Ethnical differences in CKD management in the USA

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Berliner Dialyse Seminar, 07.12.2024

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Conflict of Interest

Der Inhalt des folgenden Vortrages ist Ergebnis des Bemühens um größtmögliche Objektivität und Unabhängigkeit.

Als Referent weise ich darauf hin, dass es **persönliche Verbindungen** zu Unternehmen gibt, deren Produkte im Kontext des folgenden Vortrages von Interesse sind. Dabei handelt es sich um die folgenden Unternehmen und Verbindungen:

Unternehmen	**Verbindungen** (Honorar für Vortrags-, Autoren-, Gutachter- oder Beratungstätigkeiten; Honorar für Vorbereitung von Fortbildungen; Erstattung von reise- oder Übernachtungskosten; Erstattung von Teilnahmegebühren an Fortbildungen; Patente; Geld aus Lizenzen/Tantiemen; Honorar für Durchführung von Auftragsstudien; Erhalt von Forschungsgeldern; andere)
Bayer AG Leverkusen	Member in EAB, Honoraria

Ethnical differences in CKD management in the USA

- How do US colleagues understand this title?

Hi Natalie,

*Ethnicity in US is **typically defined as Hispanic vs. non-Hispanic**. The term is often misunderstood and **mixed up with race**. Ethnicity represents a shared cultural identity, while race refers to common biological traits.*

Then there is the social construct part of race as well (with some having strong feelings about race being 100% a social construct; discussing this would take a long time).

*Regarding **ethnic differences in CKD care**, to me, this would mean data that examine **Hispanic vs. non-Hispanic outcomes**. Although, I have an inkling that the people who invited you may be looking for **race-related studies**. ….*

Ethnical differences in CKD management in the USA cont.

Hi Natalie,

*I think the term would be "ethnic differences" not "ethnical". **"Race"** and **"ethnicity"** are used differently in different parts of the world. In Great Britain, I think they use **"ethnicity" where the U.S. would use "race".***

*The NIH has enrollment tables, that all investigators are expected to use and track **race** as: **White, Black, Asian, Native American** and **ethnicity** as: **Hispanic or not Hispanic.***

*I'd say this title makes me think of Hispanic vs non-Hispanic differences but maybe it is meant in the **Great Britain** sense of **Race**.*

*In general though, I would not say that there **would be much difference in the management of CKD by ethnicity/race**. Treating those patients differently could get you in trouble as a provider if not well justified (e.g. the need for an interpreter).*

Ethnical differences in CKD management in the USA

Hi Natalie,

We typically use them almost interchangeably although according to census, ***race is White, Black, Asian, Native American*** *and* ***ethnicity is Hispanic or not Hispanic****.*

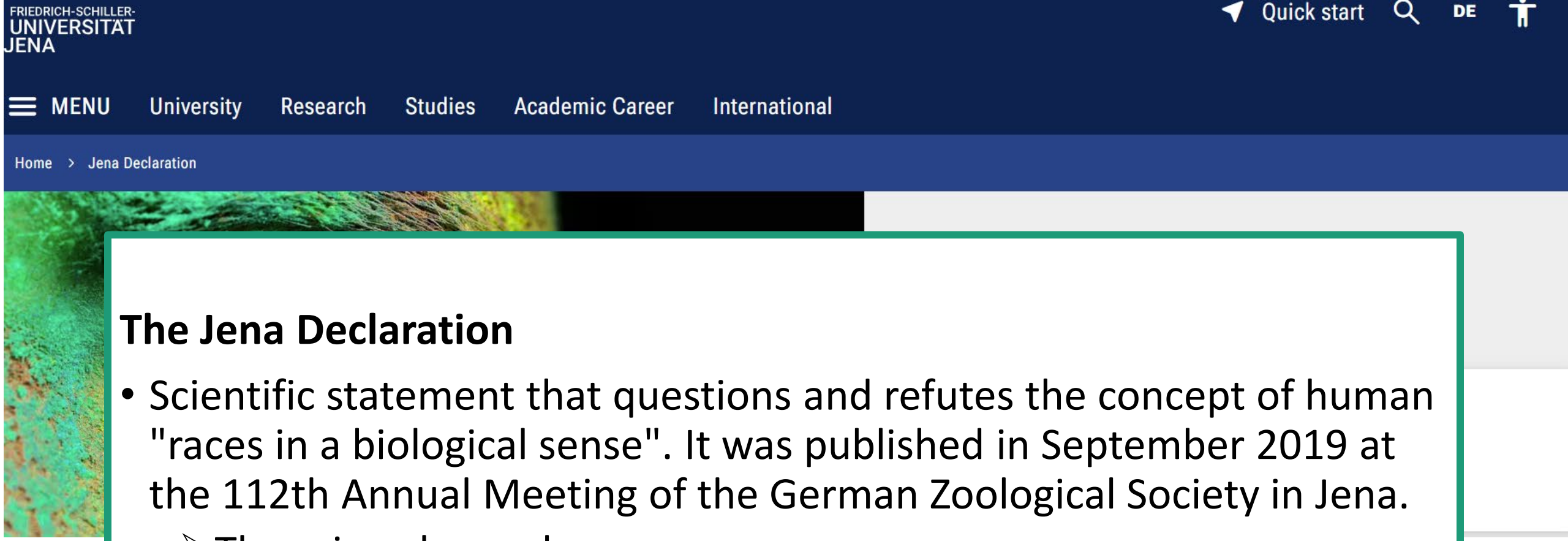
Strictly speaking, ethnicity only would mean differences between Hispanics and non-Hispanics. In terms of race/ethnicity – generally I say the following

1. *Race can indicate certain genetic causes, particularly APOL1 homozygosity*
2. *Often race is a proxy for the position in social hierarchy and consequently reflective of social determinants of health*
3. *Other than testing for APOL1, we typically would not do anything different.*

Ethnicity and Race: Key concepts

- **Race*:** In US parlance, a group of people **who share physical traits** – such as skin color, hair texture or eye shape – based on some **common ancestry**. That common ancestry is broadly related to **geography**.
- **Ethnicity*:** group of people who share a **common history and culture**.
- **Genetic Diversity**:** Approximately 0.1% of human genetic variation accounts for visible physical differences.
- **Key Takeaway:** They are complex social categories!

*The differences between race and ethnicity – and why they're so hard to define; CNN US, May 2023
**Rosenberg, N.A., et al. (2002). Science, 298(5602)



The Jena Declaration

- Scientific statement that questions and refutes the concept of human "races in a biological sense". It was published in September 2019 at the 112th Annual Meeting of the German Zoological Society in Jena.
  - ➢There is only one human race.
  - ➢Greatest genetic variation is within the African people and not between Europe and Africa.

Prof. Martin S. Fischer, Institute for Zoology and Evolutionary Research of Friedrich Schiller University, Jena
Extraordinary Professor Uwe Hoßfeld, Institute for Zoology and Evolutionary Research, Research Group for Biology Education, Friedrich Schiller University, Jena
Prof. Johannes Krause, Director of the Max Planck Institute for the Science of Human History/ Friedrich Schiller University, Jena
Prof. Stefan Richter, General and Systematic Zoology, Institute of Biosciences, University of Rostock

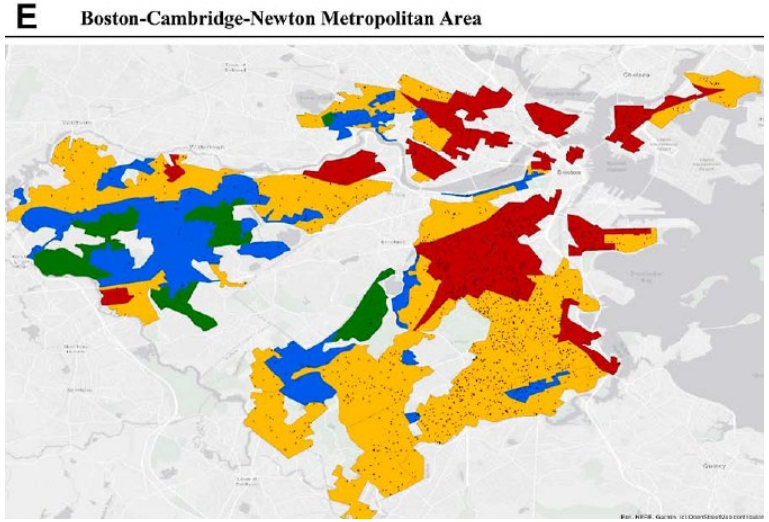
Health Disparities

- Social determinants of health play a crucial role
- Factors influencing health:
  - Socioeconomic status: income, educational achievement, food
  - Access to healthcare: jobs with health care plans, deductibles, OOP-payments
  - Environmental exposures: green space, recreational facilities and exposure to air and water pollution
  - Systemic inequities: racism, discrimination (red lining)
- Race and ethnicity are proxies for those factors

CLINICAL EPIDEMIOLOGY www.jasn.org

Structural Racism, Historical Redlining, and Incidence of Kidney Failure in US Cities, 2012–2019

Kevin H. Nguyen,[1,2] Rachel Buckle-Rashid,[3,4] Rebecca Thorsness,[2,5] Chinyere O. Agbai,[6] Deidra C. Crews,[7,8] and Amal N. Trivedi[2,9]



- **Historical Redlining** sponsored housing policy (1930s) permitting "*Owners' Loan Corporation*" to grade risk of mortgage lending within neighborhoods on the basis of their racial makeup.
- Based on evaluations by local real estate professionals, neighborhoods could be assigned 1 of 4 grades:
  - A (best—green)
  - B (still desirable—blue)
  - C (definitely declining—yellow)
  - D (hazardous—red).
- Racial inequities in kidney disease—particularly for Black individuals—have been linked to residential segregation and other structural inequities.

