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# Critical Thinking: Eliminating Race-based Practices in Clinical Medicine

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# No Disclosures

For Kara Caruthers, Howard Straker or Susan LeLacheur

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- + *We will be utilizing tenets of Critical Race Theory (CRT)*
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    - *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.
- Discuss the need for clinicians to remedy previous race-based decisions

# Case

- You have been managing Mr. LG for the past few years
- When you began care, he was taking an ACEI/diuretic combo to manage his HTN
- His GFR calculation was
  - Non AA: 49 mL/min/1.73m<sup>2</sup>
  - AA: 60 mL/min/1.73 m<sup>2</sup>



# Case

- However, you were keeping up with medical discussions regarding the use of race in the GFR calculation and used the 49 mL/min/1.73m<sup>2</sup> calculation and adjusted his medications as he was reclassified as CKD

Stage 3



# Case

- You adjusted his medication and referred him to nephrology for a baseline assessment.
- However, since it was determined that he was Black/African American, the nephrology group at your institution, did not agree with your CKD staging and continued to use the GFR calculation of  $60 \text{ mL/min/1.73m}^2$





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%






# Case

- Unfortunately, his kidney function has continued to worsen and his non-race based GFR calculation is 27 mL/min/1.73m<sup>2</sup> (CKD Stage 4)
- Based on the National Kidney Foundation staging guidelines, you encourage him to discuss kidney donation with his family and friends
- You refer back to nephrology, who despite the 2021 National Kidney Foundation and American Society of Nephrology's call to end race-based GFR calculations, continue to classify Mr LG as CKD Stage 3, with a GFR calculation of 38 mL/min/1.73m<sup>2</sup>
- What are you going to do?



How will  
you  
manage  
this  
patient?

- Referred for transplant
  - Low on the list because
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    - 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

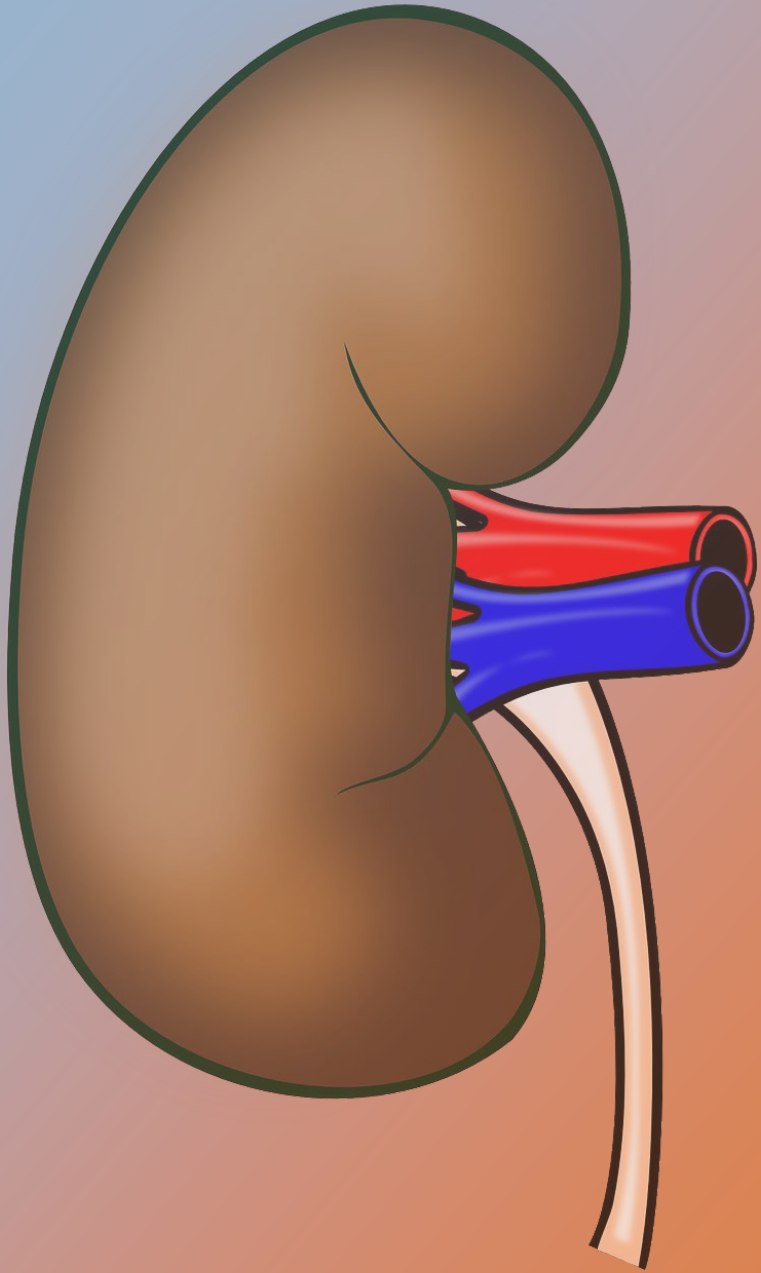
**Algorithm** – a tool used to guide clinical decisions

