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AN ACCREDITED CONTINUING EDUCATION SERIES WITH THE EXPERTS

# Addressing Disparities in Cancer Care and Incorporating Precision Medicine for Minority Populations

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# Disparities in Cancer Care: Prostate Cancer

## Moderator & Course Director



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**116<sup>th</sup> President National Medical Association**

## Presenters



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The James Buchanan Brady Urological Institute  
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**Consultant:** AstraZeneca, Bristol Myers Squibb, Genentech, Merck & Co., Inc., Pfizer Inc., Taiho Oncology, Inc.

**Clinical Research:** Amgen, Genentech

## **Planning Committee**

The following planning committee members have nothing to disclose:

**UNMC:** Brenda Ram, CMP, CHCP

**Bio Ascend:** Chloe Dunnam; Lucja Grajkowska, PhD; Kraig Steubing

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**Investigator:** Boston Scientific, National Institutes of Health

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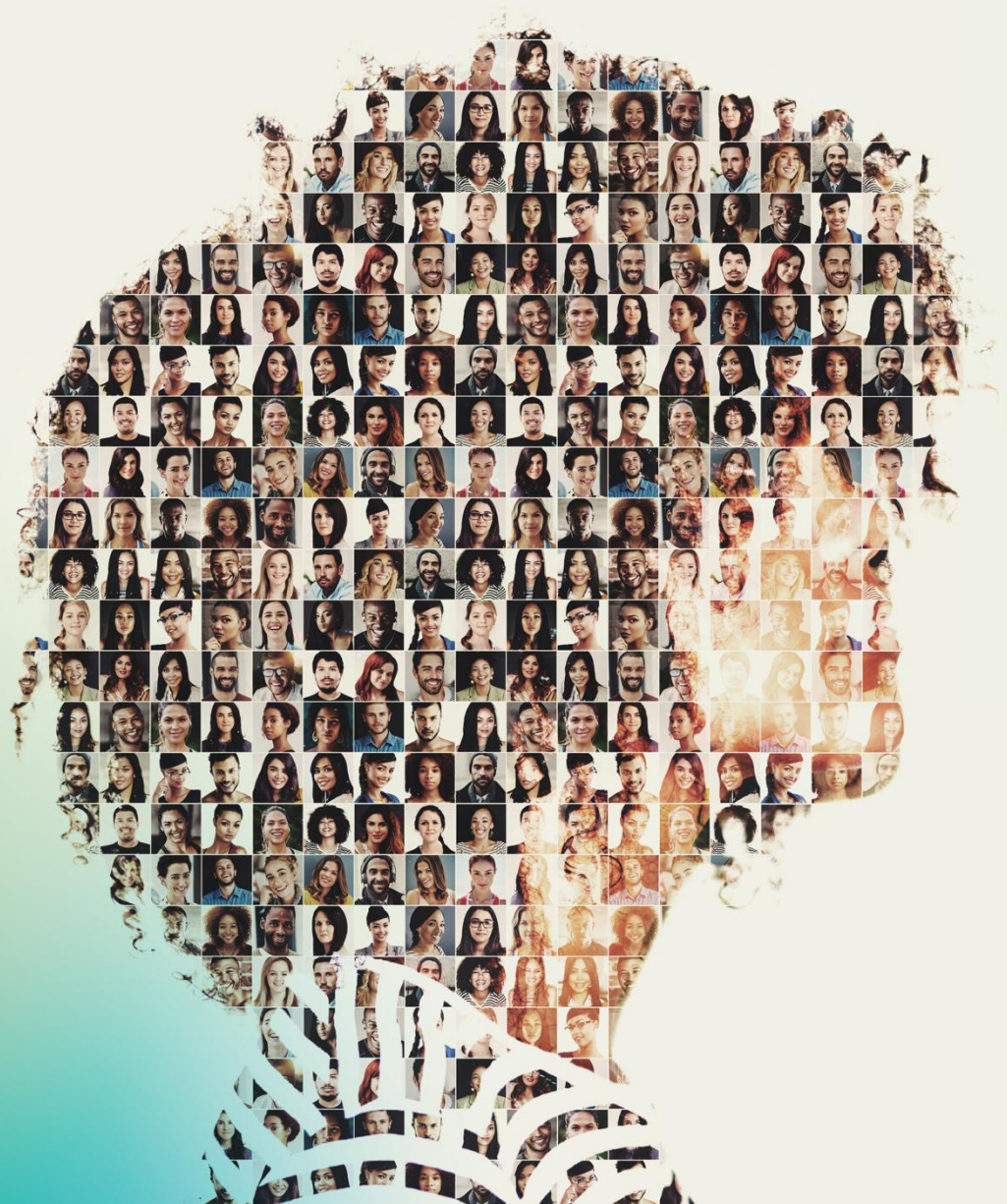
## **Yaw Nyame, MD**

No financial relationships to disclose.

# Learning Objectives

- Review racial difference in the outcomes in patients with cancer, including patients with both hematologic and solid tumors
- Evaluate sociodemographic, physician, and hospital factors that can help identify potentially modifiable patient and health care system factors that may underlie persistent racial disparities in receipt and quality of therapy
- Develop efforts to improve access to care, enhance diversity in the healthcare workforce, navigate minority cancer patients through the healthcare system, and enhance adherence to cancer-specific best practice





# Addressing Ethnic Disparities in Prostate Cancer Health Care

**Arthur L. (Bud) Burnett, M.D., M.B.A., F.A.C.S.**  
Patrick C. Walsh Distinguished Professor of Urology  
The James Buchanan Brady Urological Institute  
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# Disclosures

Disclosure Statement: In accordance with ACGME policy on relevant financial disclosure, I disclose financial relationships with the following entities: Boston Scientific, Coloplast, National Institutes of Health, Novartis Pharmaceuticals

# Objectives

- Review basic epidemiologic statistics
  - **Emphasis on rates in minority populations**
- Present possible sources of racial/ethnic disparity
  - **Multiple levels of health care system factors**
- Consider unmet needs in diagnosis and management
  - **Attention to racial disparities**

# Health Disparities and the National Impact

- Definition of health disparity
  - Increased burden of an adverse health outcome or health determinant within a specific subset of the population<sup>1</sup>
- Levels of health care system disparity<sup>2</sup>
  - Patient: genetic predispositions, cultural beliefs
  - Provider: implicit biases
  - Health care system: access

1. Braveman P. Annu Rev Public Health 2006;27:167-94

2. Wheeler SM, Bryant AS. Obstet Gynecol Clin N Am 2017;44:1-11

# Scientific Progress

- Population disparities always increase when there is scientific progress in medicine
  - This was seen when there were improvements in screening and treatment of breast and colorectal cancer.
  - It is occurring as we move into the era of precision medicine and immunotherapy.
  - New preventive interventions are less likely to cause significant disparate outcomes.

Otis Brawley MD, Cancer Control in the 21<sup>st</sup> Century, 2020

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# Leading Causes of Death by Sex Across Race

MALES	NH BLACK				NH WHITE			
	RANK	NO.	%	DEATH RATE*	RANK	NO.	%	DEATH RATE*
Cause of death								
Heart diseases	1	40,040	24%	267.2	1	266,981	25%	214.1
Cancer	2	35,215	21%	228.1	2	247,202	23%	190.7
Accidents (unintentional injuries)	3	12,452	7%	65.8	3	76,025	7%	72.4
Cerebrovascular diseases	4	8,114	5%	57.4	5	43,711	4%	35.8
Diabetes	5	6,976	4%	45.3	6	30,010	3%	23.6
<b>All causes</b>		<b>168,742</b>		<b>1,088.7</b>		<b>1,077,329</b>		<b>880.6</b>
FEMALES	NH BLACK				NH WHITE			
	RANK	NO.	%	DEATH RATE*	RANK	NO.	%	DEATH RATE*
Cause of death								
Heart diseases	1	36,563	23%	171.2	1	233,632	22%	131.3
Cancer	2	34,510	22%	156.1	2	219,262	21%	138.2
Cerebrovascular diseases	3	10,074	6%	48.0	5	63,776	6%	35.6
Diabetes	4	7,077	4%	32.8	7	23,389	2%	14.4
Alzheimer disease	5	6,126	4%	30.3	4	67,893	6%	35.6
<b>All causes</b>		<b>158,057</b>		<b>735.4</b>		<b>1,056,078</b>		<b>635.4</b>

Abbreviation: NH, non-Hispanic.