JASN 34: 1493–1503, 2023

Ethnical **differences in CKD management** in the USA

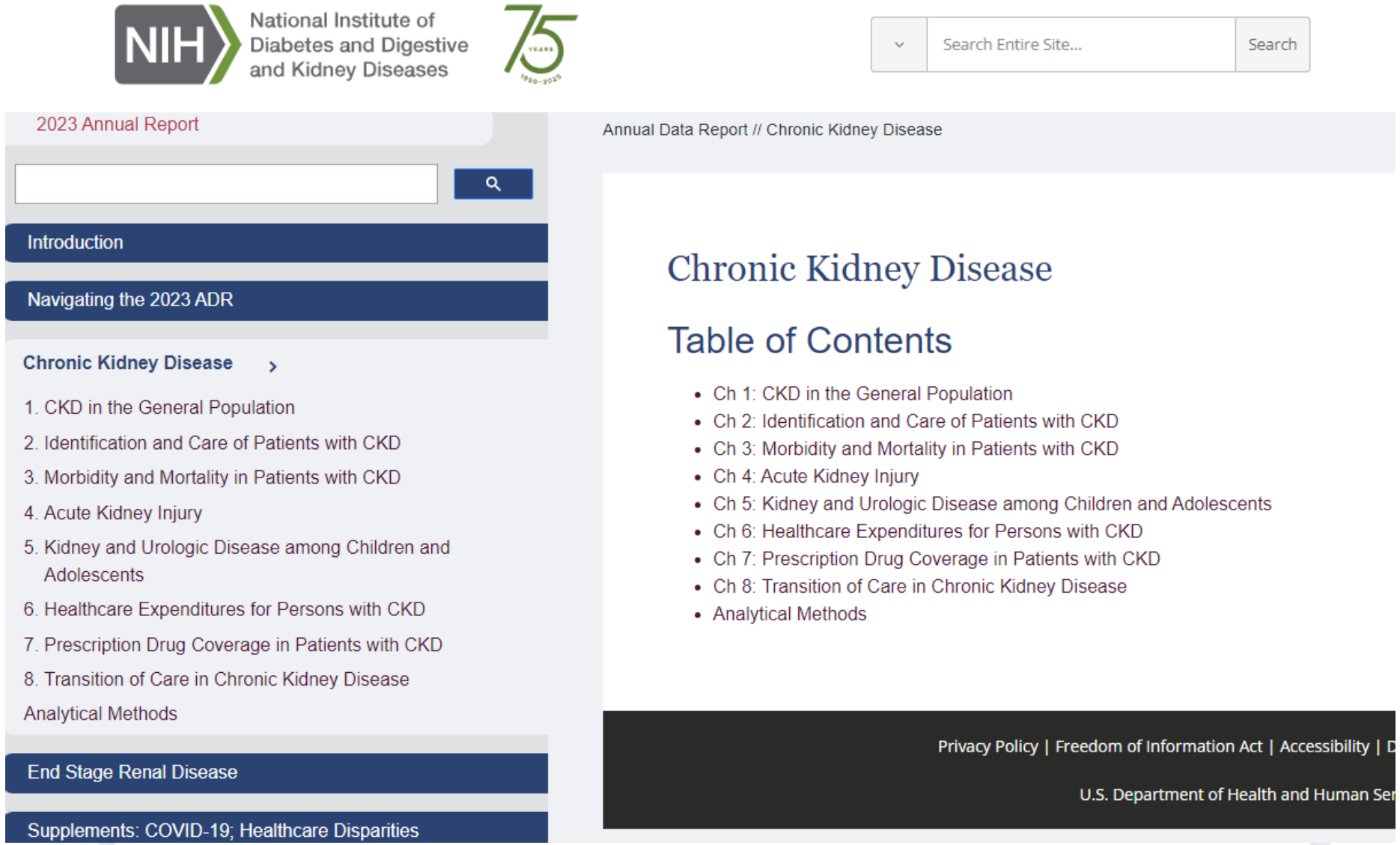
?

APOL1-Mediated Kidney Disease (AMKD)

- Risk variants of the apolipoprotein L1 (APOL1) gene are a key risk factor for kidney disease in those of African descent
- These variants are called G1 and G2.
- Certain APOL1 variants have been linked with e.g. high blood pressure-related kidney disease, FSGS, and HIV-associated nephropathy
- Symptoms: e.g. foamy urine, polyuria, itchy and/or dry skin, nausea, weighloss
- We need
  - Longitudinal studies collecting data on APOL1 variants
  - Deciphering the molecular mechanisms that damages kidney cells to translate APOL1 genetic data to the nephrology clinic.
  - APOLLO: novel study determining APOL1 genetic variants in Live- and Deceased-Donors.

National Kidney Foundation, Patient Education Team, Last Updated: February, 2024
Fuentes et al. KI Reports 2020

Kidney Disease in the US: USRDS

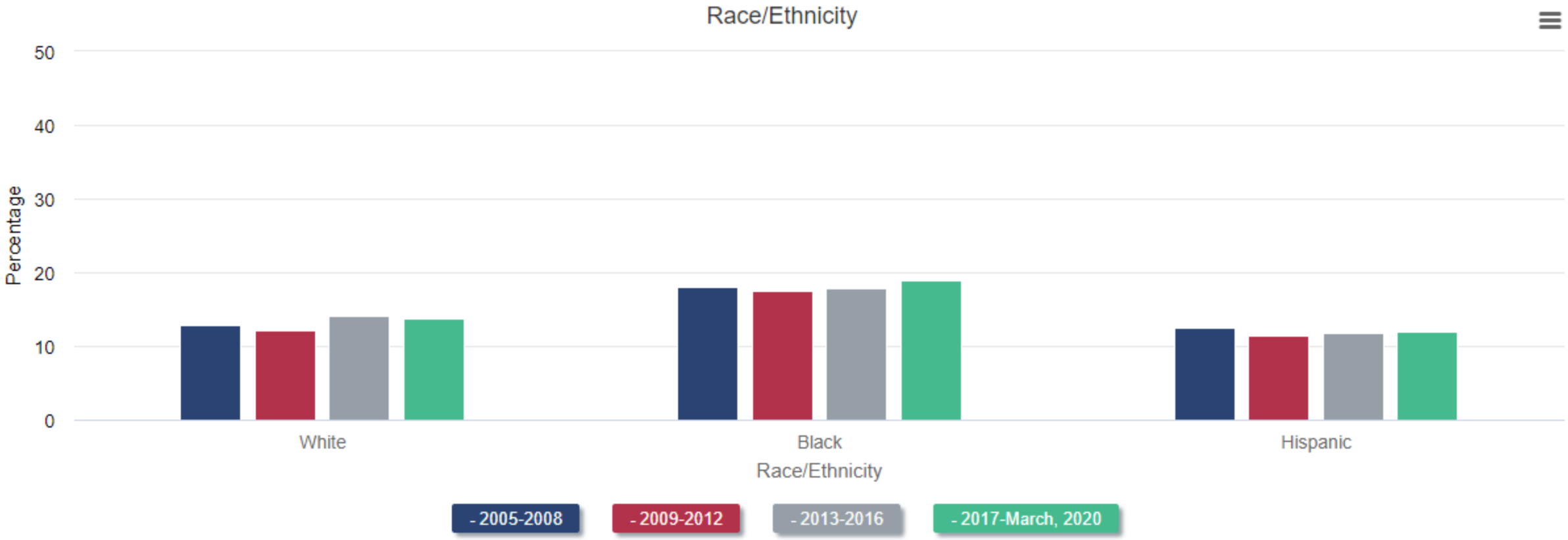


CKD in the General US Population

- **14.0%** of adults had eGFR <60 ml/min/1.73m², albuminuria or both
- KDIGO classification: **10.5%** moderate risk disease, **2.4%** high risk disease and **1.1%** very high risk disease.
- CKD prevalence **18.8%** in Black and **12%** in Hispanic individuals
- Percentage of individuals with ACR ≥30 mg/g: **10.2%**
  - Black individuals: 13.5% White individuals: 9.2%.
- Prevalence of diabetes: **9.5%** in those without CKD and **35.6%** in those with CKD