- Guidelines are types of algorithms

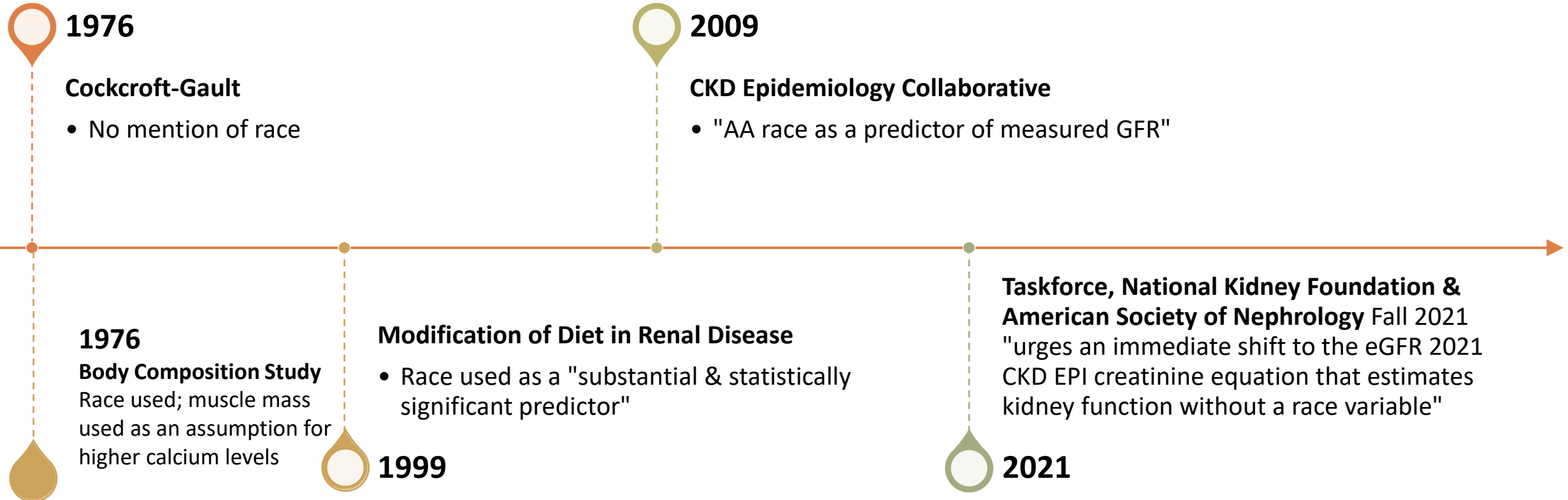
**Race-based medicine** – clinical decisions guided by patient race