\*Rates are per 100,000 population and age adjusted to the 2000 US standard population.

Source: National Center for Health Statistics, Centers for Disease Control and Prevention.

African-American/black individuals bear a disproportionate share of the cancer burden, having the highest death rate and the lowest survival rate of any racial or ethnic group for most cancers and other leading causes of death including heart diseases, stroke and diabetes.

DeSantis CE et al. Ca Cancer J Clin 2019; 0:1-23

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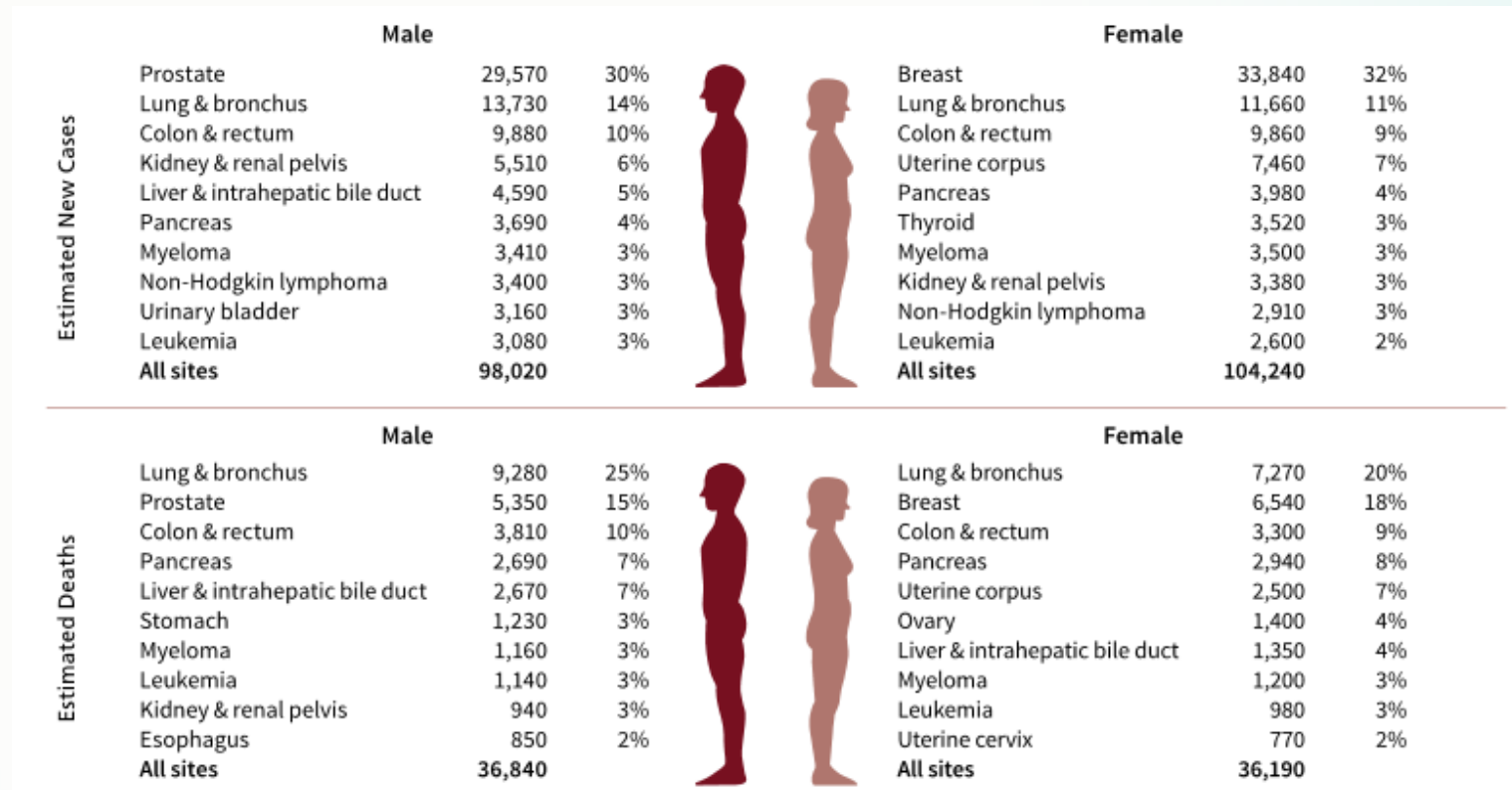


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# Leading Sites of New Cancer Cases and Deaths Among African-Americans in the United states, 2019 Estimates



DeSantis CE et al. Ca Cancer J Clin 2019; 0:1-23

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# Problem of Prostate Cancer: Racial Variation

- A racial variation exists with respect to the incidence and outcomes of prostate cancer
- The **incidence** of prostate cancer among White American men is 142.8 per 100,000 population compared with 230.8 for Black Americans, producing a **rate-ratio of 1.62 for Black men**.
- The **mortality** of prostate cancer among White American men is 22.4 per 100,000 population, compared with 54.9 for Black Americans, producing a **rate-ratio of 2.45 for Black men**.

Siegel R, et al. CA Cancer J Clin. 2012;62(1):10-29.

# Why Prostate Cancer?

- More likely aggressive disease...
  - Cancer of the Prostate Strategic Urologic Research Endeavor (CaPSURE) database: Black men presented at younger mean age (64.6 vs. 66.8 years), had higher median PSA (9.8 vs. 6.7 ng/ml), higher clinical Gleason Score (43% Gleason Score  $\geq 7$  vs. 33%), higher stage at presentation (stage  $\geq$  T3a, or N+ or M+ 10% vs. 4%), all  $p < 0.01$ .<sup>1</sup>
- Less likely “early detection”...
  - Surveillance, Epidemiology and End Results (SEER) database (NCI): Most striking differences in racial and ethnic variation among all cancers were in cancers that are most amenable to early detection and/or treatment, such as prostate cancer.<sup>2</sup>
- More likely under-treatment...
  - After adjusting for individual factors such as stage, grade, socioeconomic status and co-morbidity, differences in treatment patterns persist.<sup>3-5</sup>

1. Latini DM et al. Cancer 2006; 106: 789-95.

2. Tehranifar P et al. Cancer Epidemiol Biomarkers Prev 2009; 18: 2701-8.

3. Zeliadt SB et al. Urology 2004; 64: 1171-6.

4. Lyratzopoulos G et al. BMJ 2010; 340: c1928.

5. Du XL et al. Cancer 2011; 117: 3242-51

# Social Determinants of Health: Definition and Significance

- The conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a range of health, functioning, and quality-of-life outcomes and risks
- Shape 80-90% of the modifiable contributors to population health outcomes (versus 10-20% of health dictated by medical care)

Centers for Disease Control  
U.S. Department of Health and Human Services

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# Social Determinants of Health: Possible Considerations

- Access to education
- Access to health care
- Access to nutritious food
- Availability of employment
- Availability of health care providers
- Discrimination
- Early childhood education
- Educational attainment
- Food security
- Health insurance status
- Housing and housing security
- Income
- Literacy/health literacy
- Neighborhood safety
- Opportunities for higher education
- Social support
- Stress
- Transportation options

# Multiple Factors Associated with Racial Variation in Prostate Cancer Outcomes

- Disease Factors

- Grade
- Stage
- Volume
- PSA

- Patient Factors

- Values/beliefs/preferences
- Demographics
- Co-morbidities
- Education
- Access to care

- Provider Factors

- Experience
- Specialty
- Case Volume
- Practice Setting
- Geographic Location

Zeliadt SB, et al. Cancer. 2006;106(9):1865-1874.