USRDS Annual Report 2023; **NHANES data: 2017-March 2020**

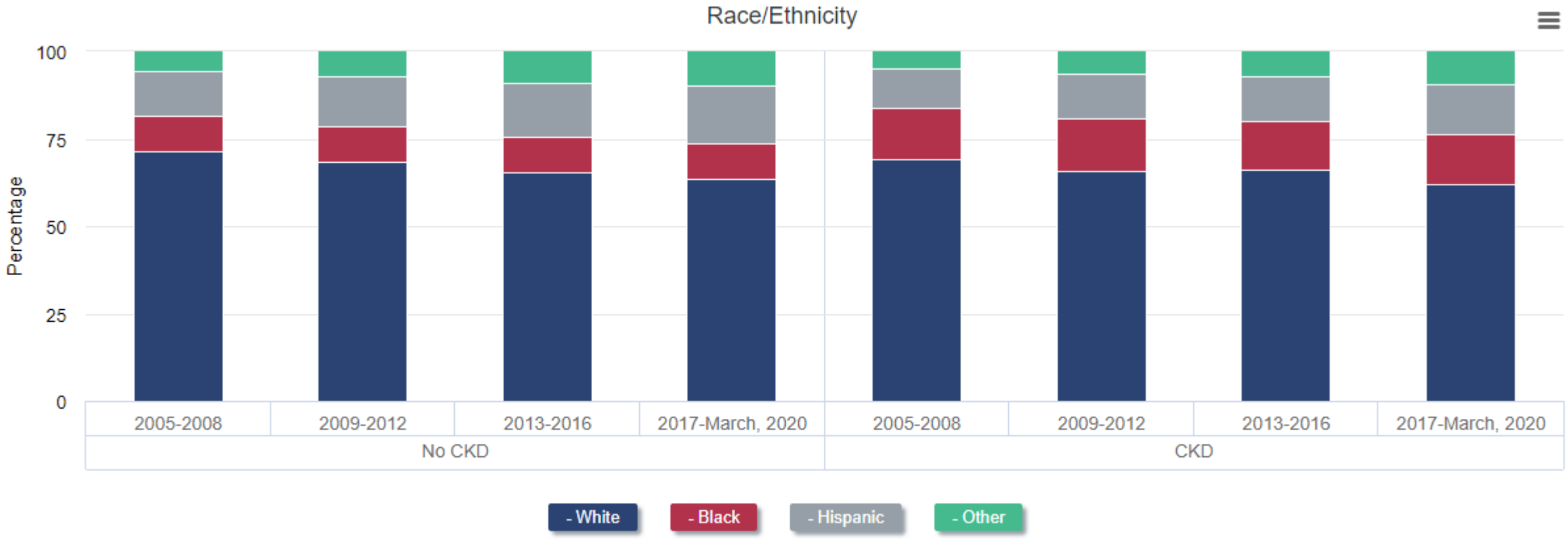
CKD Prevalence by Race/Ethnicity



Data source: NHANES; Cohort: Participants aged ≥20 years with serum creatinine and urinary ACR measurements. Abbreviations: CKD, chronic kidney disease; ACR, albumin to creatinine ratio; CVD, cardiovascular disease; NHANES, National Health and Nutrition Examination Survey.

USRDS Annual Report 2023; **NHANES data**

Demographics of CKD and non-CKD patients



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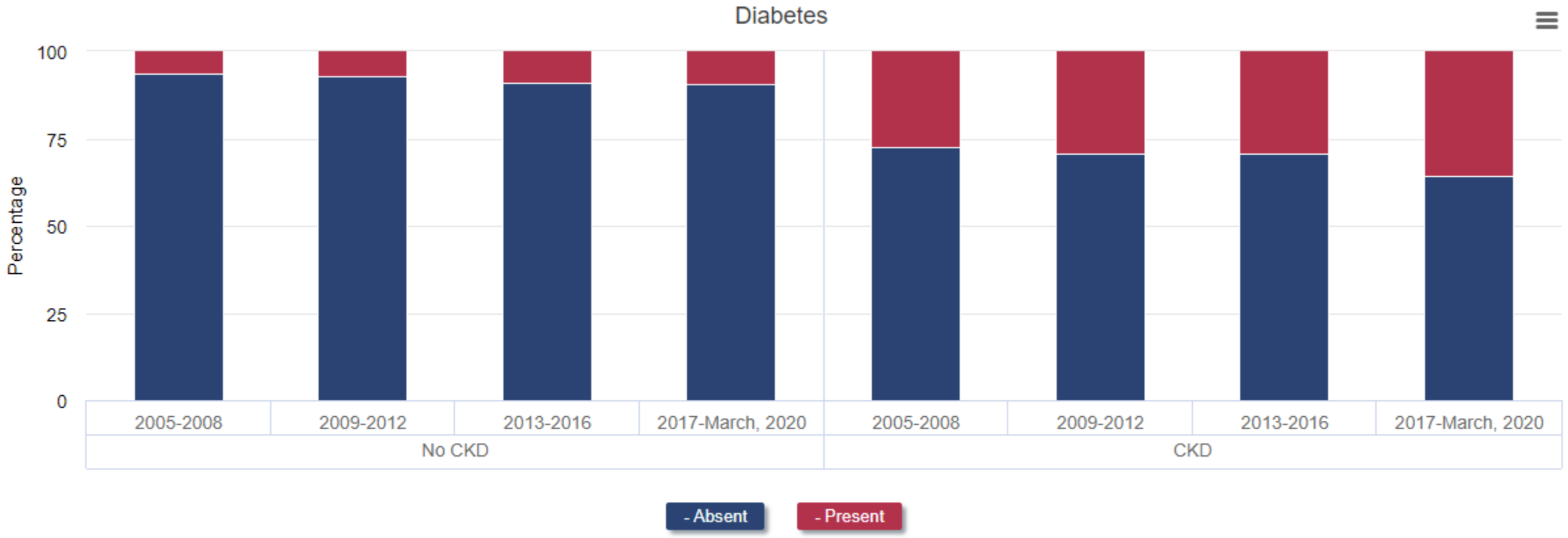
USRDS Annual Report 2023; **NHANES data**

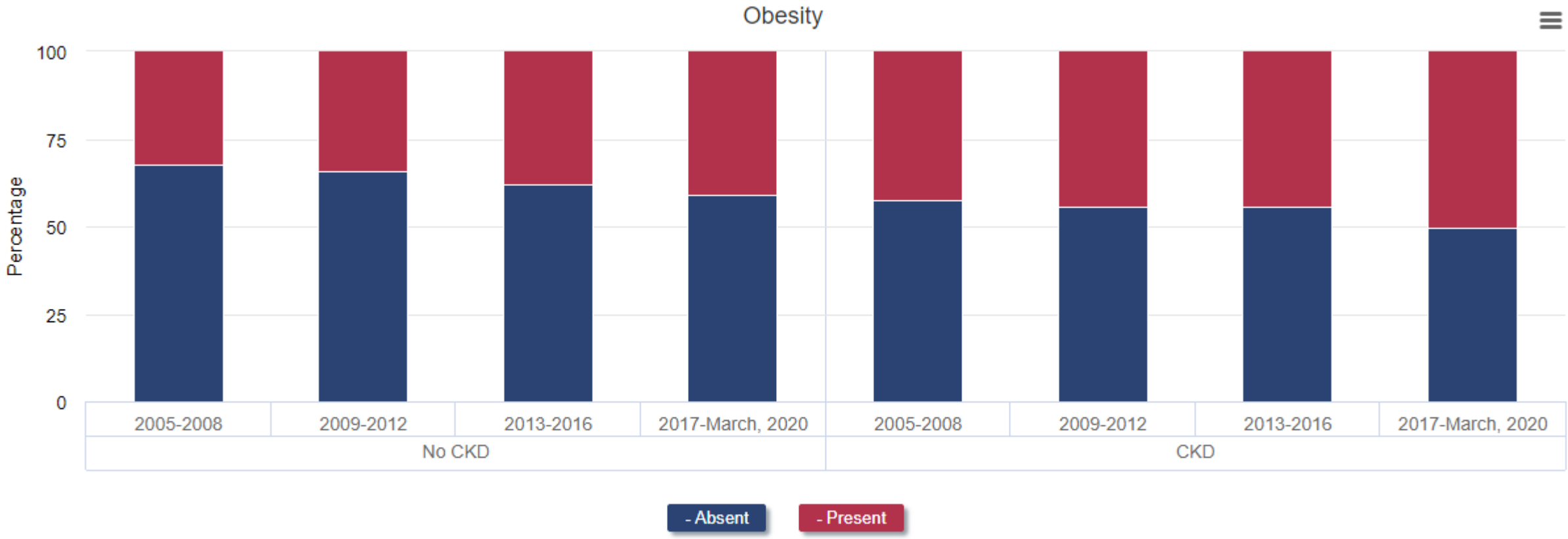
Diabetes in CKD and non-CKD patients



Data source: NHANES; Cohort: Participants aged ≥20 years with serum creatinine and urinary ACR measurements. Abbreviations: CKD, chronic kidney disease; ACR, albumin to creatinine ratio; CVD, cardiovascular disease; NHANES, National Health and Nutrition Examination Survey.

USRDS Annual Report 2023; **NHANES data**

Obesity in CKD and non-CKD patients



Data source: NHANES; Cohort: Participants aged ≥20 years with serum creatinine and urinary ACR measurements. Abbreviations: CKD, chronic kidney disease; ACR, albumin to creatinine ratio; CVD, cardiovascular disease; NHANES, National Health and Nutrition Examination Survey.

