate for changes in EMRs and diagnostic orders



© Francis Miller, LIFE Magazine, Dr. Martin Luther King, Jr. August 28, 1963

Questions?

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