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# Putative Factors associated with Decreased Utilization of Definitive Care in Ethnic Populations

- Treatment Selection Bias
  - “Watchful waiting” was administered an increased 1.4 x odds ratio in African-Americans<sup>1</sup>
  - “Shared decision making” occurred “very often” in 26% of African-Americans vs. 52% of Caucasian-Americans<sup>2</sup>
- Treatment Delays
  - Proposed but may not be an issue in equal-access centers<sup>3</sup>
- Lack of Treatment Access
  - Lack of health insurance
  - Lack of available medical facilities
- Systemic Barriers
  - Low volume urologists<sup>4</sup>
  - Hospital racial composition (high proportion of Black patients)<sup>5</sup>

1. Shavers VL et al. Gen Intern Med 2004;19(2):146-55.

2. Rim SH et al. Ing J Gen Med 2011; 4:481-6.

3. Banez LL et al. Cancer Epidemiol Biomarkers Prev. 2009;18(4):1208-1212.

4. Pollack CE, et al. Med Care. 2011;49(11):999-1006.

5. Pollack CE, et al. Cancer. 2011;117(24):5569-5578.

# Racial Disparity after Radical Prostatectomy: Yes or No?

- Survival outcomes equivalence
  - If localized prostate cancer is treated adequately and appropriately across all grades and stages<sup>1-3</sup>
- Survival outcomes non-equivalence
  - Black men had significantly shorter overall and cancer-specific survival times, regardless of treatment and after adjustment for multiple covariates<sup>4,5</sup>

1. Klein JB et al. J Natl Med Assoc 2010; 102: 108-17.

2. Merrill RM, Lyon JL. Urology 2000; 55: 730-5.

3. Resnick MJ et al. Oncol Urol 2009; 73: 620-3.

4. Cohen JH et al. Cancer Causes Control 2006; 17: 803-11.

5. Godley PA et al. J Natl Cancer Inst 2003; 95: 1702-10.

# Sexual Dysfunction Outcomes Disparity?

- Management of prostate cancer has effects on quality of life
  - Impact for all men receiving prostate cancer treatment
- Relevance in the African-American community (high prostate cancer-risk)
  - Possible influence on clinical management decisions associated with survival outcomes

# Evidence Synthesis

- Conflicting evidence regarding the extent and quality-of-life significance of sexual dysfunction following prostate cancer treatments in African-American men, relative to ethnically difference counterparts
- Limitations/biases of studies:
  - variations in study types and designs
  - retrospective data accrual or surveys (recall bias)
  - relatively low inclusion numbers of African-American men
  - uncertain methodologic rigor to ascertain outcomes
- Likely conclusion: The extent of sexual dysfunction effects may not differ between ethnic groups, but the psychosocial impact may differ.

**Bottom line: Accuracy of conclusions to date may be called into question until further investigation is undertaken.**

# Take-Action Considerations

- Pattern of Care Improvements
  - Early detection, diagnosis and treatment
  - Access: health insurance, healthcare administration
- Quality of Care Improvements
  - Adherence to quality indicators across structure, process and outcome domains
- Research Endeavors
  - Elucidation of risk factors for disparities (biological, genetic, social, environmental, dietary, lifestyle)
  - Discrimination between high vs. low risk disease
  - Discovery of biomarkers, technologies etc.

# Cancer Standard of Care

BREAST CANCER <sup>1</sup>	PROSTATE CANCER <sup>2</sup>
✓ Clinical Exam	✓ DRE
✓ Mammography	✓ PSA
✓ Grade	✓ Grade (Gleason)
✓ ER/PR Status	
✓ HER2 Status	
✓ Molecular Marker	✓ Molecular Marker
✓ Germline Testing	✓ Germline Testing
MRI?	MRI?

1. NCCN Guidelines Version 5.2020 Breast Cancer
2. NCCN Guidelines Version 2.2020 Prostate Cancer



# Germline Testing: Premise and Advantages

- Clinical and pathological features are limited at predicting outcomes
- (55% concordance of biopsy and surgical Gleason scores)
- Hereditary cancer comprises 14-17% of prostate cancer (12-14% of breast cancer)
- Tumor biology impacts the aggressiveness level and progression of prostate cancer
- Determination of germline mutation status improves initial and future treatment decisions for every man with prostate cancer (e.g., qualification for targeted therapies)
- Clinically actionable information may be derived for prevention/early detection of other cancers and direction for health care of at-risk family members

# Consortium on Disparities of Urologic Conditions (ConDUC)

- An urgent need exists for a longitudinal, observational, prospective database with predominantly African American men having prostate cancer
- Registry-based clinical research in prostate cancer is critical to advancing quality in disease management and ultimately in reducing disparate outcomes of this disease in those affected
- A major limitation of current national databases, prognostic tables, and nomograms is the lack of ethnic diversity

# Scientific Consortium on PCa Education Registry (SCOPE): Exploratory Endpoints

- Describe longitudinal trends of prostate cancer incidence and mortality
- Develop risk predictions and stratification models
- Assess quality of life outcomes
- Identify risk factors associated with treatment outcomes
- Develop a network that will facilitate African American (physicians and patients) participation in clinical trials for prostate cancer

# Racial Disparities in Prostate Cancer: A Patient-Centered Approach

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Division of Public Health Sciences, Fred Hutchinson Cancer Research Center



# Disclosures



- Andy Hill Cancer Research Endowment Distinguished Scholar Award
- Department of Defense Prostate Cancer Research Program Post-Doctoral and Physician Research Awards
- PNW SPORE Career Enhancement Award