USRDS Annual Report 2023; **NHANES data**

Prevalence of CKD by insurance, income, and education level in U.S. adults

Characteristic	Overall (%) 2005-2008	2009-2012	2013-2016	2017-March, 2020
Overall	13.3	12.5	13.9	14.0
Health insurance				
Not insured	8.9	8.7	10.9	10.8
Insured	14.3	13.5	14.5	14.5
Health insurance type				
Private	12.0	10.9	12.1	13.2
Medicare	36.2	35.6	32.2	31.5
Medicare and private	37.4	33.7	32.0	33.6
Medicaid	23.0	18.9	20.4	15.6
Other government	19.0	15.8	17.8	14.3
Family income to poverty ratio				
≥1: Not poverty	12.7	11.9	13.1	14.0
<1: Poverty	15.3	14.5	18.8	16.5
Education				
Not a high school graduate	19.7	19.0	19.1	20.4
High school graduate/GED	15.1	13.9	16.3	16.1
At least some college	10.4	10.3	11.9	12.0

USRDS Annual Report 2023; **NHANES data**

What is **Medicare**?

- A federal health insurance program primarily for individuals aged **65 and older,** it also covers younger people with certain disabilities or **end-stage kidney disease (ESKD).**
- It has four parts:
  - **Part A**: Hospital insurance (inpatient stays, nursing facilities, some home healthcare).
  - **Part B**: Medical insurance (outpatient care, doctor visits, preventive services).
  - **Part C**: Medicare Advantage (alternative to traditional Medicare, offered by private insurers and depend on health care plan, includes network/provider restrictions).
  - **Part D**: Prescription drug coverage.
- Funded through payroll taxes, premiums, and general federal revenue.

Dialysis treatment for patients with ESKD covered under **Medicare Part B**

- **Medicare Part B (Medical Insurance)**

  Primary Coverage: Part B covers **outpatient dialysis treatment**, including In-center HD

  Doctor Visits: Part B also covers nephrologist consultations and other physician services related to the management of CKD.

- **Medicare Part A (Hospital Insurance)**

  Hospital-Based Dialysis: If dialysis is provided during an inpatient hospital stay.

- **Medicare Part D (Prescription Drug Coverage)**

  Oral medications related to ESKD that are not covered by Part B (certain phosphate binders).

What is **Medicaid**?

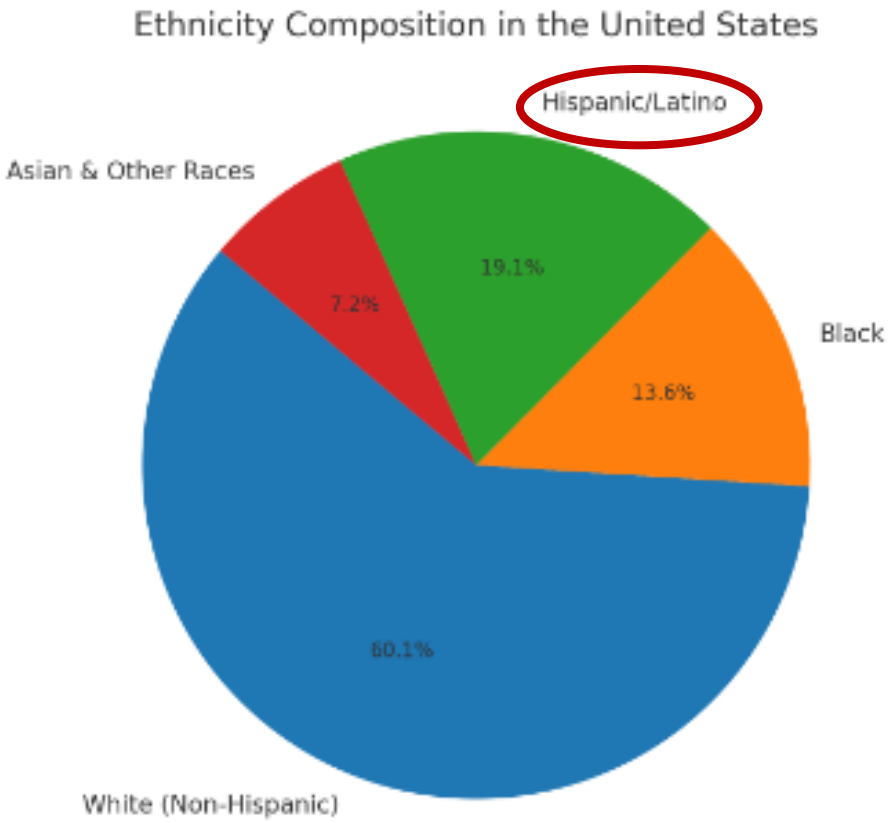
- Joint federal and state program providing healthcare coverage to **low-income individuals and families**, incl. pregnant women, children, and people with disabilities.
- Eligibility and benefits vary by state.
- **Medicare** focuses on the adults 65+ and certain disabled populations and patients with ESKD, while **Medicaid** supports low-income individuals and families with broader range of services.

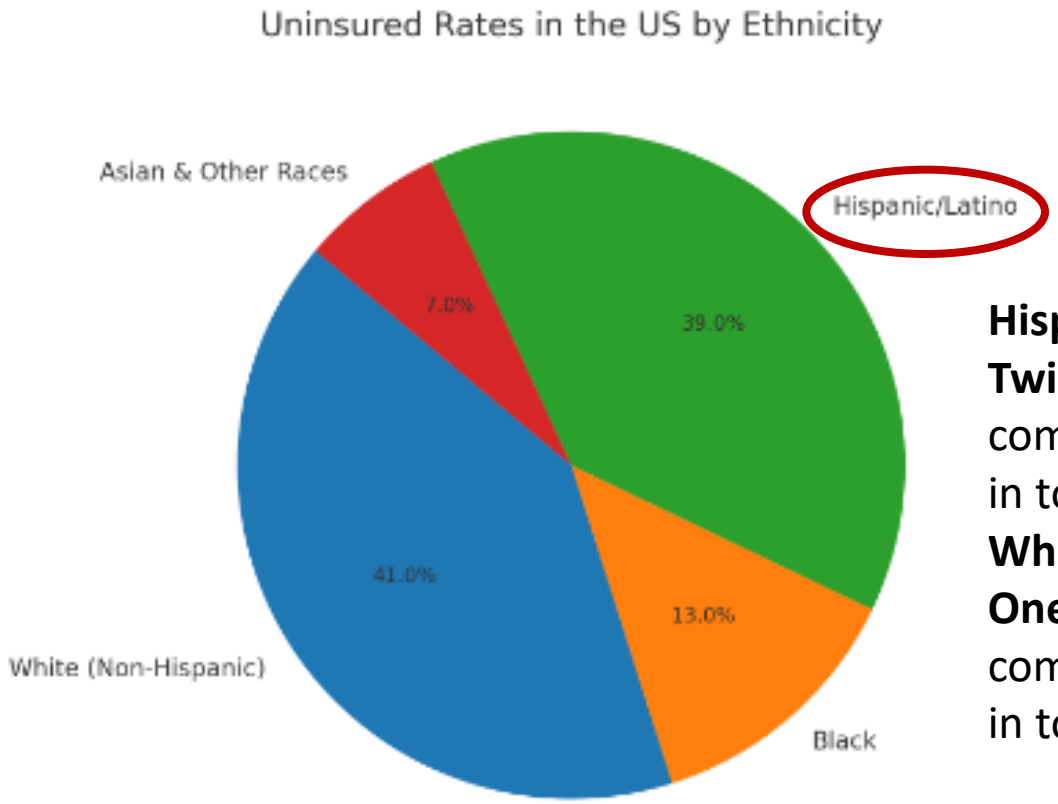
US health insurance system coverage in 2024

1. **Private Health Insurance: ± 54% of Americans**
   - Employer-sponsored insurance, 7% purchased through the Affordable Care Act marketplaces or individual market.
   - High premiums, deductibles, and out-of-pocket expenses are increasingly common.
2. **Public Health Insurance**
   - **Medicare:** ±18% of the population (65+ and individuals with disabilities)
   - **Medicaid:** ±20% of the population (low-income individuals, families, and children).
3. **Uninsured Population**
   - 8.5-9% of U.S. adults: affordability issues or ineligibility for Medicaid in states that have not expanded it.

Data from U.S. Census Bureau, American Community Survey (ACS) and the Kaiser Family Foundation (KFF).

