Correcting Race-Based Medicine in Chronic Kidney Disease

Tuesday, September 28, 2021 | 4:30pm-6pm

Part of *Bridging the Gap from Healthcare Disparities to Anti-Racist Clinical Encounters,* a healthcare equity learning series

Kentuckiana Health Collaborative
Building a Bridge to Better Health, Better Care and Better Value

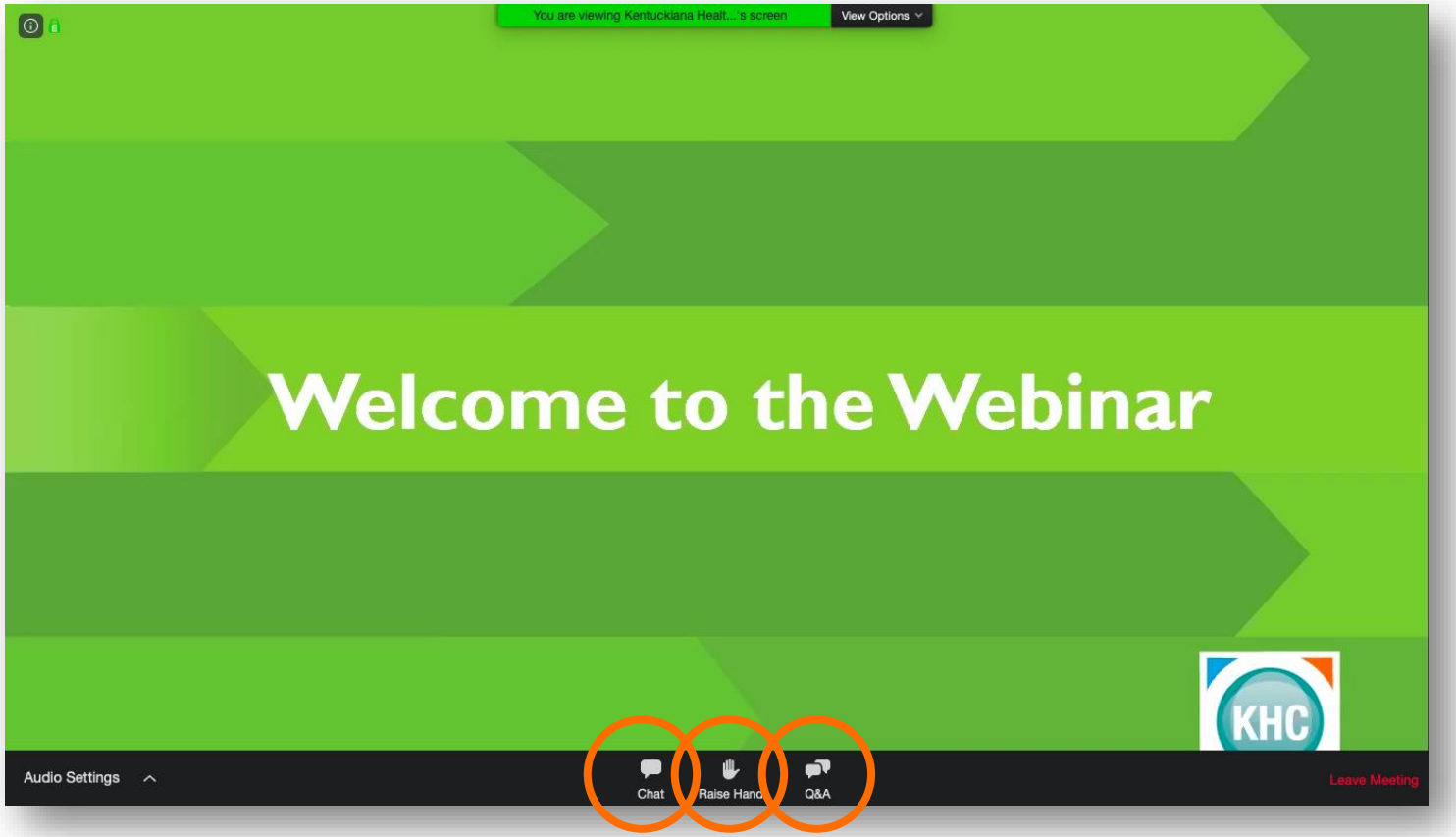
Have a Heart Clinic

American Nurses Association Kentucky

LOGISTICS

Select "Raise" to type a question and ask it to be unmuted and speaker.

Select "Q&A" to type a question and ask it to be unmuted and speaker.



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#KHC

AGENDA

- ***Chronic Kidney Disease (CKD) Disparities in Kentucky***
- ***Dismantling Race-Based Medicine***
- ***Panel: Impact of Removing the Race Multiplier from CKD***

THANK YOU TO OUR SPONSOR

Welcoming Remarks

Samuel Fatoba

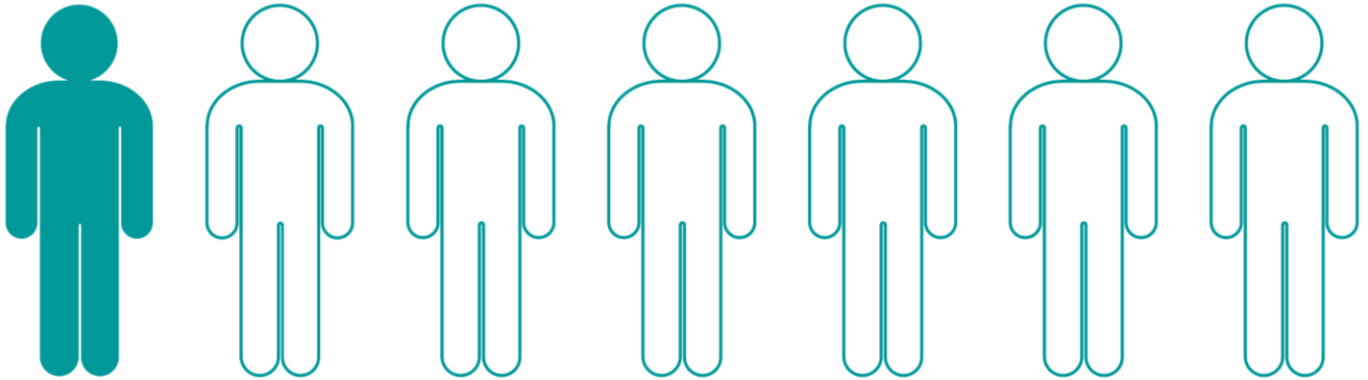
Senior Scientific Director, US MA-Cardiovascular and Renal
Bayer U.S. LLC