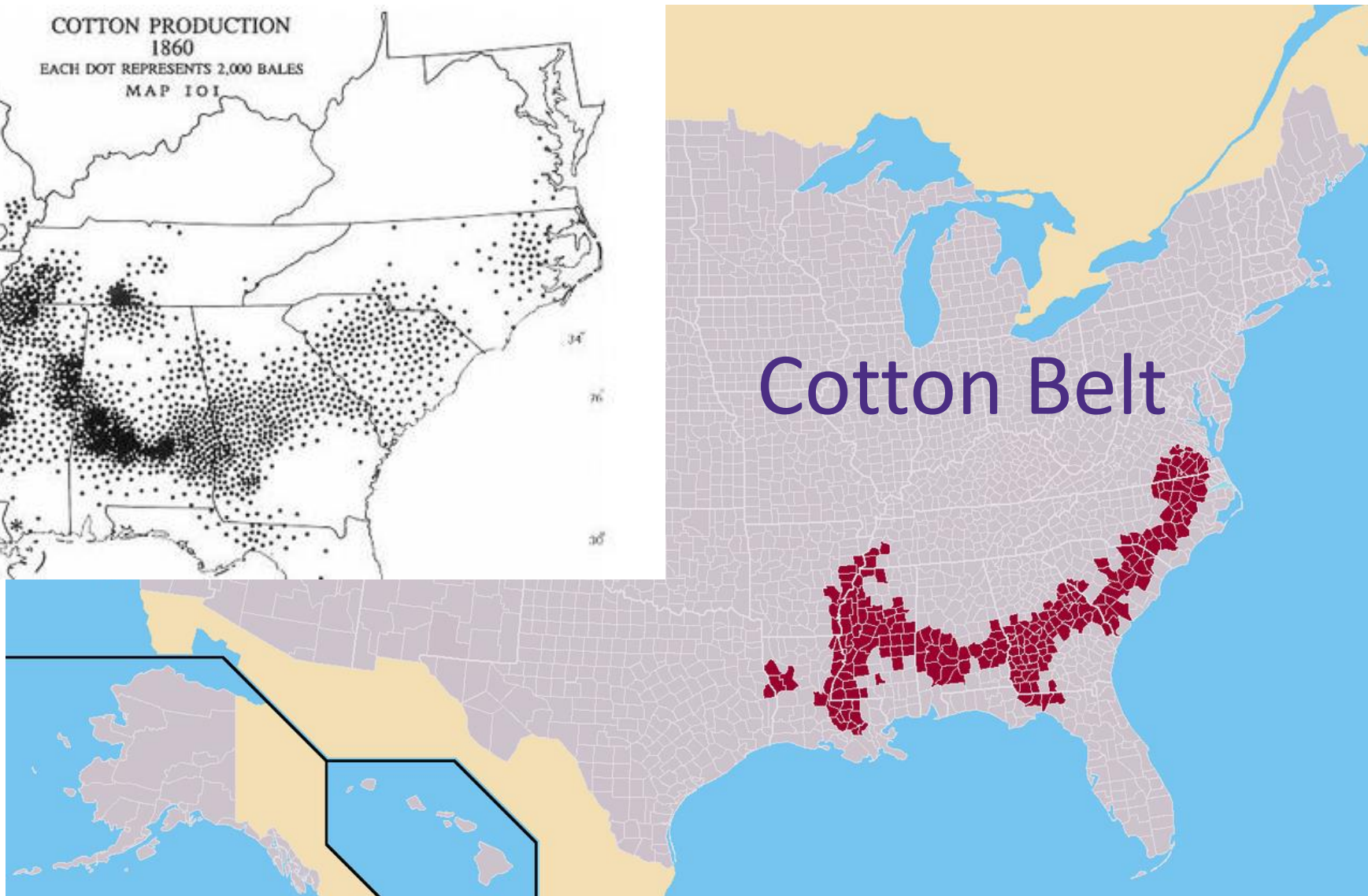
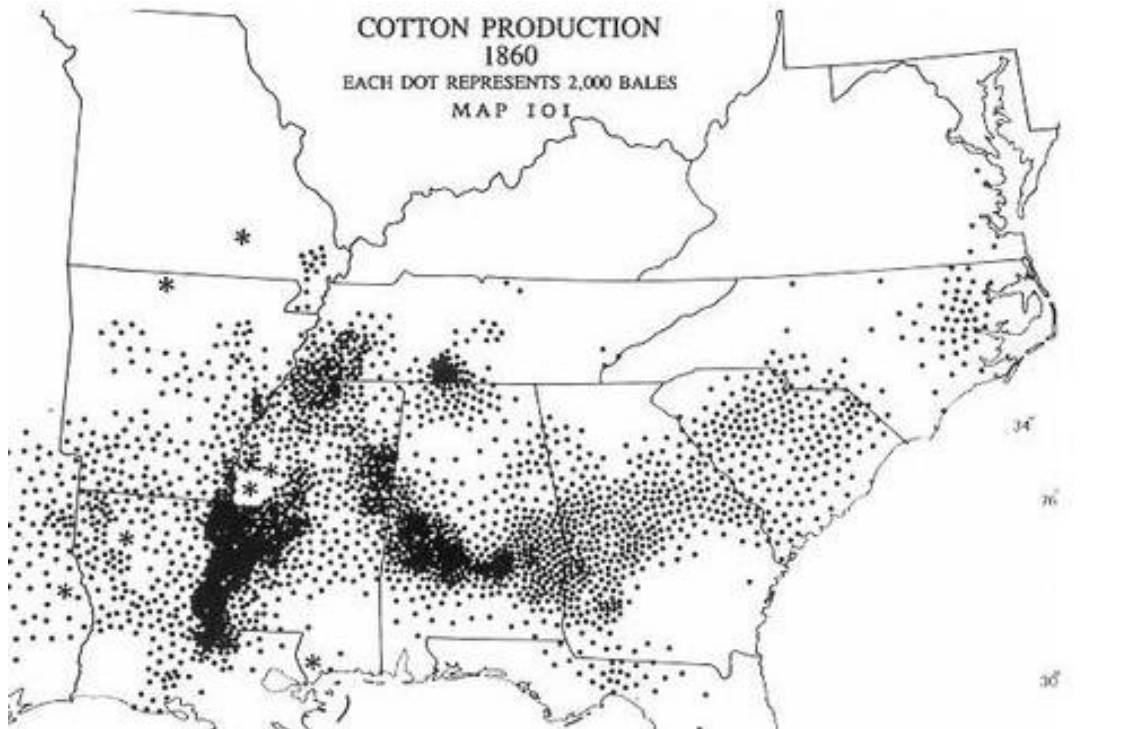
# Objectives

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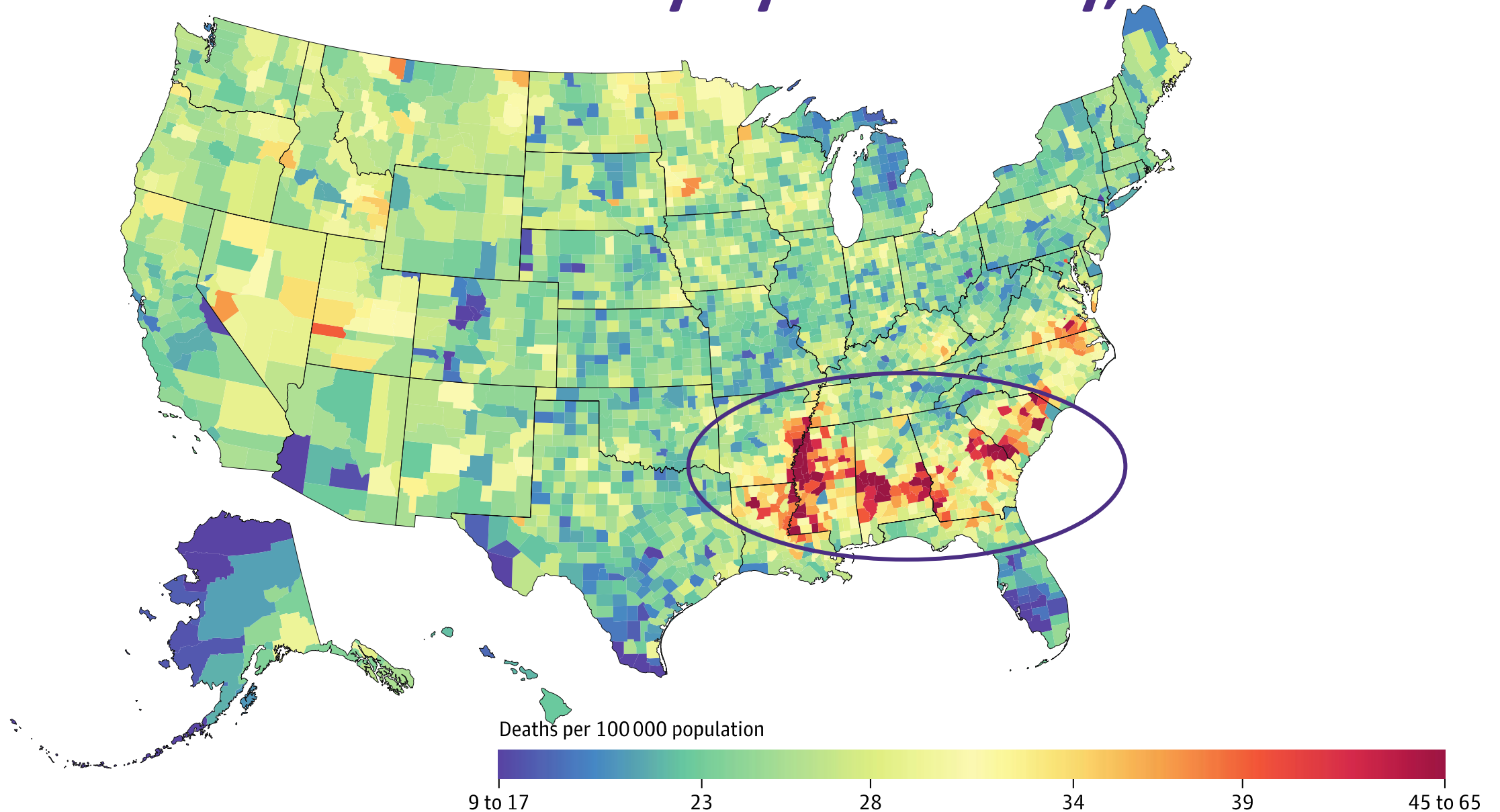
- Review relationship between Black race and prostate cancer outcomes
- Discuss conceptual model for reducing prostate cancer disparities
- Introduce patient-centered approach to eradicating prostate cancer disparities