Ethnic Composition vs Uninsured Rate in the US



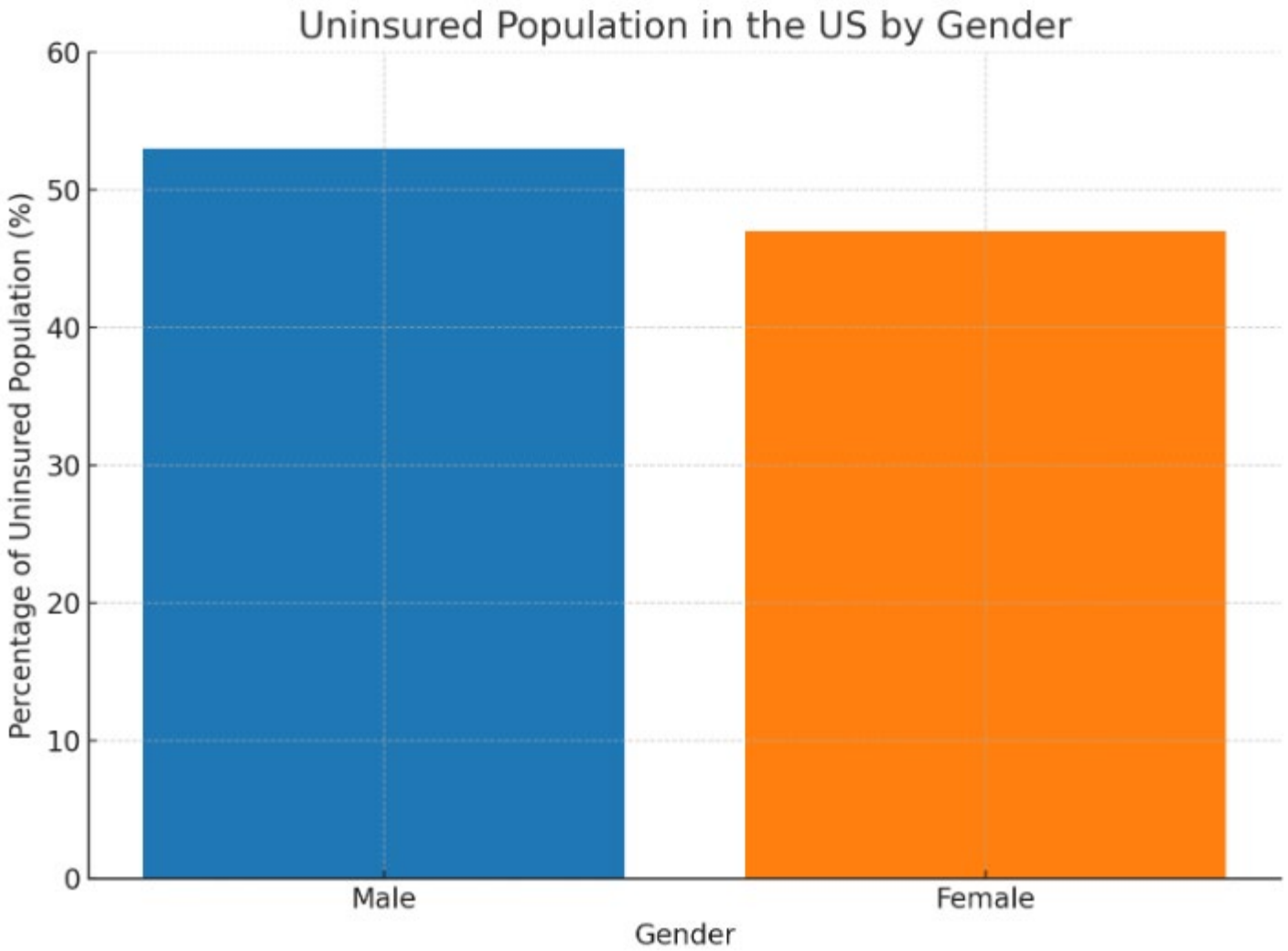


Hispanic/Latino:
Twice as many uninsured
compared to proportion
in total US population
White (Non-Hispanic):
One third less uninsured
compared to proportion
in total US population

Data from U.S. Census Bureau, American Community Survey (ACS) and the Kaiser Family Foundation (KFF).
Sources report the uninsured rate and racial/ethnic distribution of the uninsured population.

assisted by ChatGPT

Uninsured US Population by Gender



Male: 53%

Female: 47%

Men are slightly more likely to be uninsured than women, (differences in employment benefits, healthcare utilization, and other SES factors).

assisted by ChatGPT

Socioecomonic challenges may shift…

CHAPTER 2

WORKING MAN BLUES

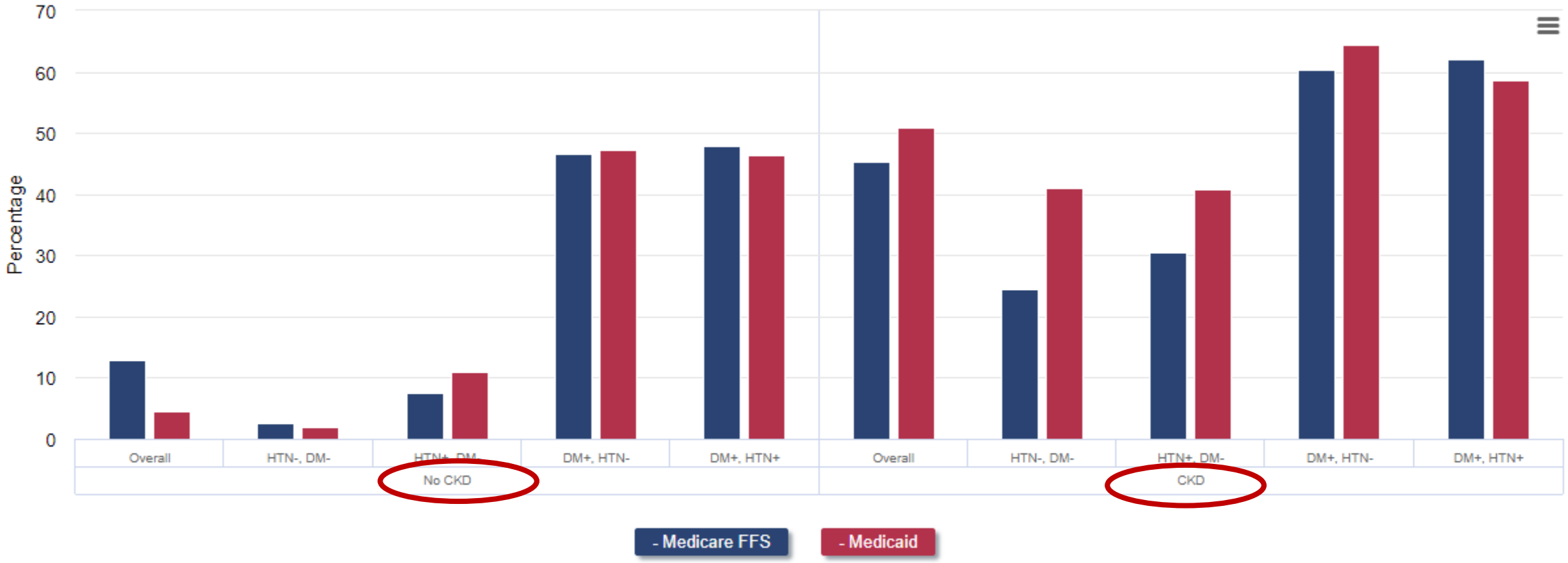
Men Are Losing Ground in the Labor Market

In May 2019 I was moderating a panel discussion on inequality at a conference organized by the Federal Reserve. I asked Melissa Kearney, a top-notch economist, whether she was more worried about women or men. She took a moment. I'd sprung the question on her in front of a highly influential audience. "I am really worried about the extent to which men in the U.S. are being pushed to the side of economic, social and family life," she responded. "For 20, 30 or 40 years . . . scholars focused on women and children. Now we really need to think about men."[1]

Kearney was brave to say it, and she is right. If we want a more dy-

Richard V. Reeves
writer and social scientist;
Senior Fellow at the Brookings Institution in Washington DC.

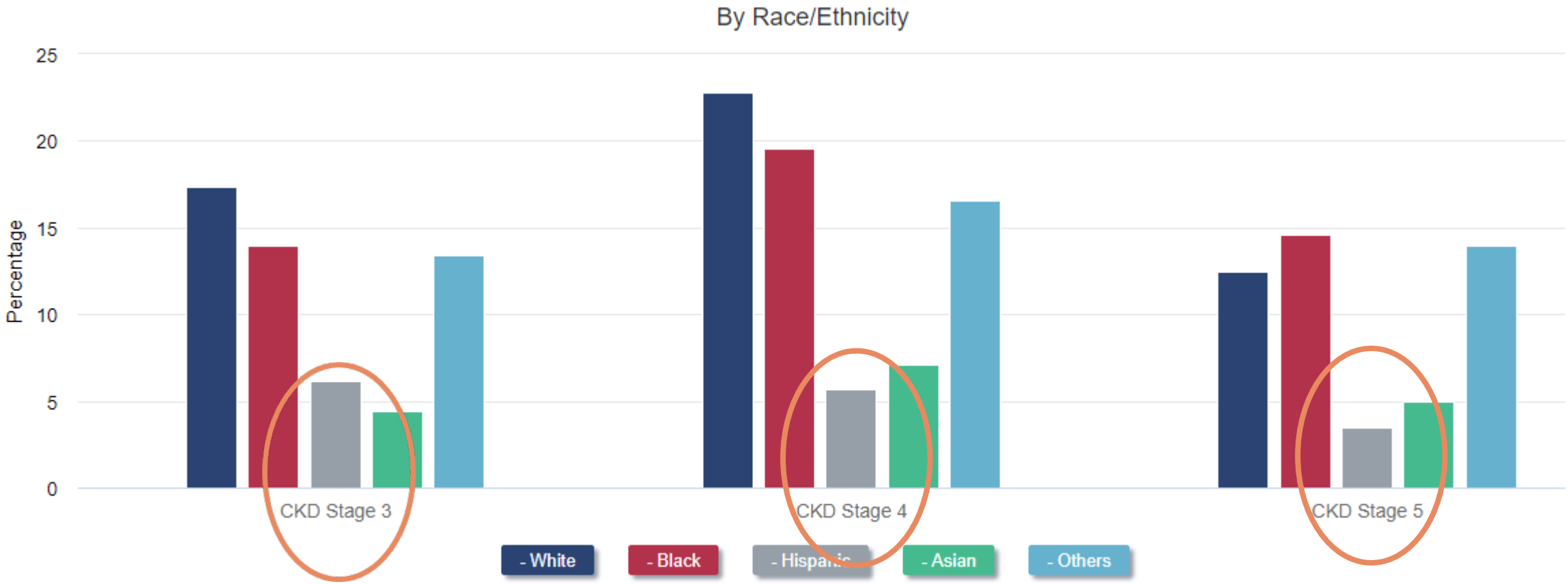
CKD care: Percentage receiving urine protein testing in insured adults, 2021



Data source: Medicare 5% and Medicaid 20% samples. December 31, 2021 point prevalent beneficiaries aged ≥66 years (Medicare FFS) or 18-64 years (Medicaid). Abbreviations: DM, diabetes; HTN, hypertension.