- Implicitly or explicitly



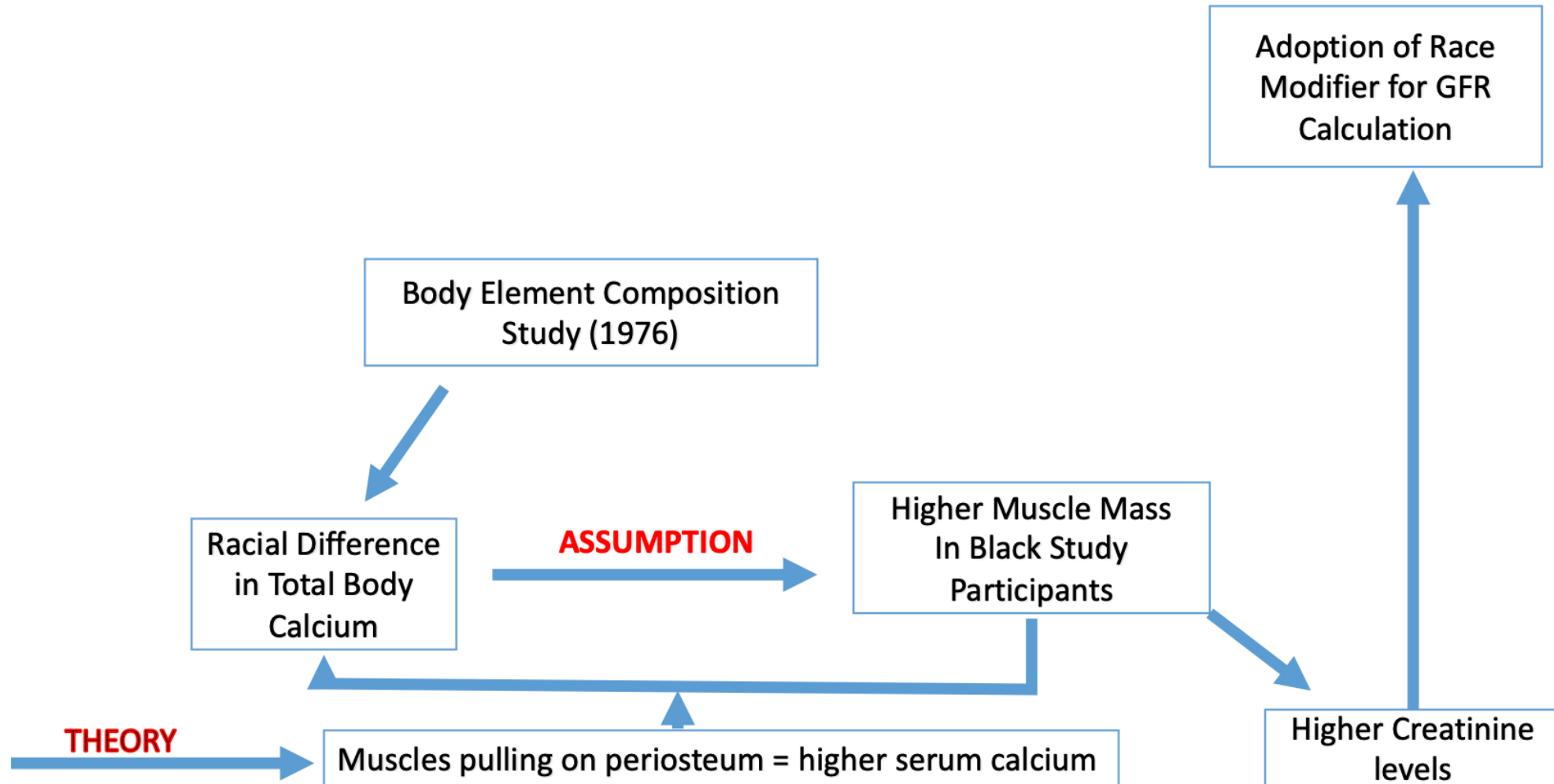


# Use of Race in Kidney Function Equations





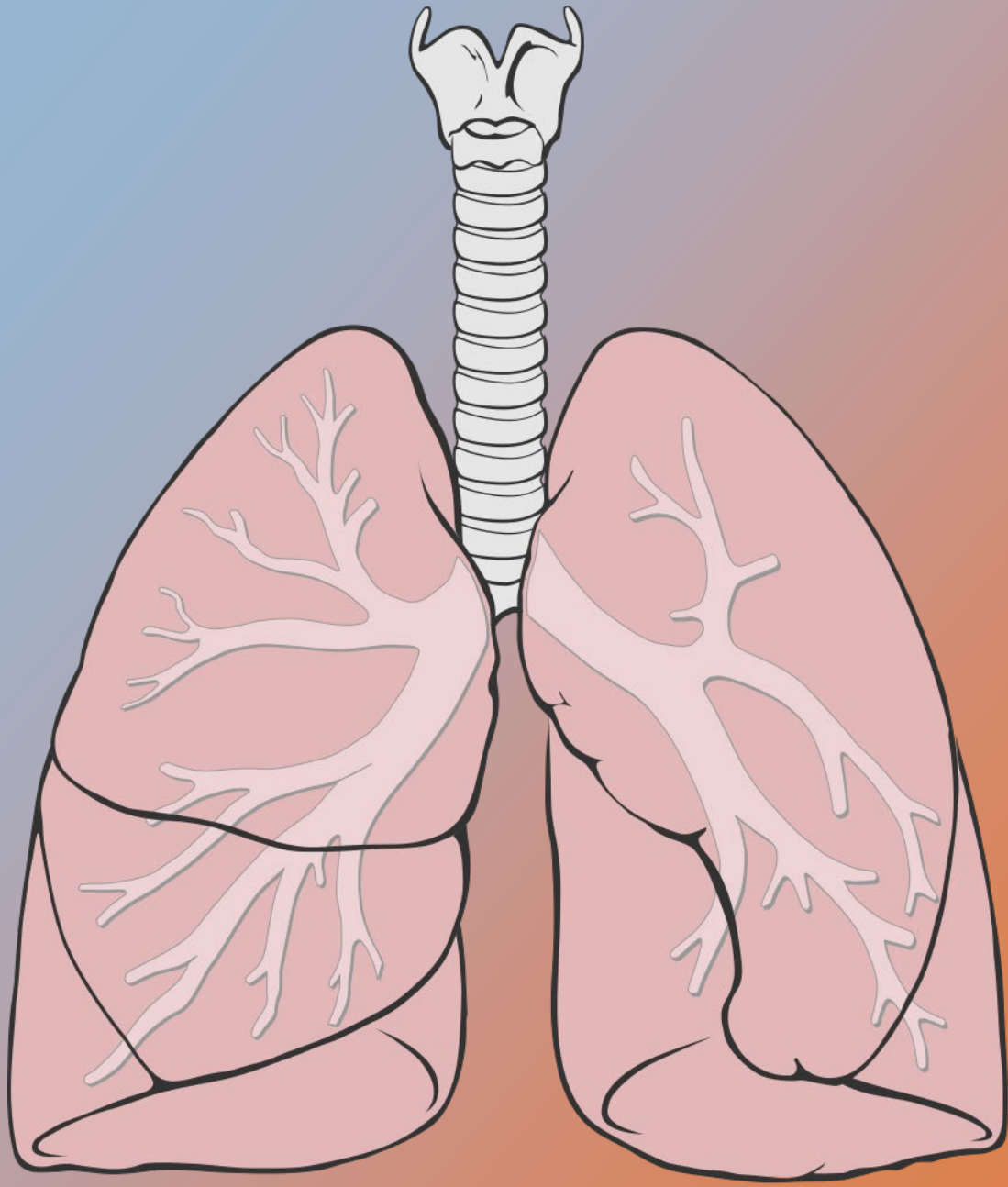
# Evidence-Based Medicine?