Chronic Kidney Disease Disparities in Kentucky

Stephanie Clouser

Data Scientist

Kentuckiana Health Collaborative



More than

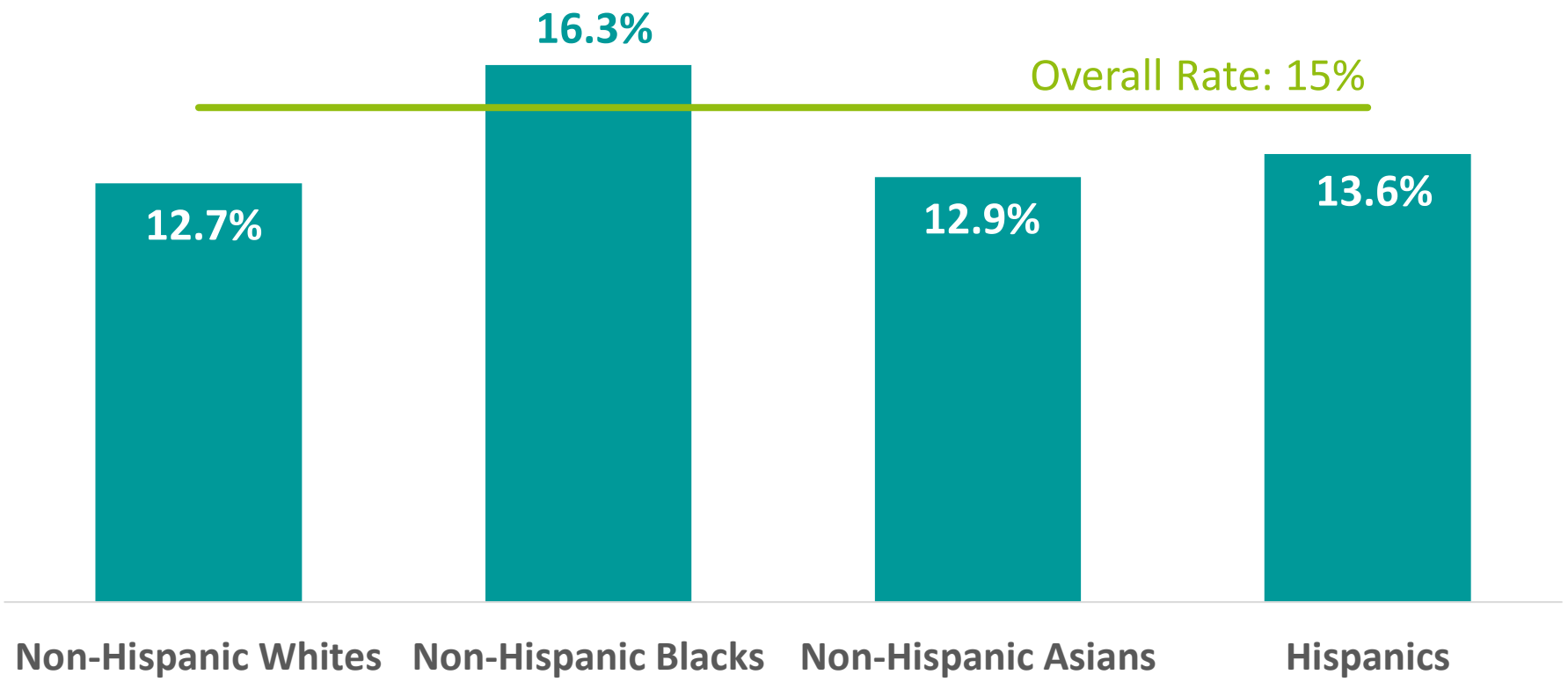
1 in 7 individuals nationwide are estimated to have chronic kidney disease (CKD).

— or —

37 million people

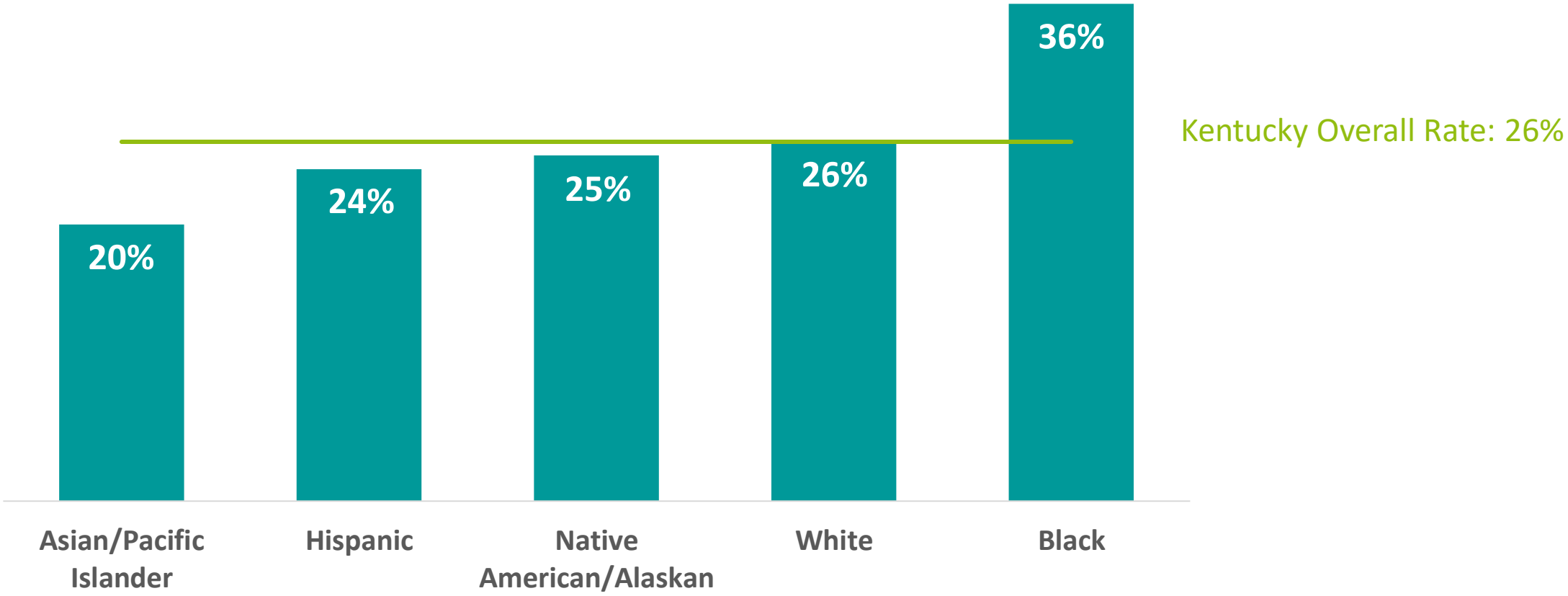
Data Source: CDC

Nationally, CKD is more common in non-Hispanic Black adults than other races and ethnicities.



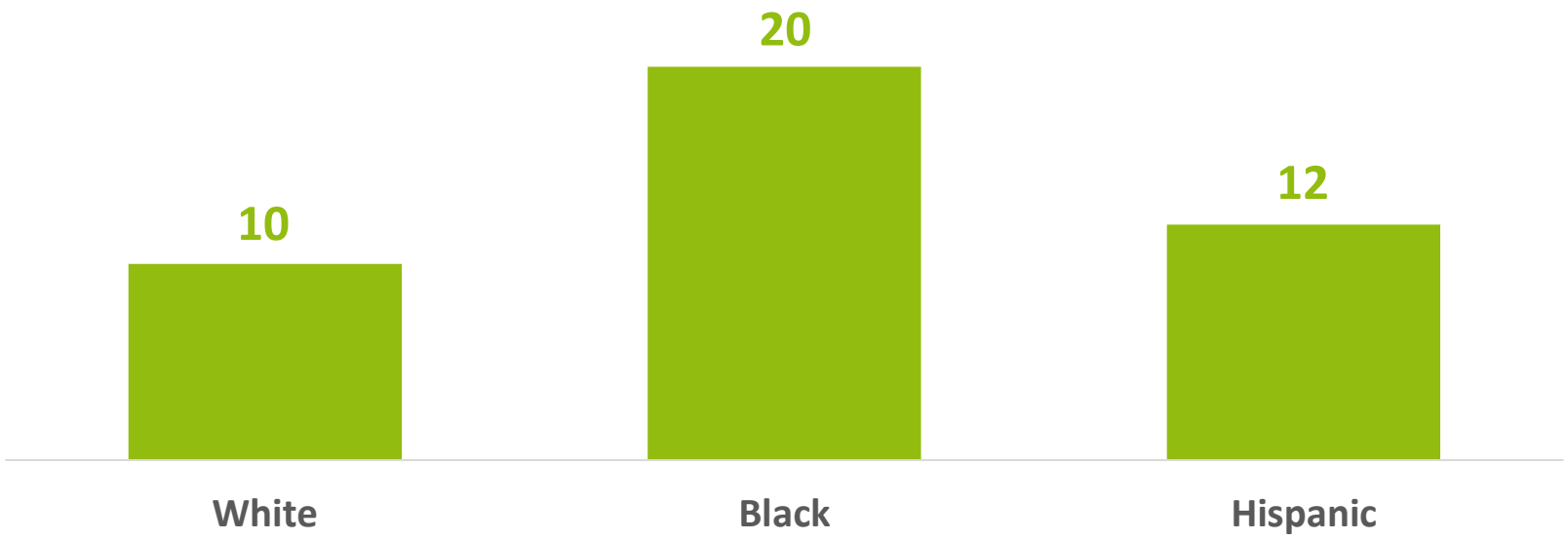
Data Source: CDC

Among the Medicare population in Kentucky, there is a 10% difference in prevalence of CKD in the Black population compared to the white population.