USRDS Annual Report 2023

Percentage receiving nephrology care in adult Medicaid beneficiaries (18-64 yrs) with CKD, 2021

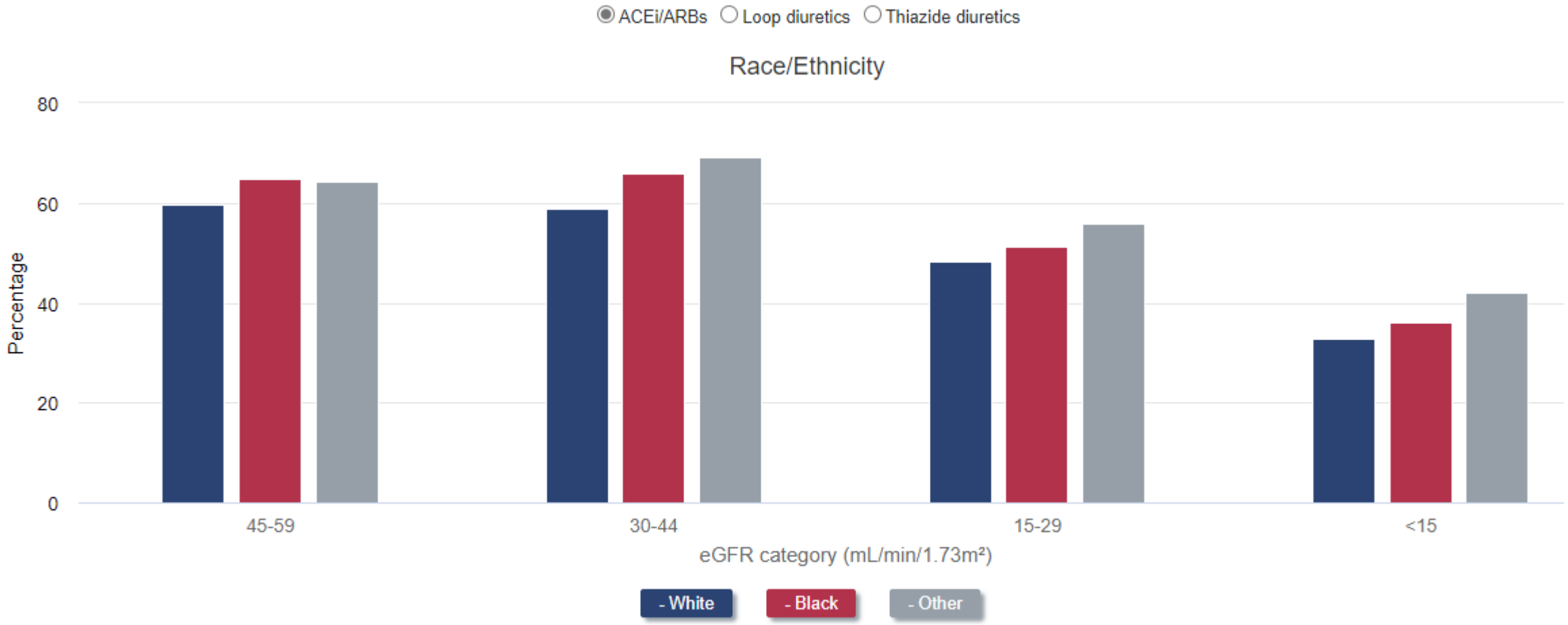


Data source: Medicaid 100% sample. December 31, 2021 point prevalent beneficiaries aged 18-64 years. Abbreviations: ASHD, atherosclerotic heart disease; DM, diabetes; HF, heart failure.

Percentage receiving nephrology care in adult Medicare beneficiaries (65+ yrs) with CKD, 2021

Data source: Medicare 5% (Medicare FFS stage 3) and 100% (Medicare FFS stages 4-5) samples. December 31, 2021 point prevalent FFS beneficiaries aged ≥66 years. Abbreviations: ASHD, atherosclerotic heart disease; DM, diabetes; HF, heart failure.

Prescription Drug Coverage in Patients with CKD: ACEi/ARBs, 2021



Data source: M Health Fairview stages 3-5. December 31 point prevalent patients aged ≥18 years. 2019-2021 combined cohorts.

SGLT2is and GLP-1RAs among Medicare benefciaries

Diabetologia
https://doi.org/10.1007/s00125-024-06321-2

ARTICLE

Check for updates

Racial and ethnic disparities in the uptake of SGLT2is and GLP-1RAs among Medicare beneficiaries with type 2 diabetes and heart failure, atherosclerotic cardiovascular disease and chronic kidney disease, 2013–2019

Eric Wang[1] · Elisabetta Patorno[2] · Farzin Khosrow-Khavar[1,3] · Stephen Crystal[4,5] · Chintan V. Dave[1,6]

Received: 6 May 2024 / Accepted: 13 October 2024

Using Medicare fee-for-service data (2013–2019):
The aim of this study was to investigate racial and ethnic disparities in the use of SGLT2is … among older adults with type 2 diabetes and …CKD.

SGLT2is and GLP-1RAs among Medicare beneficiaries

Diabetologia
https://doi.org/10.1007/s00125-024-06321-2

ARTICLE

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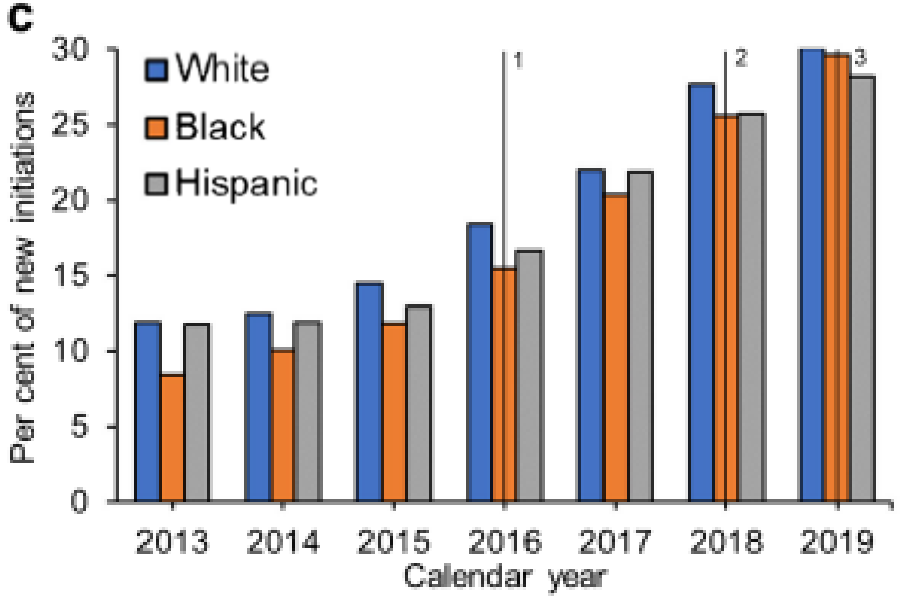
Proportions of new initiations of SGLT2is by race and ethnicity and CKD