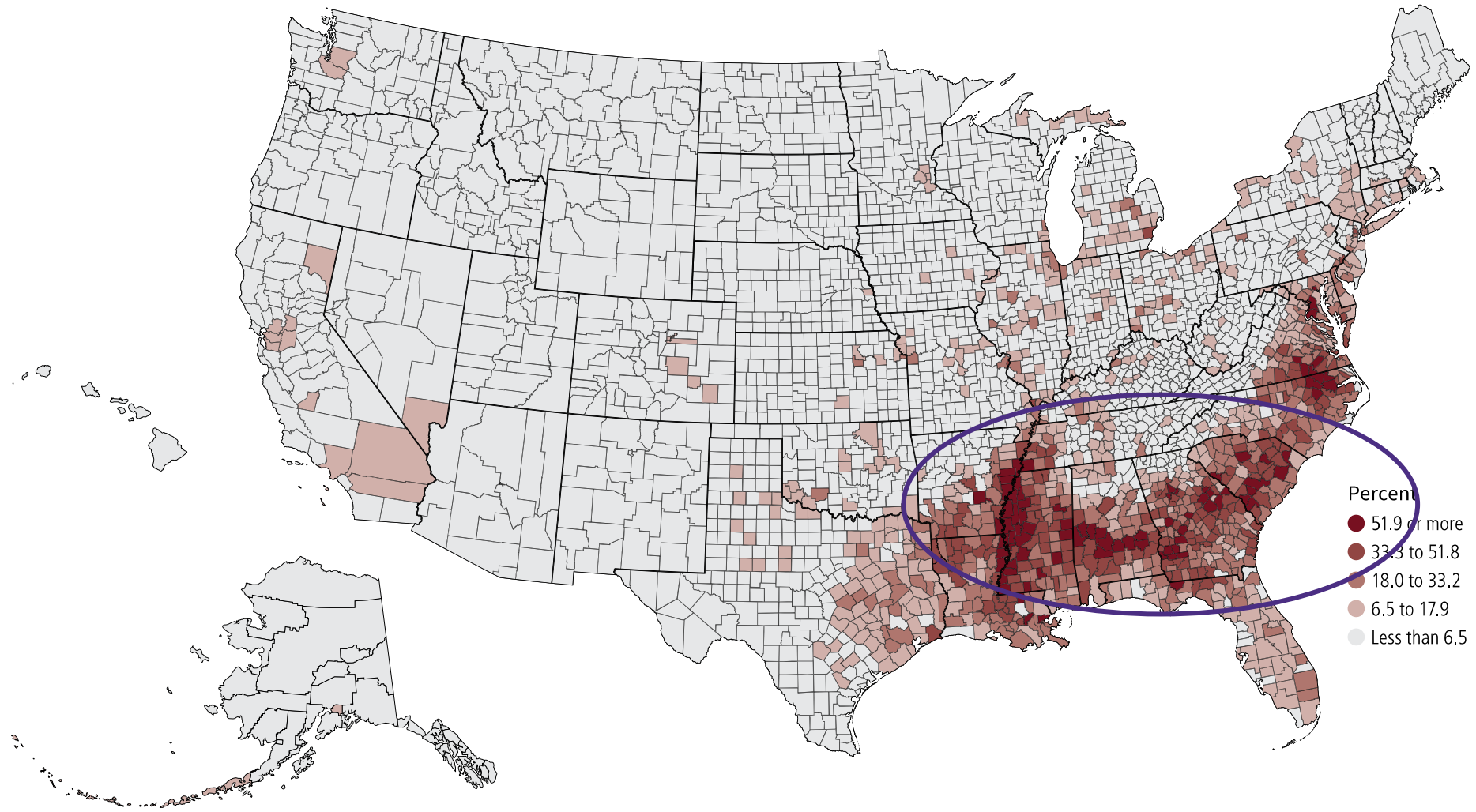
# Population, Geography, History and Prostate Cancer?