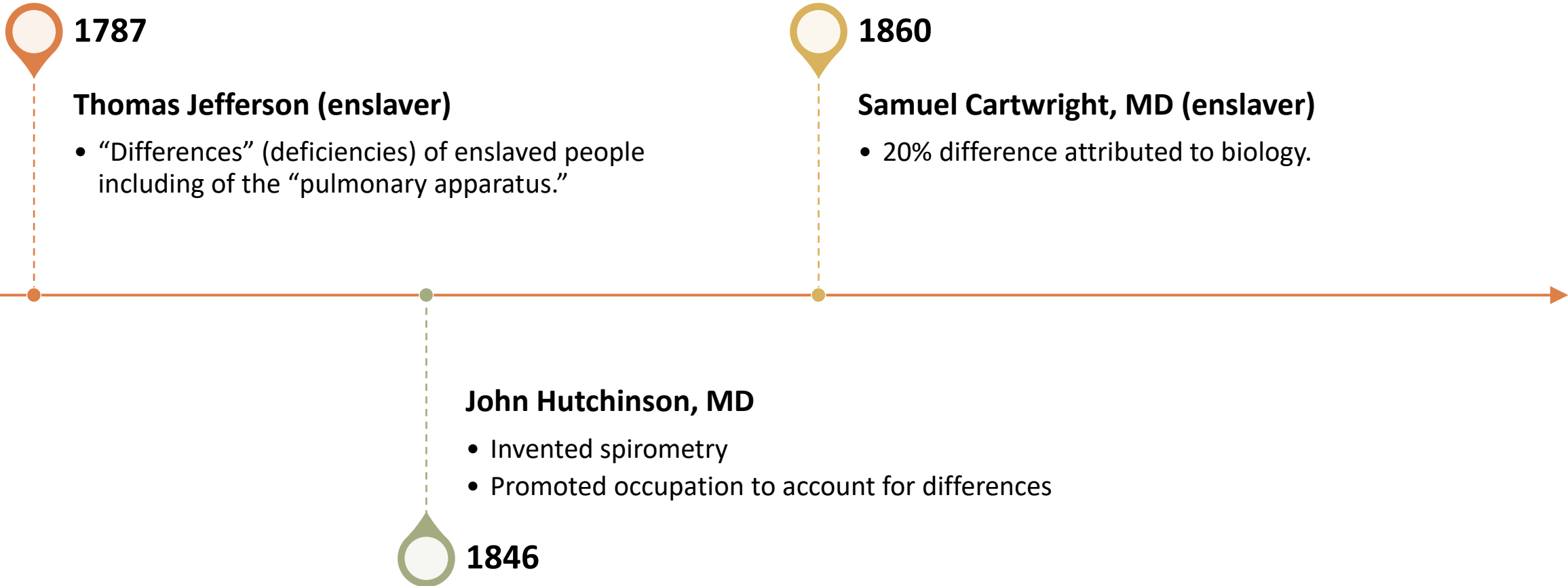
# Transplant algorithms



- Algorithm for allocation of deceased donor kidneys has been in place since 1987
- Some critical changes were made in 2002
- However, there are yet flaws in the UNOS system as it has been reported that the technology is not consistent throughout the regional areas



# Spirometry Correction - History



# Spirometry Correction - History

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**1869**

## **Apthorp Gould, MD**

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



**1922**

## **Wilson, MD & Edwards, MD**

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

# 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 2022 Update**

- Removes “race” from calculations but does not directly address the issue

*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.*

# Pulse Oximetry



**2021**

**Michael W. Sjoding, M.D.**

"Thus, in two large cohorts, Black patients had nearly 3 times the likelihood of occult hypoxemia that was not detected by pulse oximetry than White patients."