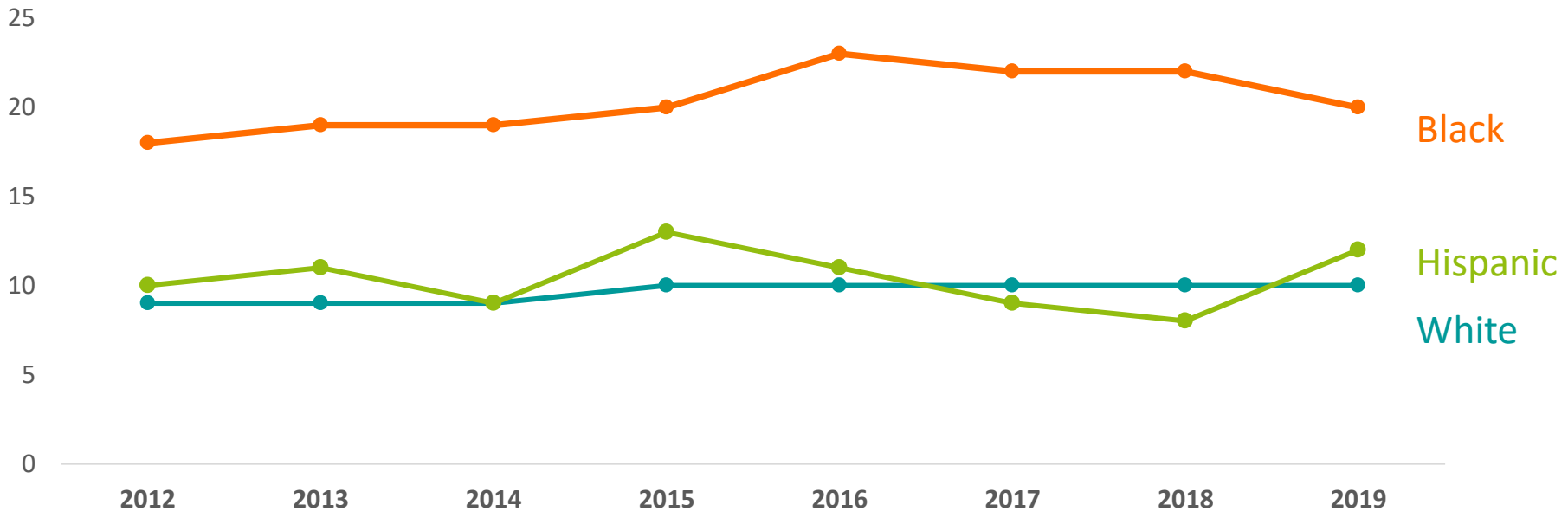
Data Source: CMS (2019 data)

And the rate of hospitalization per 1,000 Medicare beneficiaries in Kentucky is much higher in the Black population.



Data Source: CMS (2019)

This gap in hospitalizations between the Black population and other populations is not new.



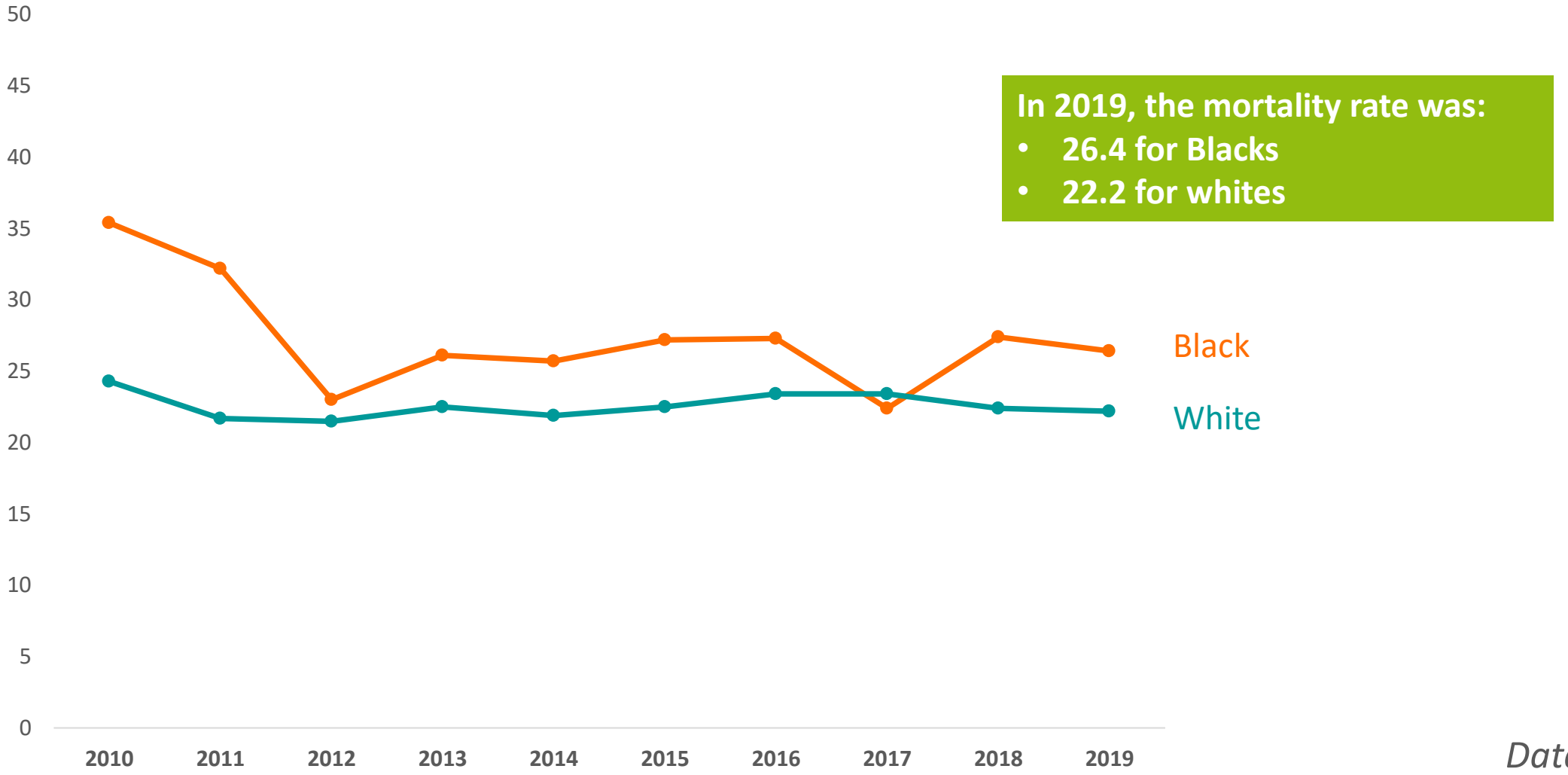
Data Source: CMS

1. Heart Disease
2. Cancer
3. Chronic Lower Respiratory Diseases
4. Accidents
5. Stroke
6. Alzheimer's Disease
7. Diabetes
8. **KIDNEY DISEASE**
9. Septicemia
10. Influenza/Pneumonia