# Prostate Cancer Mortality by US County, 2014



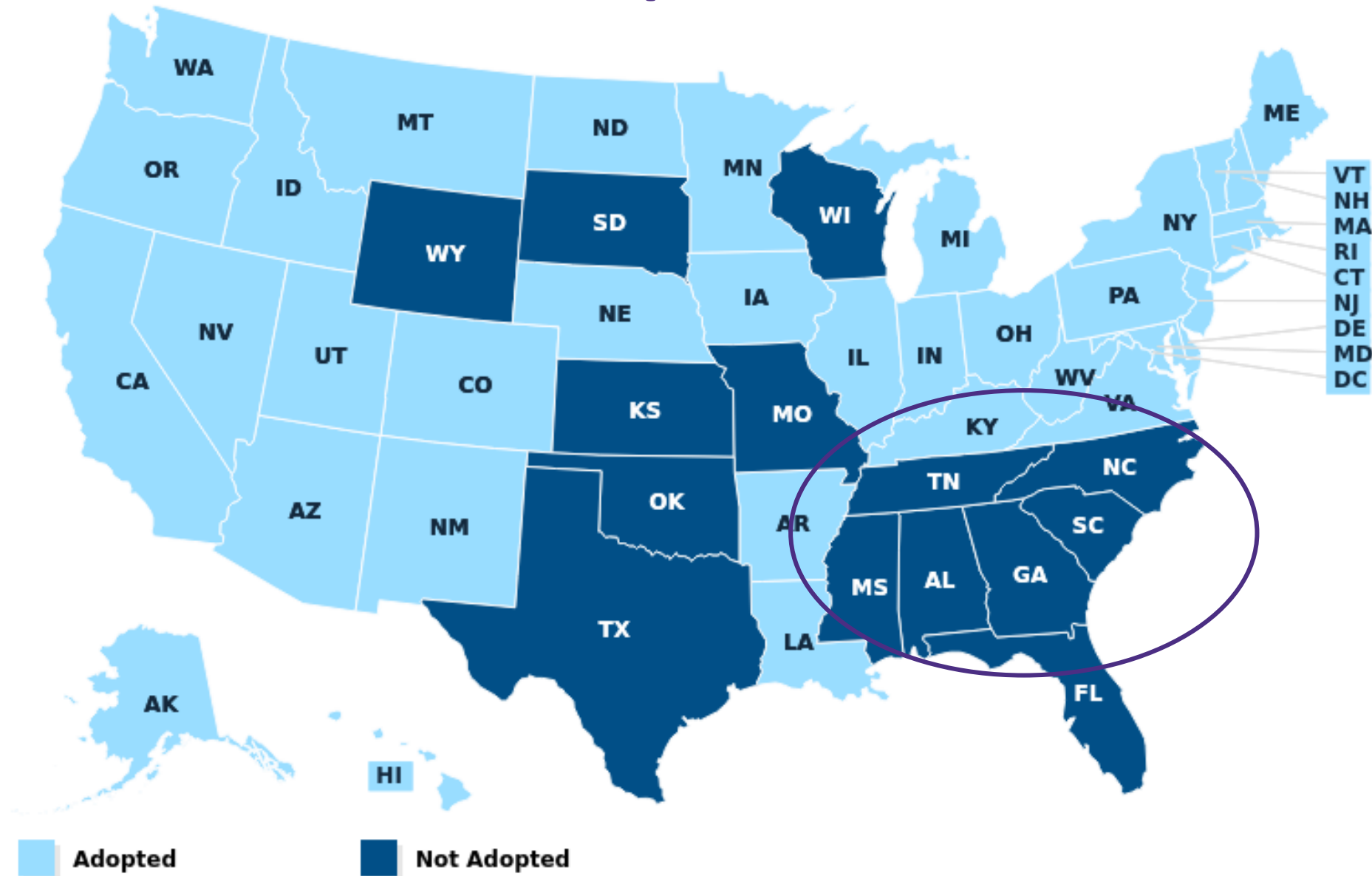
# US Black Population, County Level



**Source:** US Census Bureau, Population Estimates, July 1, 2016. Released 2017.

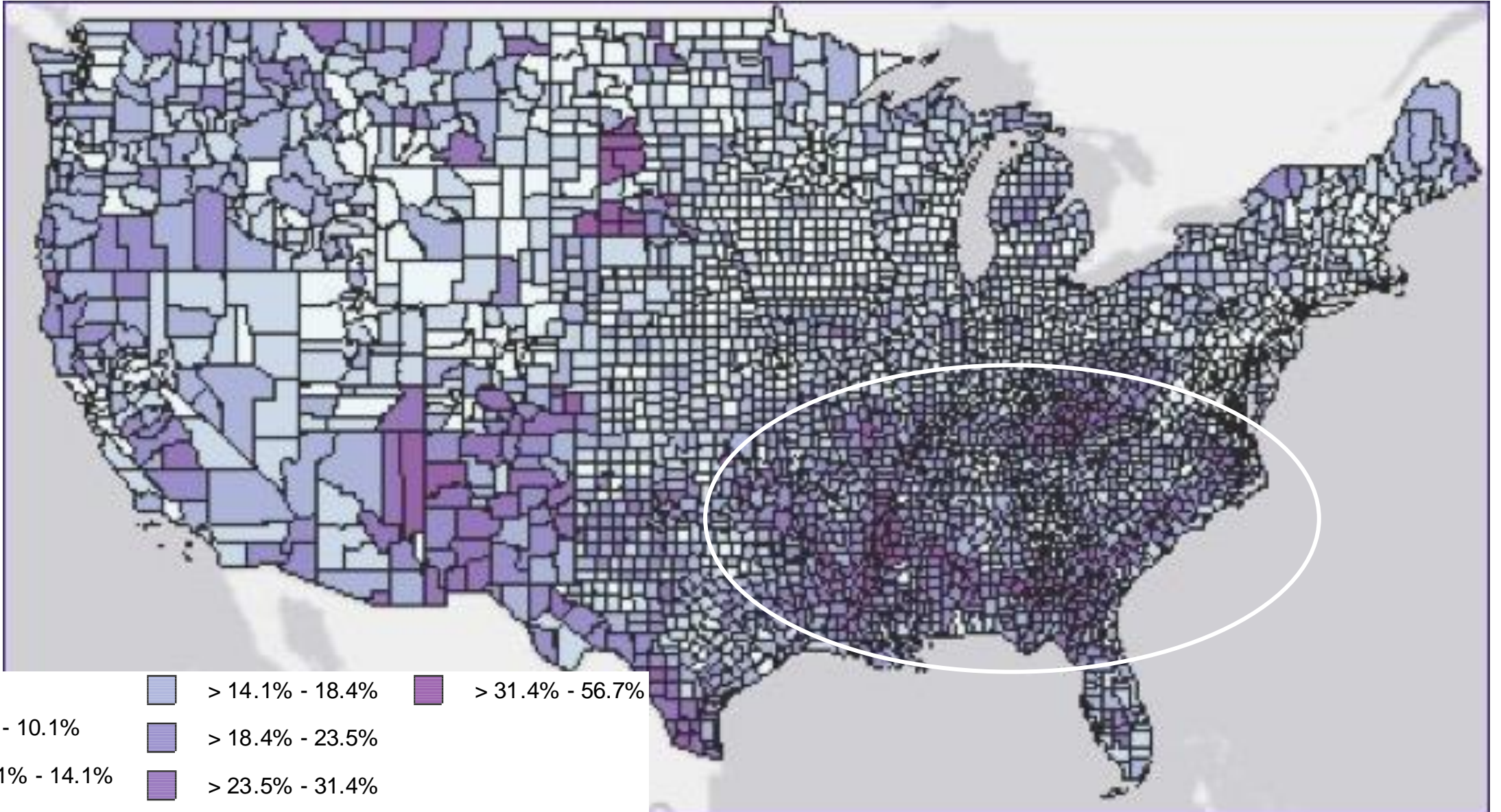
©2019, American Cancer Society, Inc., Surveillance Research

# Status of Medicaid Expansion





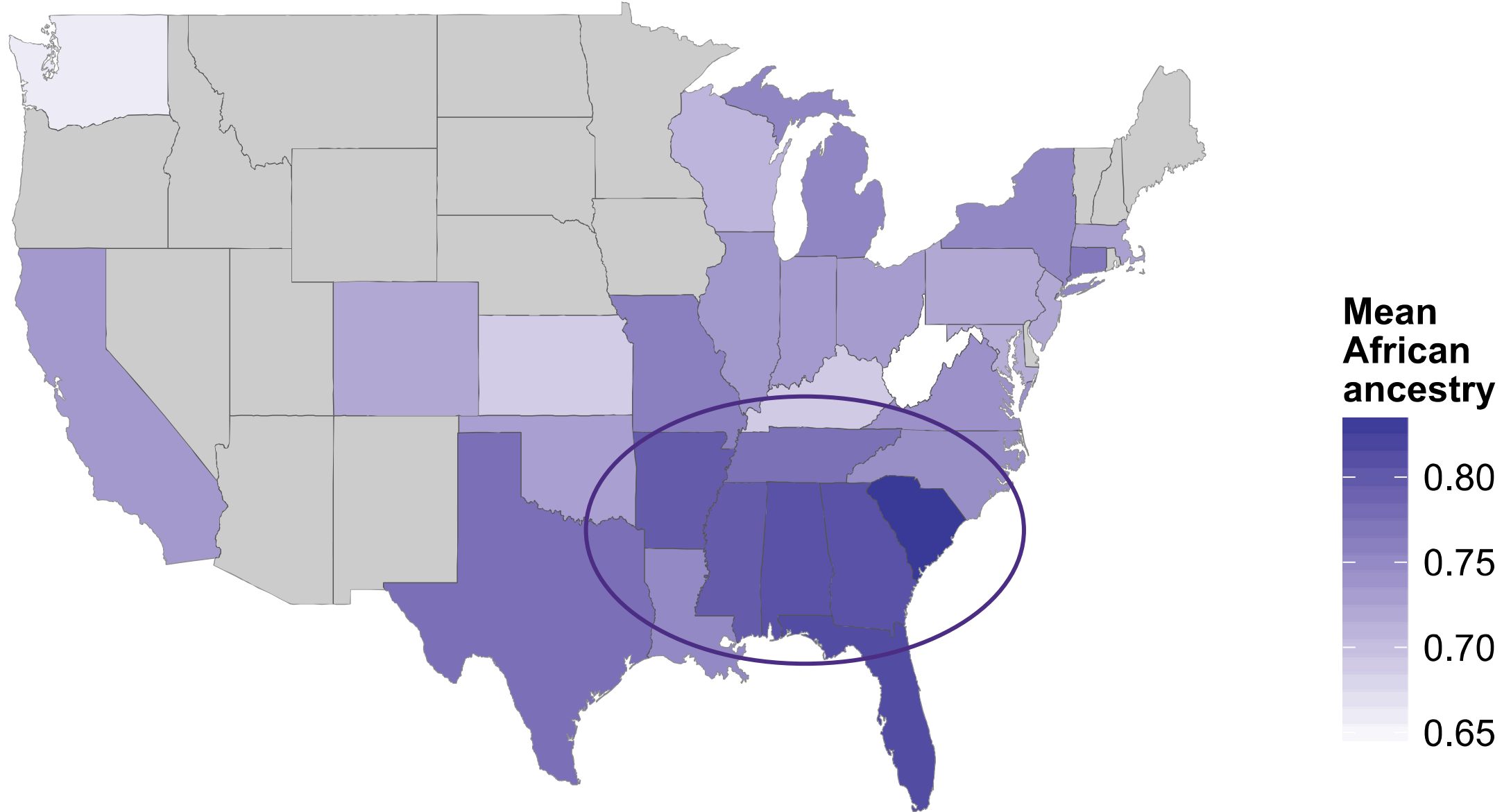
# US Poverty by County in 2019



US Census Bureau Data, 2019

UNIVERSITY of WASHINGTON

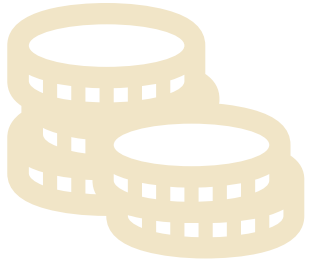
# Variation in Genetic Ancestry in US Black Men



What are some drivers of disparities  
in prostate cancer outcomes?