**2022**

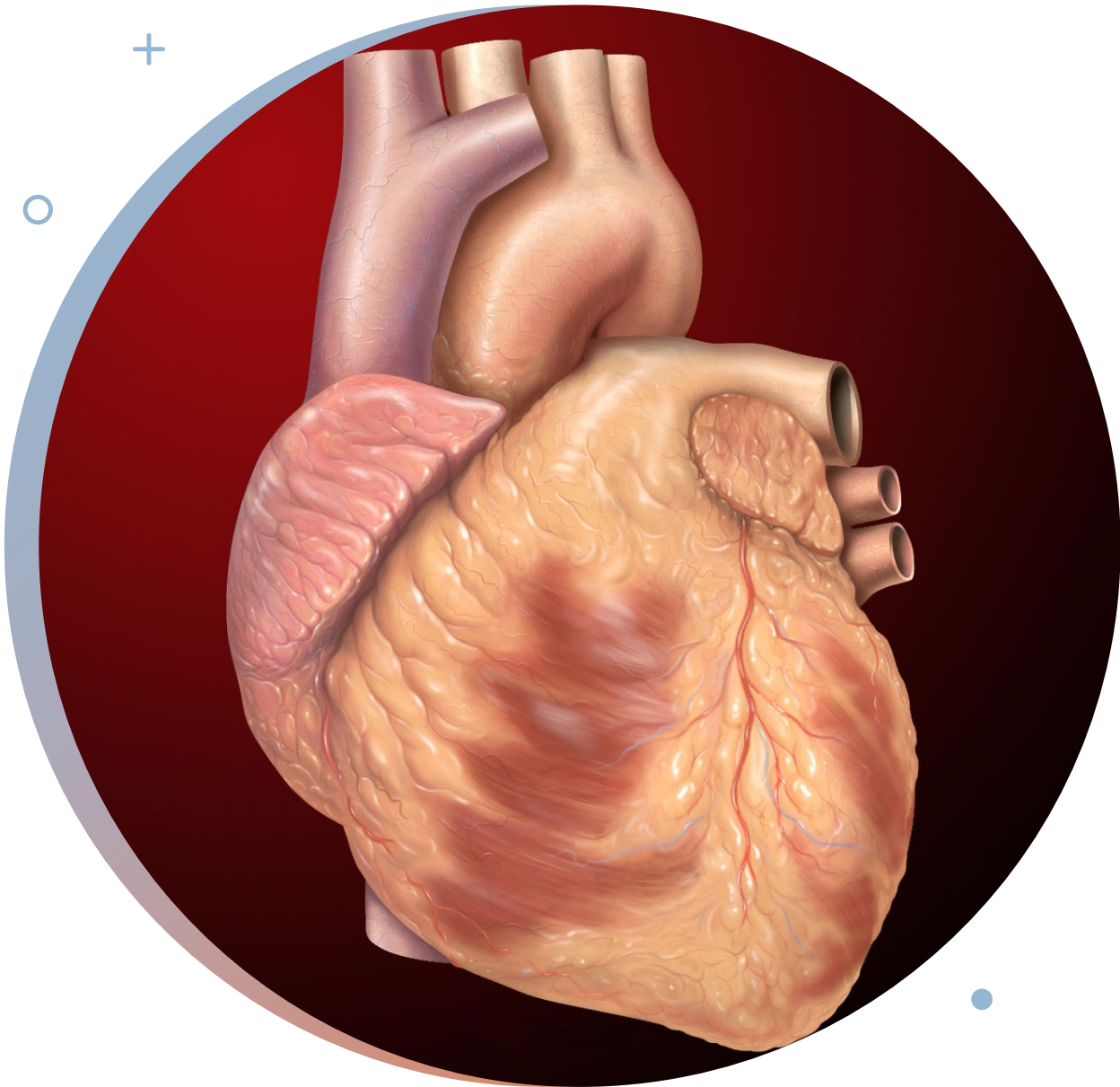
**Eric Andrist, MD et al.**

9023 SpO<sub>2</sub>-Sa<sub>2</sub> pairs from 1061 pediatric patients: 21.1% of Black children experienced arterial hypoxemia despite a normal SpO<sub>2</sub> reading

**Nicole R Henry, DO, MPH, et. al.**

"Black patients had increased odds of occult hypoxemia compared with White patients." "Occult hypoxemia was associated with increased odds of mortality in surgical (odds ratio, 2.96; 1.20–7.28; p = 0.019) and ICU patients (1.36; 1.03–1.80; p = 0.033)."

**2022**



# "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.

## Potential consequence:

- Higher score more aggressive treatment (i.e. medical therapy, hospitalization)