8th leading cause of death in Kentucky

Data Source: CDC

Mortality Attributed to Kidney Disease in Kentucky, per 100,000 population



In 2019, the mortality rate was:

- **26.4 for Blacks**
- **22.2 for whites**

Data Source: CDC

Dismantling Race-Based Medicine

Naomi Tweyo Nkinsi

MD, MPH Student
University of Washington

DISMANTALING RACE-BASED MEDICINE

Naomi Tweyo Nkinsi (she | her)

[Now-me Tway-oh Nkin-see]

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Outline for Today

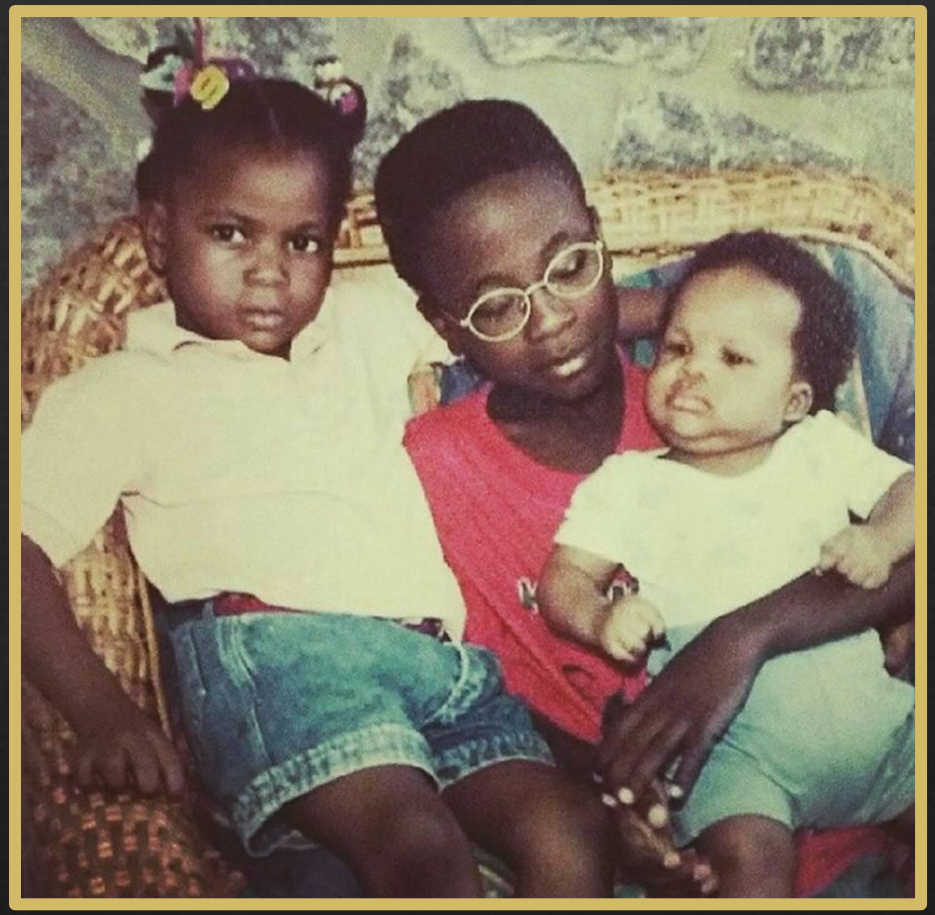
1. Race vs ancestry vs ethnicity
2. What is racism and how does it manifest?
3. What is race-based medicine?
4. American origins of race-based medicine
5. Race-based measurements of kidney function
6. Call to action
7. Discussion

Race vs Ancestry vs Ethnicity

Race:
A social category constructed by socioeconomic and political forces that determine its content and importance. **Race is determined by how society perceives you**, which in the United States is largely centered around skin color and other arbitrary markers of difference from "whiteness." Race exists as a sociopolitical category with origins in oppression. **Race has no biological basis.**

Ancestry:
Refers to a person's **genealogical history**

Ethnicity:
Encompasses a person's **nationality, culture, language, and religion** and is self-ascribed to people on an individual level



Chadha, N., Lim, B., Kane, M., Rowland, B. (2020). *Toward the Abolition of Biological Race in Medicine: Transforming Clinical Education, Research, and Practice*. Retrieved from instituteforhealingandjustice.org.

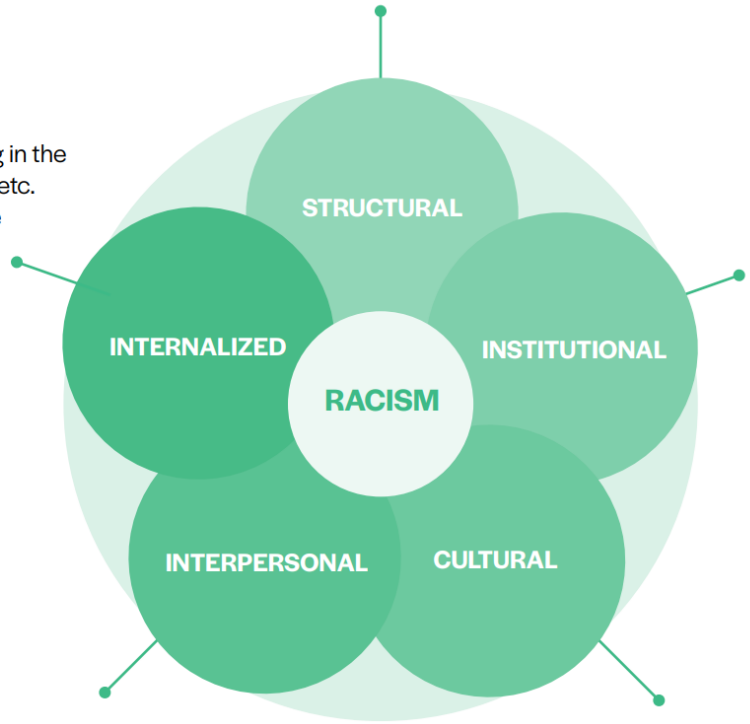
What is Racism?