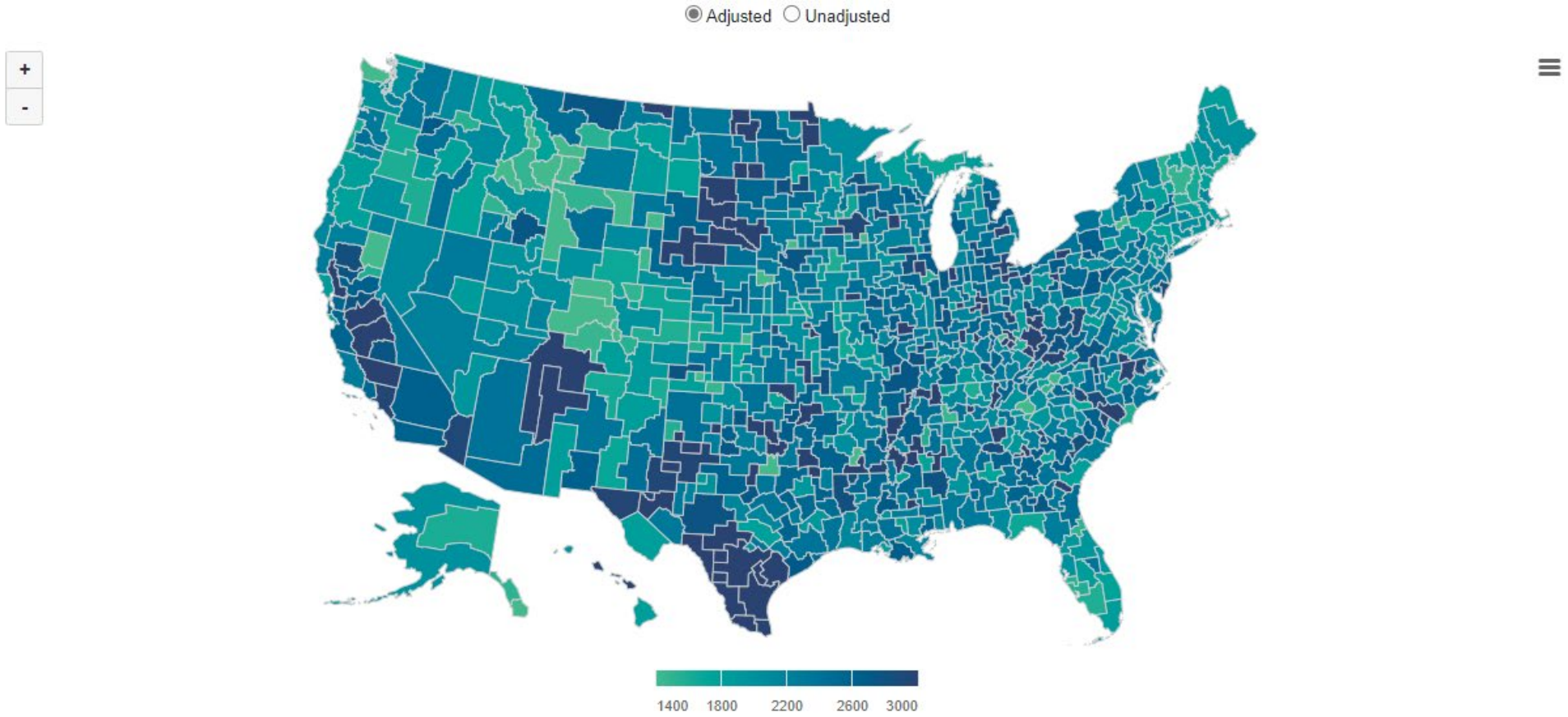


- **Disparities in SGLT2i uptake were evident for Black participants in earlier study years.**
- **Differences attenuated year-on-year, although did not dissipate entirely.**

End Stage Kidney Disease - USRDS 2023

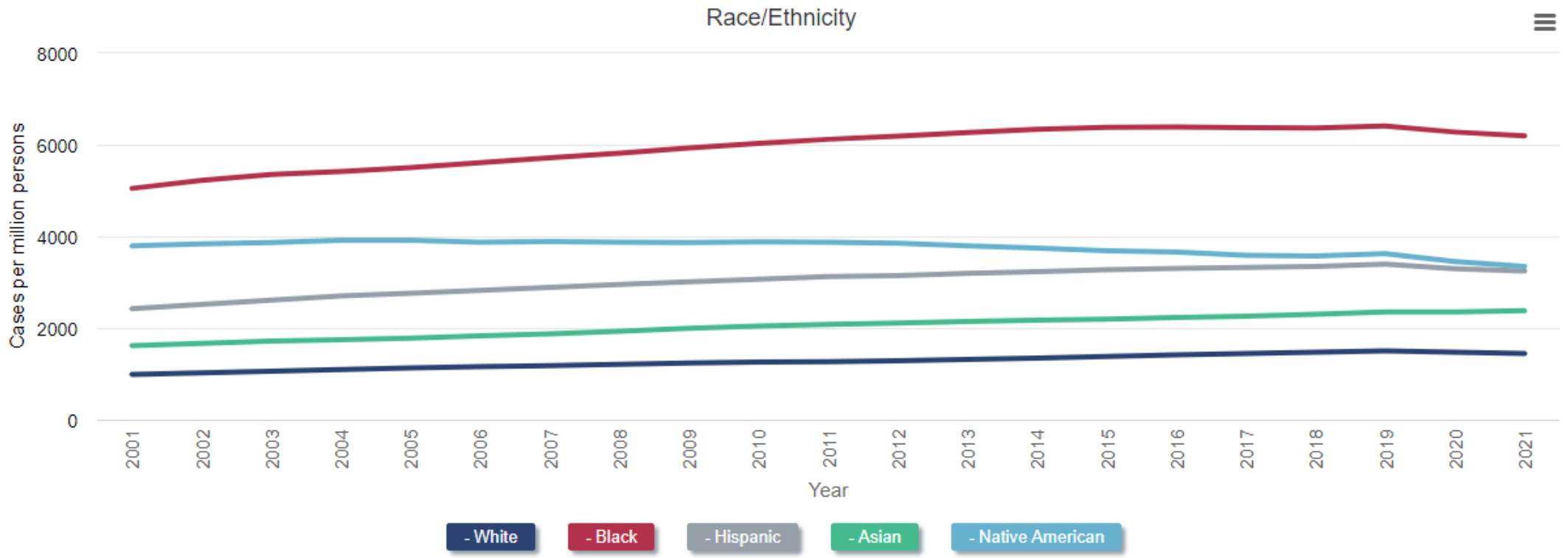
- **In 2021,** adjusted ESKD prevalence ranged from **1.688** per million population in New England to of **2.330** in Southern California.
- ESKD prevalence was over **4 times higher** among Black compared to White individuals and over **twice as high** among Hispanic and Native American individuals.
- A higher percentage of White compared to Black individuals initiated kidney replacement therapy with **PD** and was highest among Asian individuals (20%).
- The percentage who received a preemptive kidney transplant was highest among White individuals (4%).

Prevalence of ESKD by Health Service Area, 2020-2021



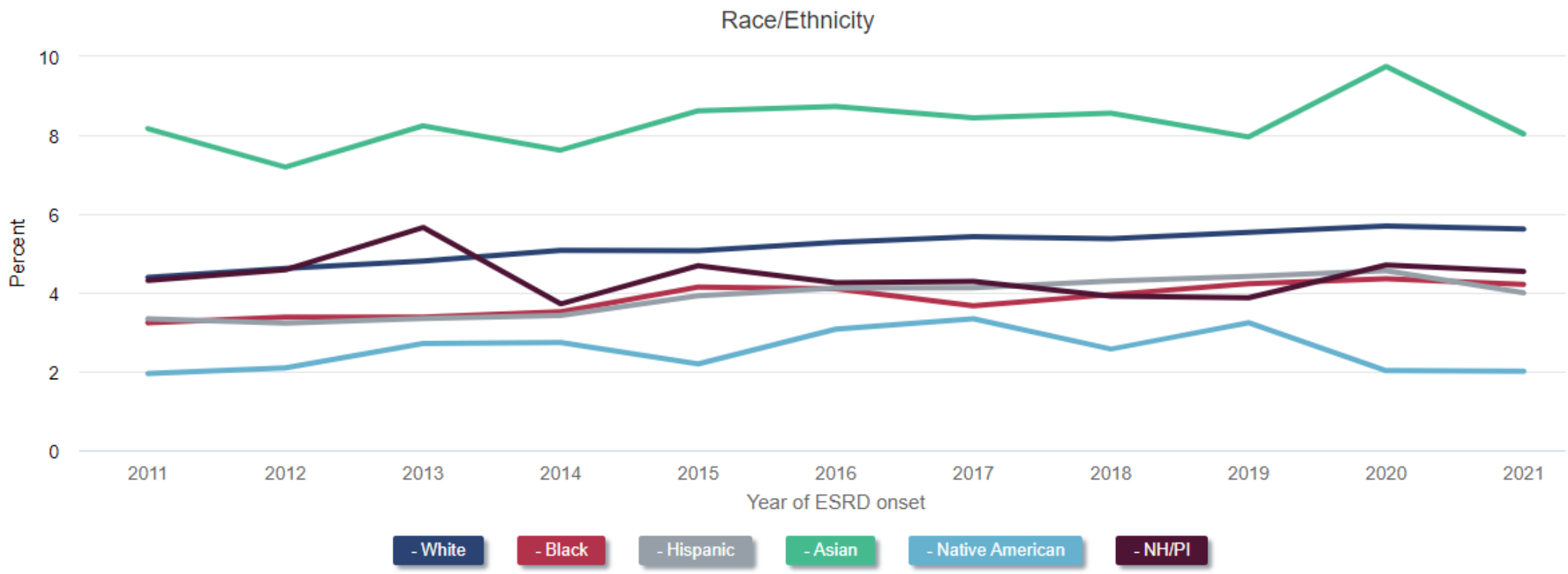
Data Source: USRDS ESRD Database. 2020-2021 U.S. population and the 2020-2021 U.S. prevalent ESRD patients are included. Unknown sex and other/unknown/multiple race/ethnicity were excluded. Adjusted incidence rates are standardized to the age, sex, and race/ethnicity distribution of the US population 2020-2021.