- Lower score less use of medical resources
- Blacks referred less to cardiology team & ICU

# (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

## Potential Consequence:

**Black patients may be over-treated & experience more adverse effects from statin treatment**

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

- Calculates risk of morbidity 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

## Potential Consequence:

Clinicians of Black and other patients of Color may undertreat patients by not referring for cardiac surgery



# 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

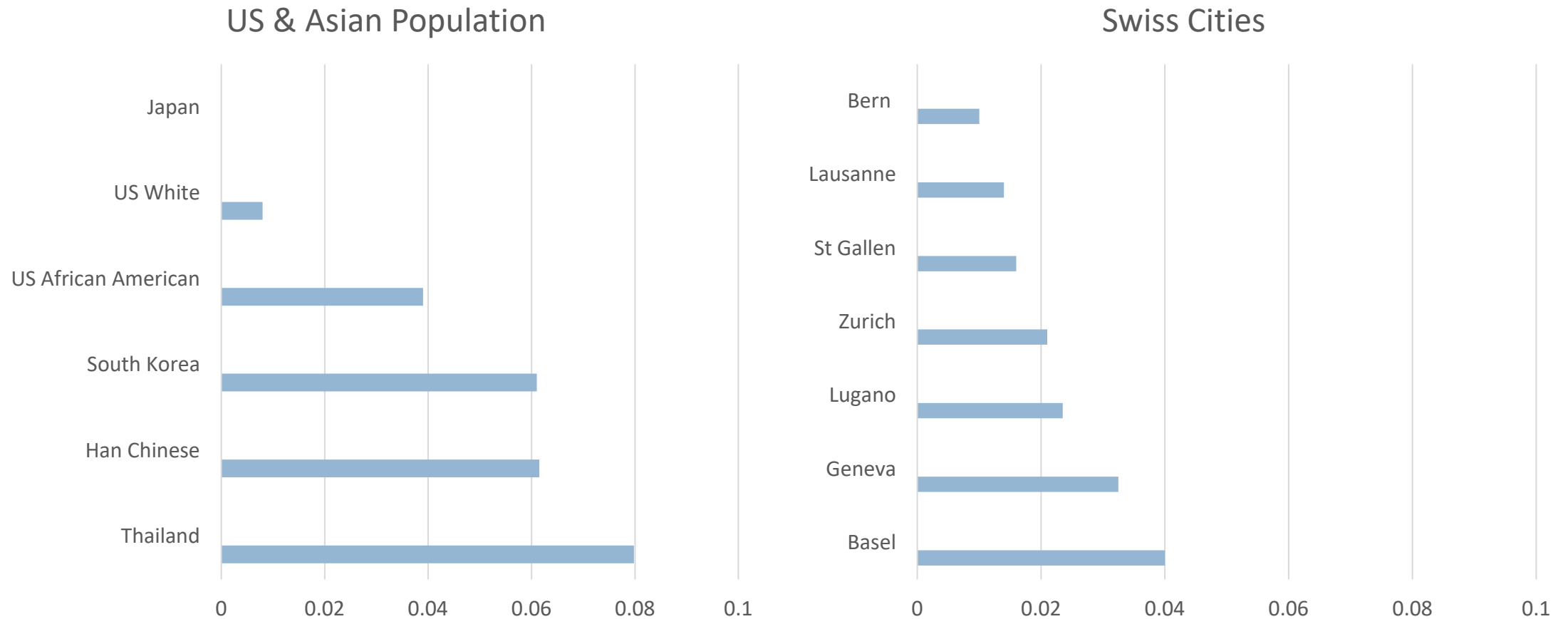
FitzGerald JD, et al. *Arthritis Care & Research*. 2020