Higher rates of environmental pollutants around predominantly minority communities

Creation and perpetuation of systemic disparities via mutually reinforcing societal norms (stigma, etc) and overarching structures that together shape society's fabric (e.g., capitalism determines income & wealth distributions)

Colorism, or the preference for lighter skin, in parts of the world or individuals from formerly colonized places

Maintaining or participating in the set of attitudes, behaviors, etc. supporing the power of the dominant group



Creation and perpetuation of systemic disparities via discriminatory policies and practices by institutions

Police brutality perpetuated against Black Americans

"You're actually really smart for a Black person"

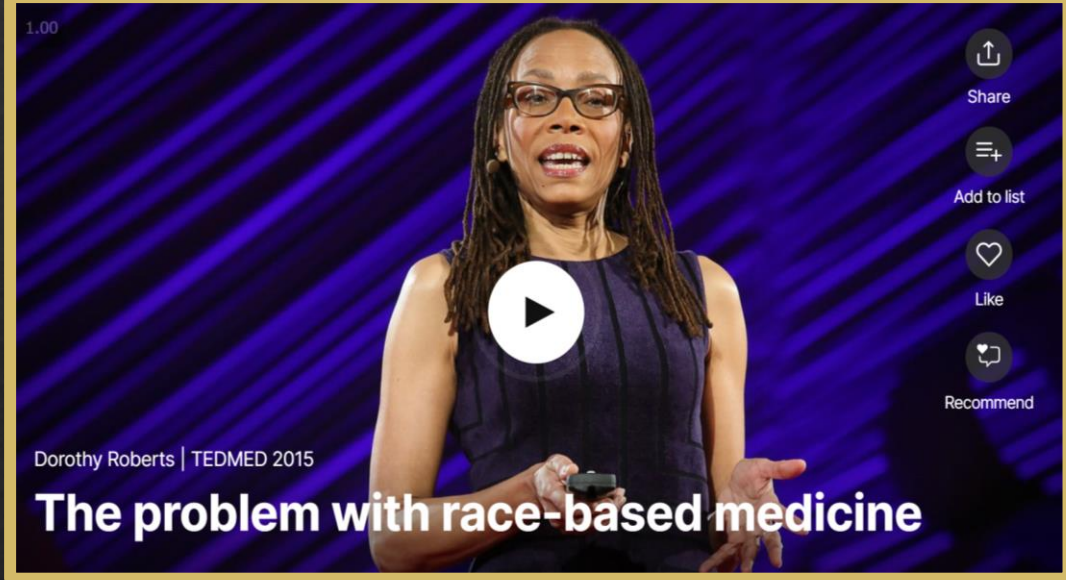
Behavior and communication between individuals based on unfounded negative attitudes about one's race

Belief that there are generalized instrinsic cultural differences belonging to individuals of one race or ethnicity

The idea that Black people have higher rates of diabetes because they prefer eating fried foods

Chadha, N., Lim, B., Kane, M., Rowland, B. (2020). *Toward the Abolition of Biological Race in Medicine: Transforming Clinical Education, Research, and Practice*. Retrieved from instituteforhealingandjustice.org.

What is Race-Based Medicine?

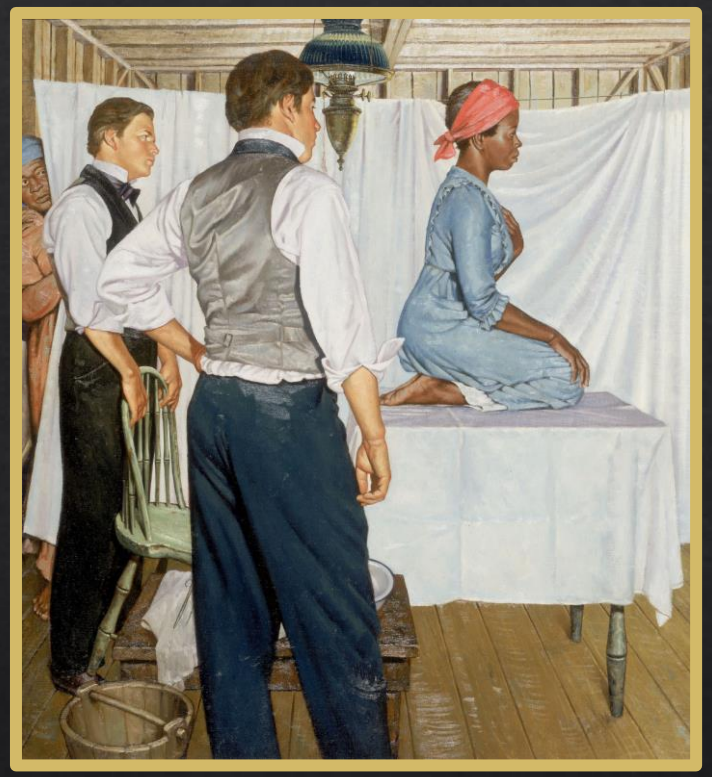


"It is more urgent than ever to finally abandon this backward legacy and to affirm our common humanity by ending the social inequalities that truly divide us."
-Dorothy Roberts

https://www.ted.com/talks/dorothy_roberts_the_problem_with_race_based_medicine?language=zh

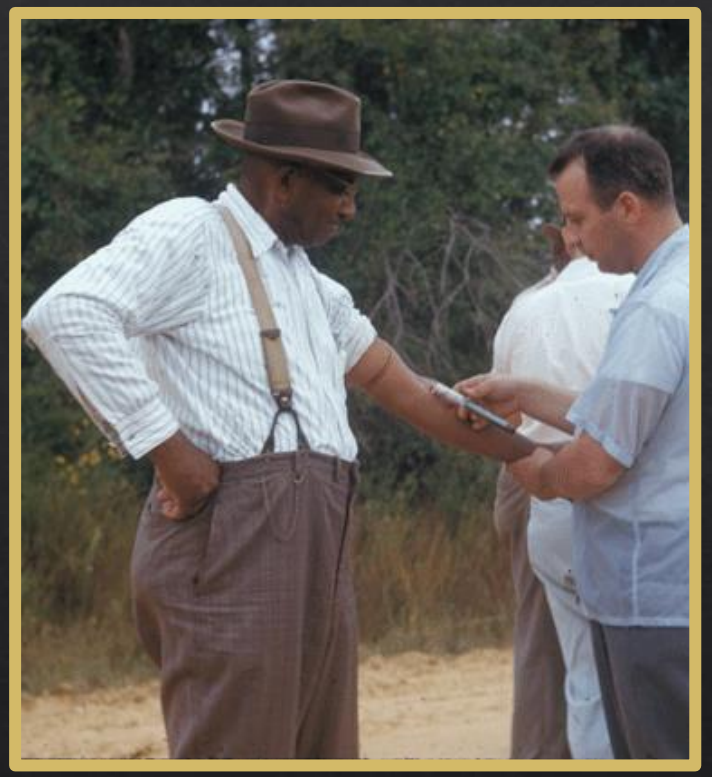
- Race-based medicine is the idea that people of different races are inherently **biologically and physiologically different from one another** and thus suffer from different diseases or experience common diseases differently due to their race
- Race-based medicine in the U.S. has its **roots in slavery** and White supremacy and operates within the framework that Whiteness is the standard and deviations from that are inherently pathological
- **Leads to health disparities for minoritized communities** such as higher rates of maternal mortality and decreased access to pain medication

Origins of Racism in Medicine: What we are taught



Dr. J. Marion Sims

Henrietta Lacks



Tuskegee Syphilis Study

Origins of Racism in Medicine: A **Brief** History

1619: First enslaved Africans arrive to Virginia

18th Century: Theory of polygenesis popularized

19th Century: Louis Aggasiz proposes a new theory that people of different races are from different species altogether

19th Century: Samuel Morton publishes a book reporting that cranial differences among White, Black and Indigenous people could be used to predict certain characteristics

19th Century: Samuel Cartwright publishes "Report on the Diseases and Physical Peculiarities of the Negro Race"

20th Century: American eugenics movement

Nieblas-Bedolla E, Christophers B, Nkinsi NT, Schumann PD, Stein E. Changing How Race Is Portrayed in Medical Education: Recommendations From Medical Students. Acad Med. 2020 Dec;95(12):1802-1806. doi: 10.1097/ACM.0000000000003496. PMID: 32379145.

When advocacy leads to change:

Eliminating race-based measurements of kidney function

Contemporary uses of Race-Based Medicine: eGFR and Kidney Function

What do kidneys do?

- Waste elimination via urine
- Red blood cell production
- Acid/Base and electrolyte balance
- Blood pressure management
- Bone density maintenance

Contemporary uses of Race-Based Medicine: eGFR and Kidney Function

What do kidneys do?