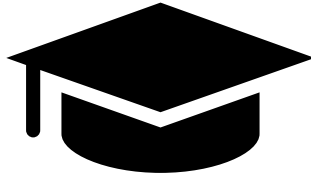
# Social Determinants of Health



Economic  
Stability



Neighborhood  
and Physical  
Environment



Education



Food

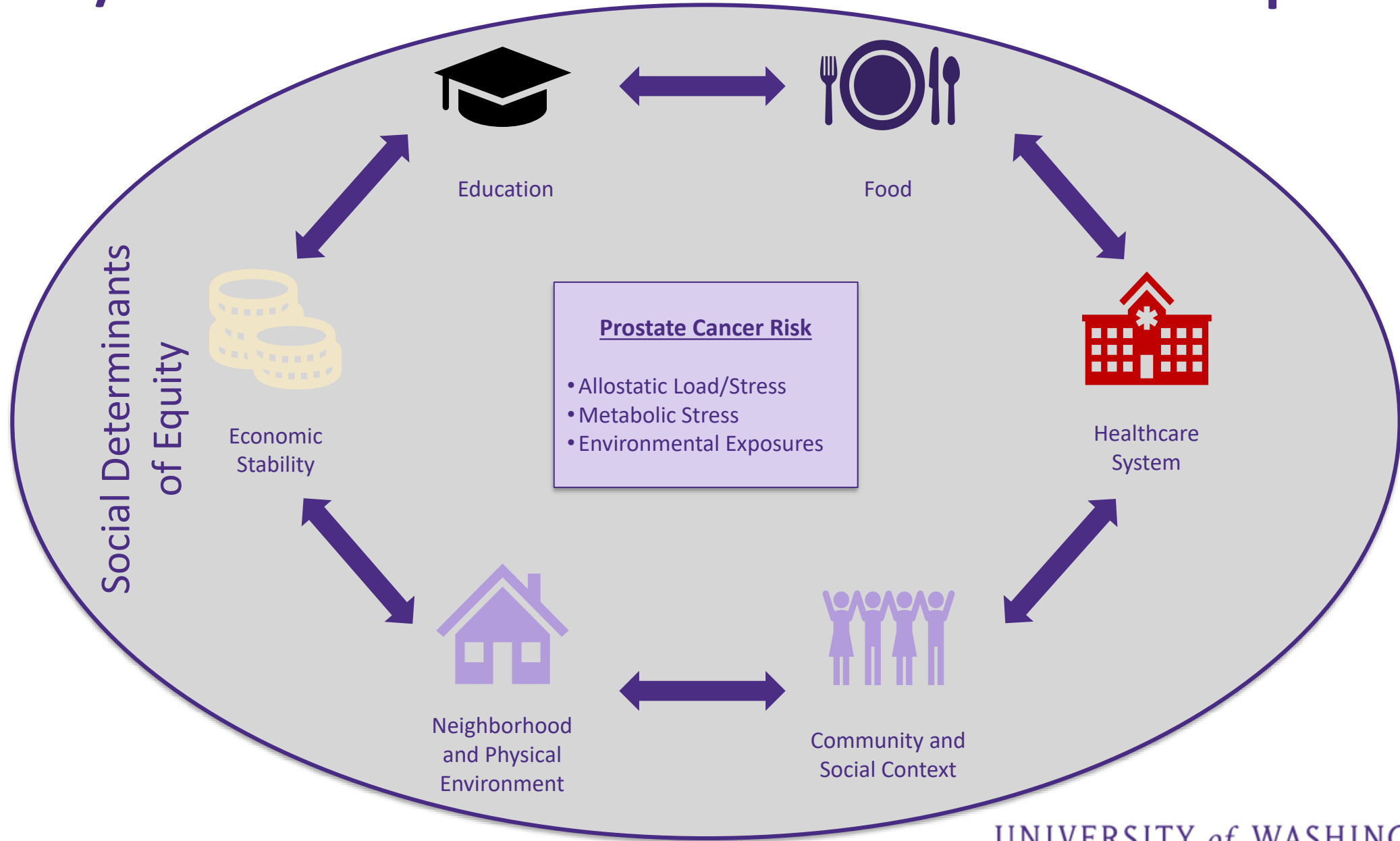


Community  
and Social  
Context



Healthcare  
System

# Social/Structural Barriers and Prostate Cancer Disparities



**What does this look like in  
2020/21?**



# The Perfect Storm



higher incidence

social factors

structural/societal barriers

mistrust/distrust

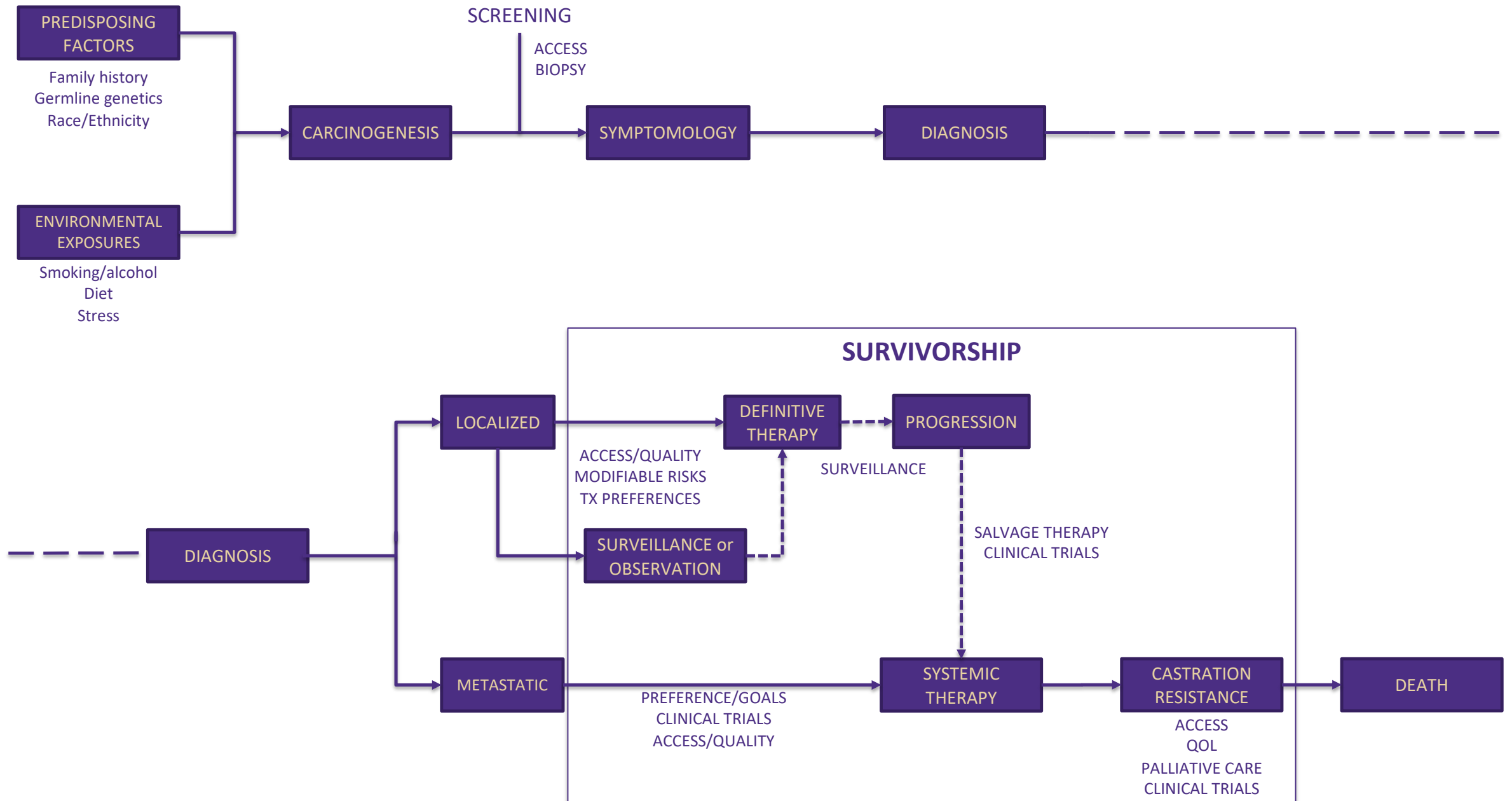
health system barriers

**HIGHER MORTALITY**

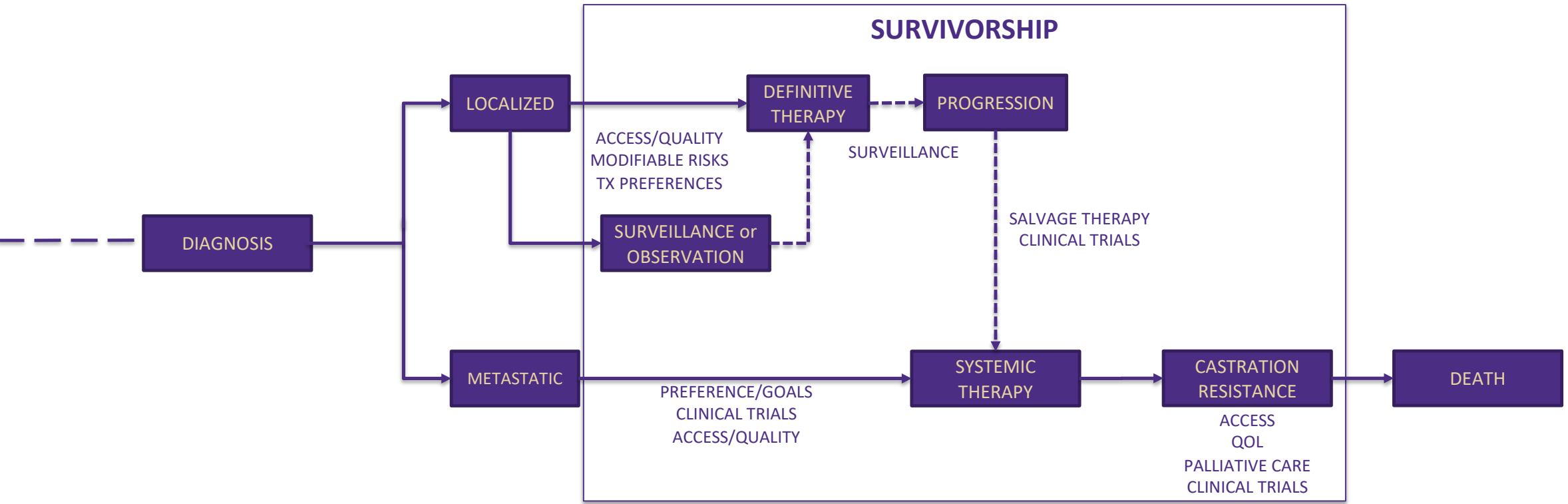