**Potential Consequence:**

**Race is used as proxy for genetic marker**



# HLA B\*5801 Allele Frequency in Selected US, Asian & Swiss Populations



# Race-based Prescribing – Allopurinol

- High 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?



# Case

- Mr. LG's kidney function continued to worsen and he was finally placed on the kidney transplant list at your institution
- The transplant coordinator at your institution learned of the Organ Procurement and Transplantation Network's decision to adjust waiting time for Black transplant candidates



# Case

- The decision of the OPTN Board is a “restorative justice project in medicine”
- The policy took effect in January 2023 in an effort to “make up for lost time” for those Black kidney transplant patients who were impacted by the use of race-based GFR calculations, which delayed placement on the transplant list



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  - 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?**

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# 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

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# What Has Been Done

- *MedCalc* acknowledgement
- *Brigham & Women's Hospital* (Mass General) - change HF referral & treatment policy
- *AAP* – Policy to remove race based algorithms
- *American Society of Nephrology & National Kidney Foundation* call for eGFR without race
- *Organ Procurement and Transplant Network* - backdate waiting times for Black kidney transplant candidates



< 2013 ASCVD Risk Calculator ★

CALCULATOR NEXT STEPS EVIDENCE CREATOR

Determines 10-year risk of heart disease or stroke.

**IMPORTANT**

This calculator includes inputs based on race, which may or may not provide better estimates, so we have decided to make race optional. [See here](#) for more on our approach to addressing race and bias on MDCalc.

For the same other inputs, this calculator estimates higher cardiovascular risk for African American patients.

**INSTRUCTIONS**

Our [ASCVD Risk Algorithm](#) is a step-wise approach for all adult patients – including those with known ASCVD. This calculator is for use only in adult patients without known ASCVD and LDL 70-189 mg/dL (1.81-4.90 mmol/L).

# MedCalc Acknowledgement

< CKD-EPI Equations for GFR ★

CALCULATOR NEXT STEPS EVIDENCE CREATOR

Estimates GFR based on serum creatinine, serum cystatin C, or both.

**IMPORTANT**

The 2021 CKD-EPI equation is now the recommended standard. This version does not include race, as do the 2009 and 2012 CKD-EPI creatinine and creatinine-cystatin C equations. [See here](#) for more on our approach to addressing race and bias on MDCalc.

With the 2021 equation, for the same creatinine value, the 2021 equation will estimate a lower GFR for Black patients and a higher GFR for non-Black patients.

**INSTRUCTIONS**

For use in patients with stable kidney function. While the combined creatinine and cystatin C equation can add accuracy, cystatin c is not available in all laboratories and the creatinine-based equation is adequate for many clinical purposes.

2021 CKD-EPI creatinine is currently recommended by the ASN and NKF for GFR reporting in the United States.

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# AAP

- 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.”