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Contemporary uses of Race-Based Medicine: eGFR and Kidney Function

What is eGFR?

GFR: **G**lomerular **F**iltration **R**ate
Measure of kidney functioning and is very difficult to obtain in most clinical studies

eGFR: **E**stimated **G**lomerular **F**iltration **R**ate
Measure of kidney function that is easier to obtain and based on measurement of urine **creatinine** rather than being directly measured

↑**eGFR** = ↑**Kidney function**

What is creatinine?

Creatinine is a protein that is the result of muscle breakdown that is filtered through the kidneys and excreted in the urine where it can then be measured to determine how well the kidneys are filtering blood

eGFR and Kidney Function: History of Race Correction

MDRD Study

- Conducted by the Modification of Diet in Renal Disease group in **1999**
- Purpose of the study was to find a way to calculate eGFR to create an equation that could be widely used
- Study included 1,628 participants, of which only 167 were Black
- 48 of the 167 Black participants already had end stage kidney disease, all participants across race had kidney disease
- Study found that Black race was predictive of higher creatinine
- Researchers attributed higher creatinine to race because **"Previous studies have shown that Black persons have greater muscle mass than White persons"**
- Race in equation is a binary (Black vs Non-Black) – factor of 1.21 if Black

CKD-EPI Study

- Conducted by the Chronic Kidney Disease Epidemiology Collaboration group in **2009**
- Conducted to create a more accurate equation to calculate eGFR than the MDRD study by using participants without renal disease
- Equation developed in 10 studies (8,254 participants) and validated in 16 studies (3,896 participants)
- Authors noted that a major limitation of their study was a lack of racial minorities in the study population
- Race included in final CKD-EPI equation because it was used in MDRD equation
- Race in equation is a binary (Black vs Non-Black) – factor of 1.16 if Black

eGFR and Kidney Function: History of Race Correction

NATIONAL KIDNEY FOUNDATION®

AMERICAN SOCIETY OF NEPHROLOGY · ASN ·

12) Why are there different estimated levels of GFR for African Americans, males and females, and people of different ages?

- African American patients:
  The CKD-EPI and MDRD Study equations include a term for the African American race to account for the fact that African Americans have a higher GFR than Caucasians (and other races included in the CKD-EPI datasets and MDRD Study) at the same level of serum creatinine. This is due to higher average muscle mass and creatinine generation rate in African Americans. Clinical laboratories may not collect data on race and therefore may report GFR estimates using the equation for Caucasians. For African

Image: https://www.kidney.org/sites/default/files/docs/12-10-4004_abe_faqs_aboutgfrrev1b_singleb.pdf

eGFR and Kidney Function: What this Means and Why it Matters

Black race variable leads to increase in eGFR value meaning that these patients **need to have greater decline in kidney function** in order to be classified as having kidney disease

Using the CKD-Epi equation, you input values for two patients with history of hypertension coming in to see you in order to calculate their eGFR.

CKD-EPI for Adults (Conventional Units)

Serum creatinine (mg/dL)*
1.5

Age*
50

African American? Yes No

Gender Male Female

Calculate

GFR value (mL/min/1.73 m²**)
54 mL/min/1.73 m²

*This equation should only be used for patients 18 and older.

**The NKDEP presently recommends reporting estimated GFR values *greater than or equal to 60 mL/min/1.73 m²* simply as "≥ 60 mL/min/1.73 m²," not an exact number.

CKD-EPI for Adults (Conventional Units)

Serum creatinine (mg/dL)*
1.5

Age*
50

African American? Yes No

Gender Male Female

Calculate

GFR value (mL/min/1.73 m²**)
Above 60 mL/min/1.73 m²

*This equation should only be used for patients 18 and older.

**The NKDEP presently recommends reporting estimated GFR values *greater than or equal to 60 mL/min/1.73 m²* simply as "≥ 60 mL/min/1.73 m²," not an exact number.

Table 10. Stages of Chronic Kidney Disease

Stage	Description	GFR (mL/min/1.73 m^2)
1	Kidney damage with normal or ↑ GFR	≥90
2	Kidney damage with mild ↓ GFR	60–89
3	Moderate ↓ GFR	30–59
4	Severe ↓ GFR	15–29
5	Kidney failure	<15 (or dialysis)

Chronic kidney disease is defined as either kidney damage or GFR <60 mL/min/1.73 m^2 for ≥3 months. Kidney damage is defined as pathologic abnormalities or markers of damage, including abnormalities in blood or urine tests or imaging studies.

eGFR and Kidney Function: What this Means and Why it Matters

Black race variable leads to increase in eGFR value meaning that these patients **need to have greater decline in kidney function** in order to be classified as having kidney disease

HOME SEARCH The New York Times

Patient Voices: Kidney Disease

By KAREN BARROW

Affecting nearly 30 million people in the United States, according to The National Kidney Foundation, chronic kidney disease can be caused by diabetes, chronic hypertension, a genetic factor or a rare disease, and can lead to a renal failure. Here, five men and women discuss the impact this disease has had on their life.

Dialysis patient Constance Cooper photographed by Ryan Collerd for The New York Times

eGFR and Kidney Function: A New Way Forward

May 29, 2020

UW Medicine to exclude race from calculation of eGFR (measure of kidney function)

CLINICAL

UW medical students initiate one of the first of its kind transition to the calculation of estimated glomerular filtration rate that is not adjusted by race.

A serum creatinine test measures the level of creatinine in your blood and provides an estimate of how well your kidneys filter (glomerular filtration rate).

When measuring kidney function, virtually every laboratory in the United States, including UW Medicine, automatically calculates an estimated glomerular filtration rate (eGFR) every time serum creatinine is measured. This test has traditionally used the Modification of Diet in Renal Disease (MDRD) equation to calculate eGFR to determine levels of creatinine in each sample.

The eGFR results are then reported with race factored as a precision variable. The usual approach is to report two values – one for Blacks and another for non-Blacks.

In 2018, the conversation was initiated by UW School of Medicine medical students questioning the strength of evidence underlying the reporting of eGFR by race.

> "So how did we make this change? We made it by questioning lecturers when the MDRD was taught. We did it by not letting the issue go and continuing to push discussions in class about the use of this equation...
>
> We did it by having meetings with teaching faculty, sending articles to them like the one in JAMA, forcing

Naomi Nkinsi

Perspective

Changing How Race Is Portrayed in Medical Education: Recommendations From Medical Students

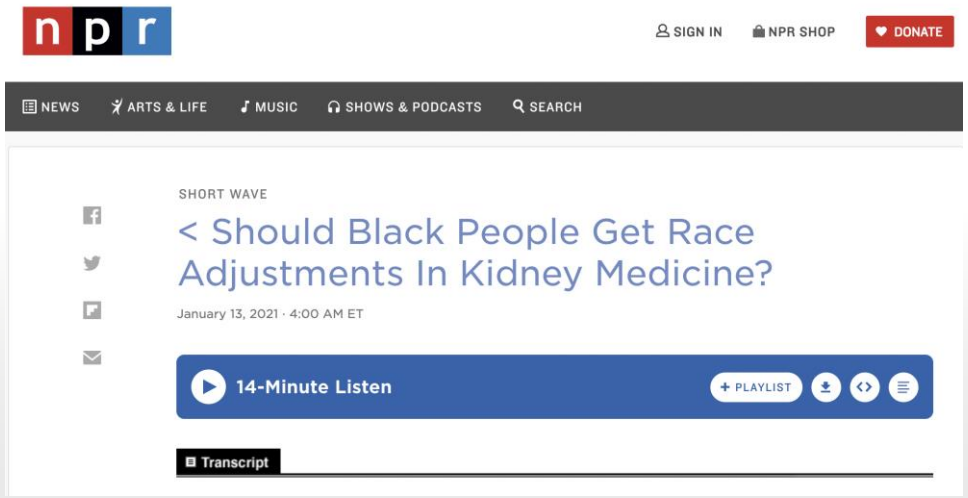
Edwin Nieblas-Bedolla, MPH, Briana Christophers, Naomi T. Nkinsi, Paul D. Schumann, and Elizabeth Stein