Adjusted prevalence of ESKD, 2001-2021



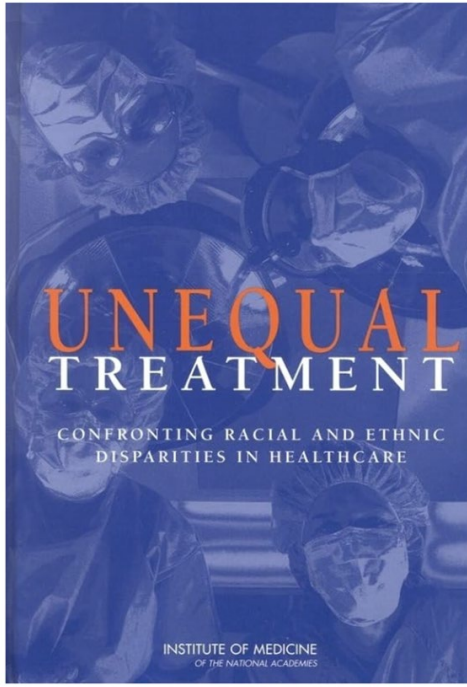
Data Source: USRDS ESRD Database. U.S. ESRD patients, unknown sex and other or unknown race/ethnicity excluded. Rates are standardized to the age, sex, and race/ethnicity distribution of the 2015 US population.

Percentage of incident ESKD patients who were **waitlisted** before initiation of dialysis, 2011-2021



Data source: USRDS ESRD database and OPTN waitlisting history.

Confronting Racial and Ethnic Disparities in Health Care (2003)

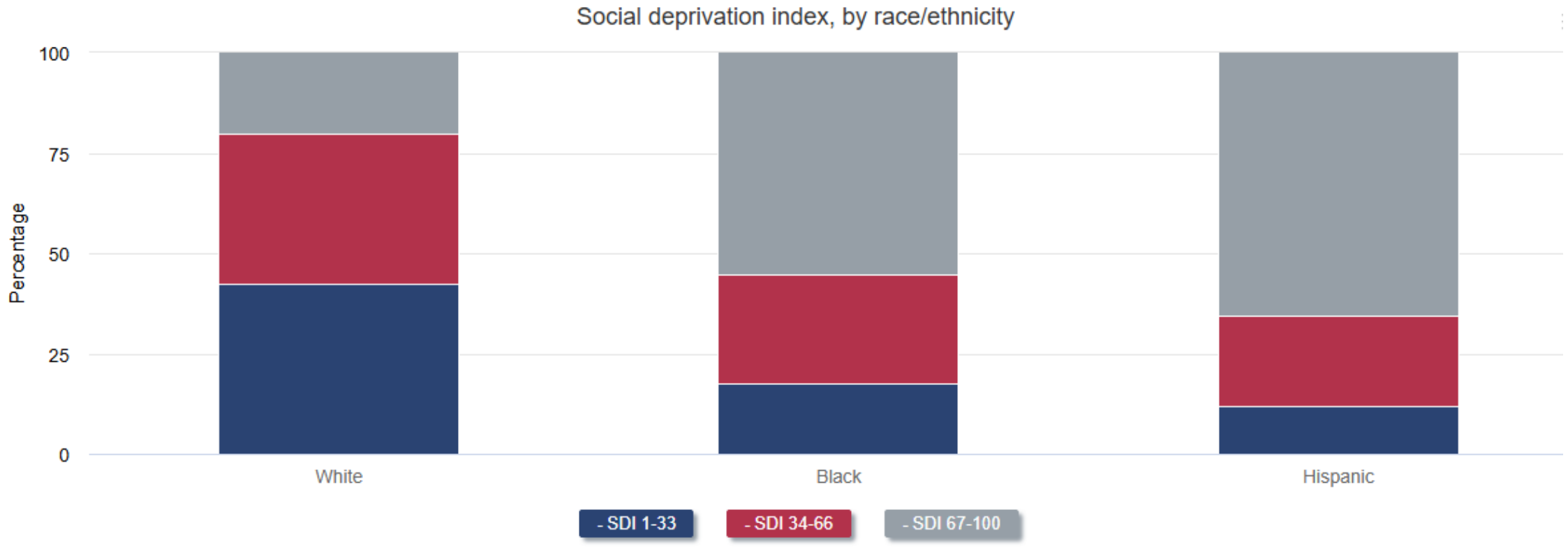


.. **racial and ethnic minorities** experience **a lower quality of health services**, and are **less likely to receive even routine medical procedures than are white Americans**.

…. **are less likely to receive peritoneal dialysis and kidney transplantation** (e.g., Epstein et al., 2000;…..),

… these differences are associated **with greater mortality among African-American patients** (Peterson et al., 1997; ….).

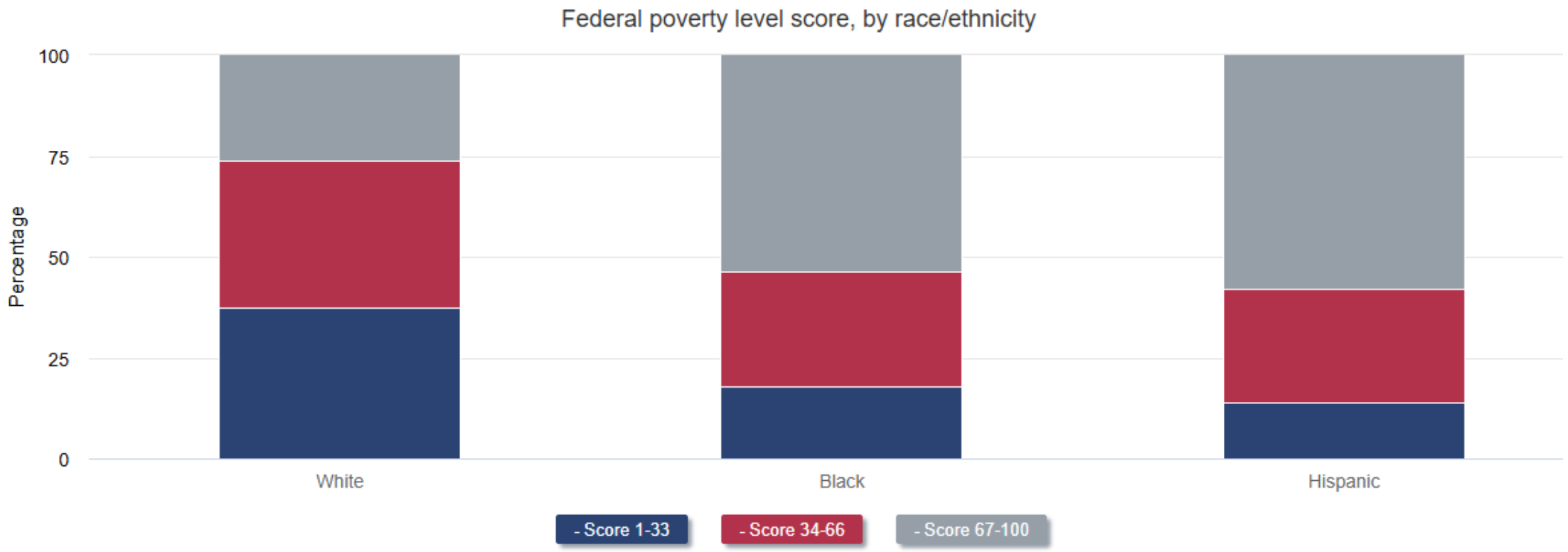
Health disparities – Social Deprivation



Data source: Medicare 5% random sample and Medicare100% CKD stages 4 and 5 databases. December 31, 2021 point prevalent beneficiaries covered by Medicare FFS Parts A and B, aged ≥66 years, with diagnosis of CKD stages 3-5, and of White, Black, or Hispanic race/ethnicity. Abbreviation: SDI, Social Deprivation Index.

USRDS Report 2023

Health disparities – Poverty



Data source: Medicare 5% random sample. December 31, 2021 point prevalent beneficiaries covered by Medicare FFS Parts A and B, aged ≥66 years, with diagnosis of CKD stages 3-5, and of White, Black, or Hispanic race/ethnicity. Abbreviation: SDI, Social Deprivation Index.

USRDS Report 2023

Summary

- „**Race**“: *Black, White, Asian and Native American*) and **ethnicity**“: *Hispanic or not Hispanic* are not always easy to define and definitions differ by region.
- Race and ethnicity are **complex social categories** with significant implications for health.
- **Social determinants** such socioeconomic status, access to health car, environmental exposures, and systematic inequities may be better suited to investigate health disparities.
- Access to healthcare is an essential variable for understanding differences in CKD care
- Data from **kidney registries** are essential to understand inequalities of CKD management.
- Dialysis and kidney translplantation are universally reimbursed in the USA.
- Don‘t think inside boxes/categories!

Thank you!

natalie.ebert@charite.de

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