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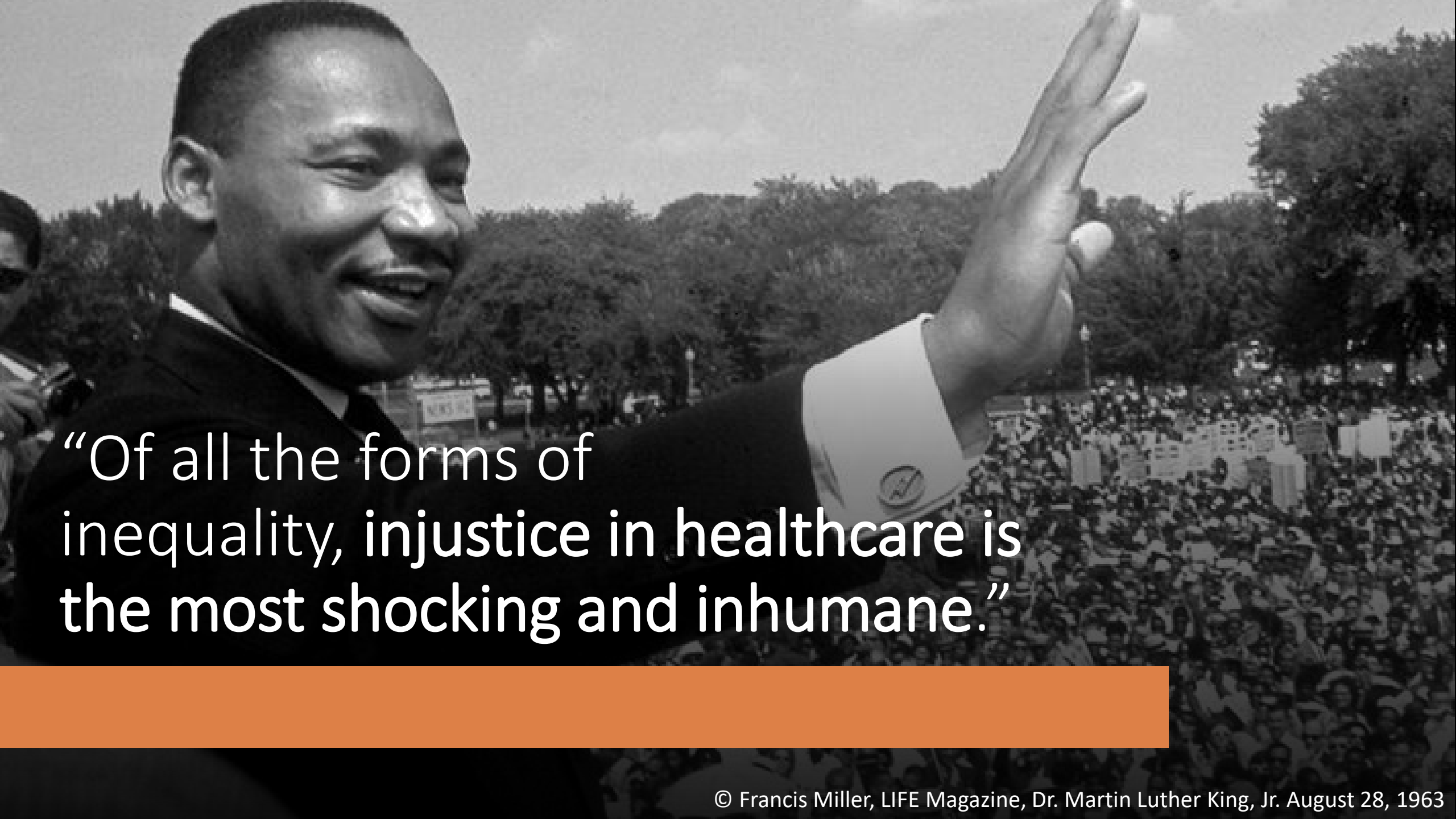
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# Kidney Disease and Transplant

- Elimination of race-based eGFR
  - *American Society of Nephrology, National Kidney Foundation,*
  - several major hospital systems
  - laboratory systems – (*Labcorp, Quest Diagnostics*)
  - *Organ Procurement & Transplant Network*
- Waiting time adjustment approved for kidney transplant candidates affected by race-based calculation
  - *Organ Procurement & Transplant Network*

# What Can We Do?

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

A black and white photograph of Dr. Martin Luther King, Jr. He is shown from the chest up, wearing a dark suit jacket, a white shirt, and a dark tie. He is smiling and waving his right hand towards a large, dense crowd of people in the background. The background is filled with many people, some holding signs, though the signs are not clearly legible. The setting appears to be outdoors with trees in the distance. The overall tone is positive and celebratory.

“Of all the forms of inequality, injustice in healthcare is the most shocking and inhumane.”

Questions?

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