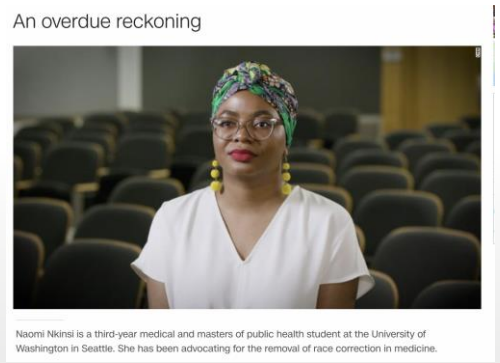
Abstract

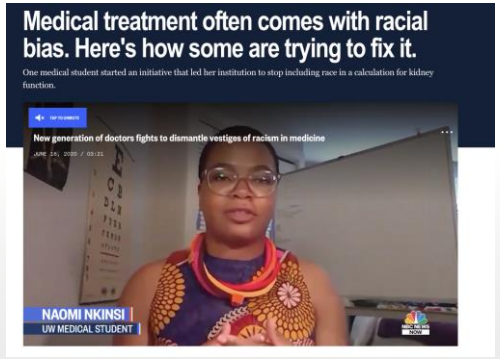
The medical community has been complicit in legitimizing claims of racial difference throughout the history of the United States. Unfortunately, a rigorous examination of the role medicine plays in perpetuating inequity across racial lines is often missing in medical school curricula due to time constraints and other challenges inherent to medical education. The imprecise use of race—a social construct—as a proxy for pathology in medical education is a vestige of institutionalized racism. Recent examples are presented that illustrate how attributing outcomes to race may contribute to bias and unequal care. This paper proposes the following recommendations for guiding efforts to mitigate the adverse effects associated with the use of race in medical education: emphasize the need for incoming students to be familiar with how race can influence health outcomes; provide opportunities to hold open conversations about race in medicine among medical school faculty, students, and staff; craft and implement protocols that address and correct the inappropriate use of race in medical school classes and course materials; and encourage a large cultural shift within the field of medicine. Adoption of an interdisciplinary approach that taps into many fields, including ethics, history, sociology, evolutionary genetics, and public health is a necessary step for cultivating more thoughtful physicians who will be better prepared to care for patients of all racial and ethnic backgrounds.

Medicine in the United States has a past burdened with countless reiterations of abuse and discrimination toward people belonging to racial and ethnic minority groups. Remnants of this troubling history continue to haunt the medical community in various places from undergraduate medical education to modern clinical practice. Embedded in a country struggling to constraint has led to an acceptance at face value of the oversimplification of race and disease presentation common in medicine today.[2] In this paper, we outline how race continues to influence medical institutions by presenting a brief historical account that serves as context, followed by an examination of the ways race can be used in medical education to perpetuate a narrative of that illustrate the importance of understanding how race is presented in scientific studies and in contemporary medical education.

Any examination of race and medicine in the United States must begin with slavery. Starting in 1619, slaves quickly became indispensable to the rapidly expanding economy of the colonies.







Congress of the United States
Washington, DC 20510

September 22, 2020

Gopal Khanna, M.B.A.
Director
Agency for Healthcare Research and Quality
5600 Fishers Lane
Rockville, MD 20857

Dear Mr. Khanna:

We write to request that the Agency for Healthcare Research and Quality (AHRQ) conduct a review of the use of race-based clinical algorithms in standard medical practice. The ongoing coronavirus disease 2019 (COVID-19) pandemic and its disproportionate consequences for communities of color have starkly revealed that racism itself is a public health crisis.[1] In order to reduce health disparities among communities of color, we must ensure that medicine and public health organizations take a staunchly anti-racist approach to medical care and reevaluate the ways in which current practices, including the use of race-based algorithms, could be worsening outcomes for people of color.

Race-based clinical algorithms, which include a patient's race among their inputs, inform how clinicians adjust medical test results based on their patient's race. These results then inform treatment regimens as well as overall assessments of health. These race-based algorithms risk embedding racism into medical practice. One such algorithm has recently come under fire after it was reportedly used by the National Football League (NFL) in a way that cut benefits for Black players. *The Wall Street Journal* reported that, because the NFL was using a clinical algorithm that assumed Black players had lower cognitive functioning compared to white players, Black players were entitled to lower settlements for concussion-related injuries.[2] But this overtly racist assumption and subsequent adjustment to players' test results is just one high-profile example of race-based clinical algorithms. There are many others.

Another example in which race-based assumptions are embedded in medicine is in the estimated glomerular filtration rate (eGFR), an algorithm that allows clinicians to indirectly measure a patient's kidney function.[3] The eGFR adjusts test results for all patients identified as Black.[4] This race-based adjustment to eGFR originated from a 1999 study which found differences in a measure of kidney health among Black study participants compared to white participants.[5]

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

New Creatinine- and Cystatin C–Based Equations to Estimate GFR without Race

L.A. Inker, N.D. Eneanya, J. Coresh, H. Tighiouart, D. Wang, Y. Sang, D.C. Crews, A. Doria, M.M. Estrella, M. Froissart, M.E. Grams, T. Greene, A. Grubb, V. Gudnason, O.M. Gutiérrez, R. Kalil, A.B. Karger, M. Mauer, G. Navis, R.G. Nelson, E.D. Poggio, R. Rodby, P. Rossing, A.D. Rule, E. Selvin, J.C. Seegmiller, M.G. Shlipak, V.E. Torres, W. Yang, S.H. Ballew, S.J. Couture, N.R. Powe, and A.S. Levey, for the Chronic Kidney Disease Epidemiology Collaboration*

ABSTRACT

BACKGROUND

Current equations for estimated glomerular filtration rate (eGFR) that use serum creatinine or cystatin C incorporate age, sex, and race to estimate measured GFR. However, race in eGFR equations is a social and not a biologic construct.

METHODS

We developed new eGFR equations without race using data from two development data sets: 10 studies (8254 participants, 31.5% Black) for serum creatinine and 13 studies (5352 participants, 39.7% Black) for both serum creatinine and cystatin C. In a validation data set of 12 studies (4050 participants, 14.3% Black), we compared the accuracy of new eGFR equations to measured GFR. We projected the prevalence of chronic kidney disease (CKD) and GFR stages in a sample of U.S. adults, using current and new equations.

The authors' full names, academic degrees, and affiliations are listed in the Appendix. Address reprint requests to Dr. Inker at the Division of Nephrology, Tufts Medical Center, 800 Washington St., Box 391, Boston, MA 02111, or at linker@tuftsmedicalcenter.org.

*The members of the Chronic Kidney Disease Epidemiology Collaboration are listed in the Supplementary Appendix, available at NEJM.org.

This article was published on September 23, 2021, at NEJM.org.

NKF and ASN form joint task force to focus on use of race in eGFR

August 24, 2020, 12:22pm EDT

In August of 2020, the National Kidney Foundation (NKF) and the American Society of Nephrology (ASN) formed a joint task force to focus on the use of race to estimate GFR. For more information, please read the joint NKF-ASN statement on "Establishing a Task Force to Reassess the Inclusion of Race in Diagnosing Kidney Diseases."

The NKF-ASN Task Force on Reassessing the Inclusion of Race in Diagnosing Kidney Disease, in consultation with an eGFR Advisory Board, plans to provide its initial recommendations in 2020. ASN and NKF leaders are very grateful to all those who are working on this effort, dedicating their time and expertise to ensure optimum patient care.

Co-chaired by Cynthia Delgado, MD, FASN, and Neil R. Powe, MD, FASN, the task force includes members with broad expertise, including (but not limited to) health and health care disparities, epidemiology and health services research, genetic ancestry, clinical chemistry, patient safety and performance improvement, pharmacology, and social sciences. The task force also includes two patients.

NKF-ASN Task Force on Reassessing the Inclusion of Race in Diagnosing Kidney Diseases

NKF and ASN Release New Way to Diagnose Kidney Diseases

Both Organizations Recommend Race-Free Approach to Estimate GFR

Sept. 23, 2021, New York, NY – Today, the National Kidney Foundation (NKF) and the American Society of Nephrology (ASN) Task Force on Reassessing the Inclusion of Race in Diagnosing Kidney Diseases has released its final report, which outlines a new race-free approach to diagnose kidney disease. In the report, the NKF-ASN Task Force recommends the adoption of the new **eGFR 2021 CKD EPI creatinine equation that estimates kidney function without a race variable. The task force also recommended increased use of cystatin C combined with serum (blood) creatinine, as a confirmatory assessment of GFR or kidney function.** The final report, published today online in the *American Journal of Kidney Diseases (AJKD)* and the *Journal of the American Society of Nephrology (JASN)*, was drafted with considerable input from hundreds of patients and family members, medical students and other trainees, clinicians, scientists, health professionals, and other stakeholders to achieve consensus for an unbiased and most reasonably accurate estimation of GFR so that laboratories, clinicians, patients and public health officials can make informed decisions to ensure equity and personalized care for patients with kidney diseases.

A 'Race-Free' Approach to Diagnosing Kidney Disease

The most common method of assessing the condition may make Black patients seem less ill than they really are, some experts say. A new report calls for scrapping the formula.

27

A kidney patient receiving treatment on a dialysis machine. Lewis Whyld/Press Association, via Associated Press

By Roni Caryn Rabin

When advocacy leads to change:

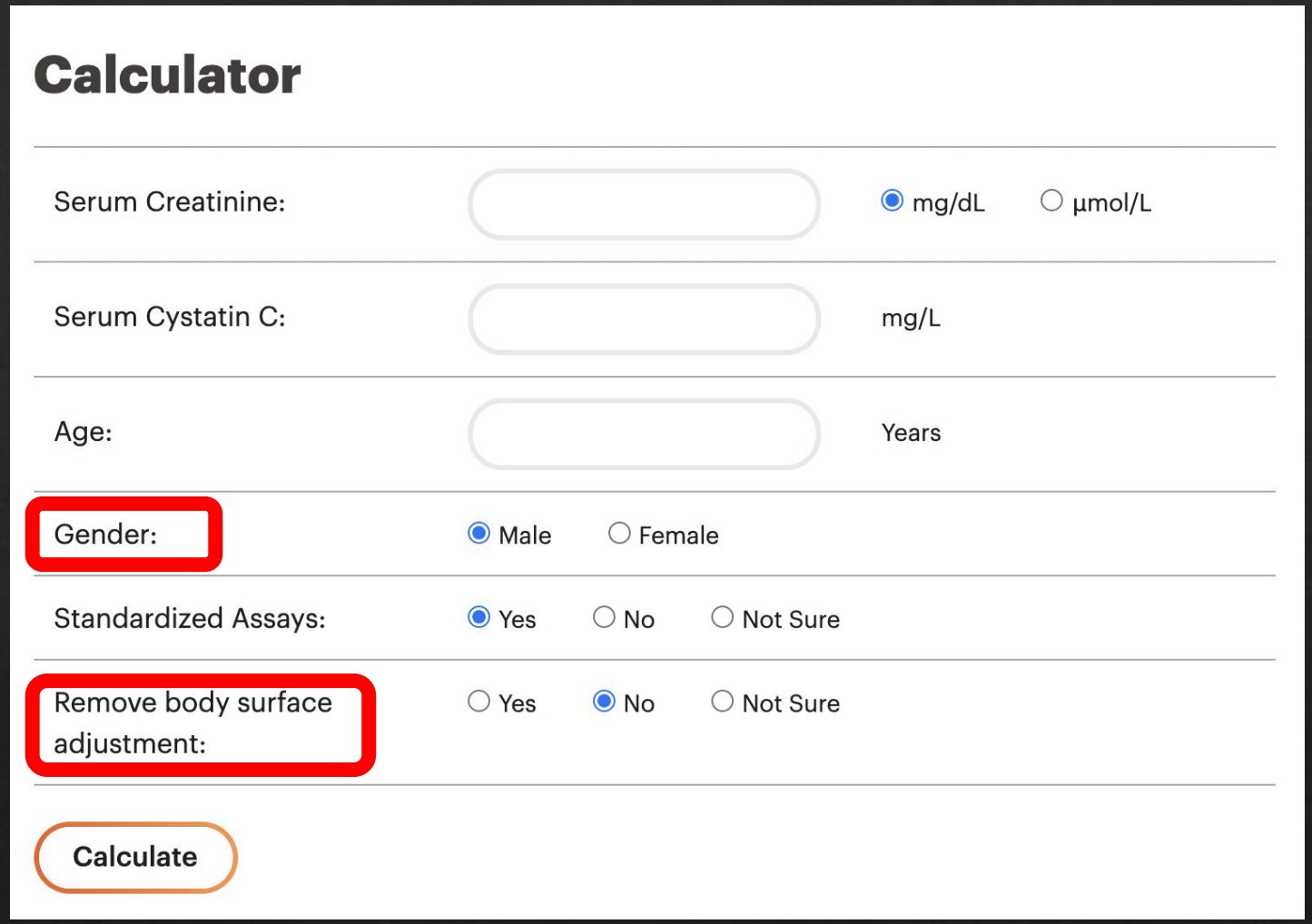
Eliminating race-based measurements of kidney function

Calculator

Serum Creatinine:		(•) mg/dL ( ) µmol/L
Serum Cystatin C:		mg/L
Age:		Years
Gender:	(•) Male ( ) Female	
Standardized Assays:	(•) Yes ( ) No ( ) Not Sure	
Remove body surface adjustment:	( ) Yes (•) No ( ) Not Sure	

Calculate

When advocacy leads to change:
Eliminating race-based measurements of kidney function



Race is less a risk factor itself than a **marker of risk for racism related exposures.**

-Chandra Ford

Panel: Impact of Removing the Race Multiplier from CKD

Mike Imburgia
Founder
Have a Heart Clinic

Delanor Manson
CEO
Kentucky Nurses Association

Tricia Barrett
Executive Director, Quality and Population Health Strategy
Bayer U.S., LLC

Travis Thompson
Director National Contracting
Humana

Ramsey Nassar
Nephrologist, Managing Partner
Nephrology Associates of Kentuckiana

Eugene Wright
Consulting Associate in the Department of Medicine
Duke University School of Medicine

Closing

Natalie Middaugh

Community Health Program Manager
Kentuckiana Health Collaborative

UPCOMING KHC EVENTS

Purchaser Solutions to Addressing Social Determinants of Health

KHC Community Health Forum

December 7, 2021

https://khcollaborative.org/event/december-community-forum

Correcting Race-Based Medicine in Chronic Kidney Disease

Thank you for attending!

Kentuckiana Health Collaborative
Building a Bridge to Better Health, Better Care and Better Value

Have a Heart Clinic

American Nurses Association Kentucky