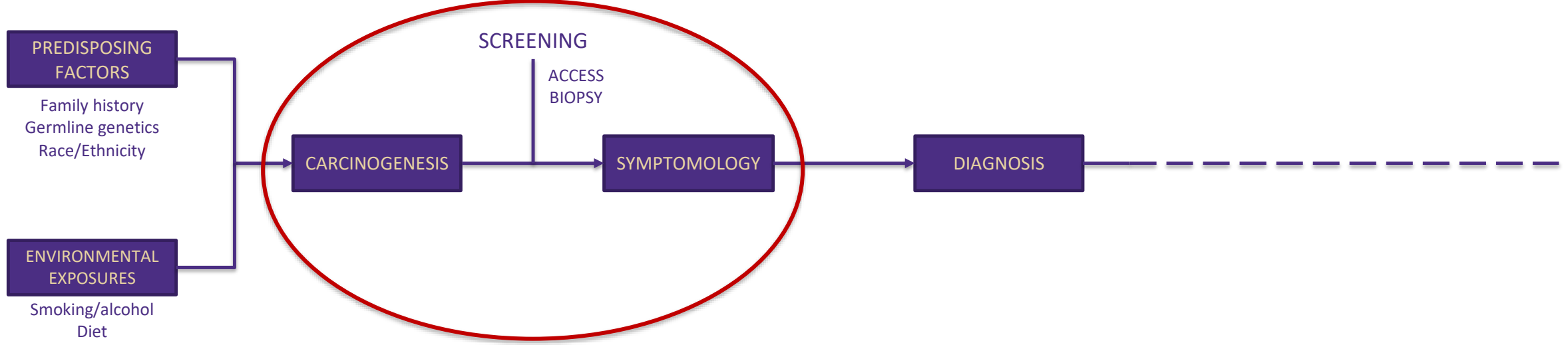
**How can we reduce racial disparities  
in prostate cancer?**

# A Conceptual Model for Studying Prostate Cancer Disparities





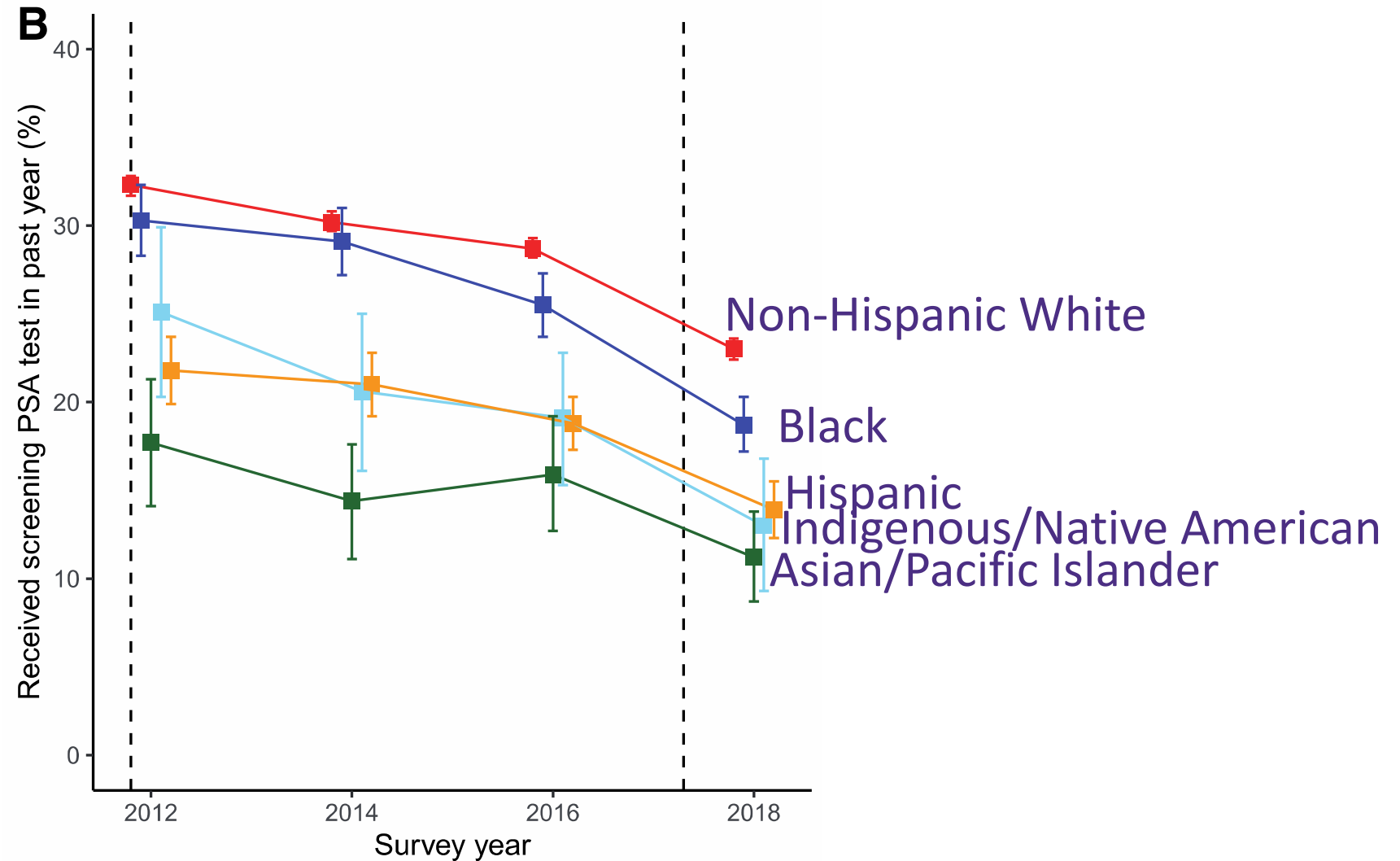
- 1. How inequitable are current practices?  
And why are they inequitable?**
- 2. What is equitable practice?**
- 3. What is the cost/benefit/harm of achieving equitable practice?**



How inequitable is prostate cancer  
screening by race?

# Rates of Screening by Race

Race and ethnicity ■ NHW ■ NHB ■ NHAPI ■ NHAIAN ■ Hispanic



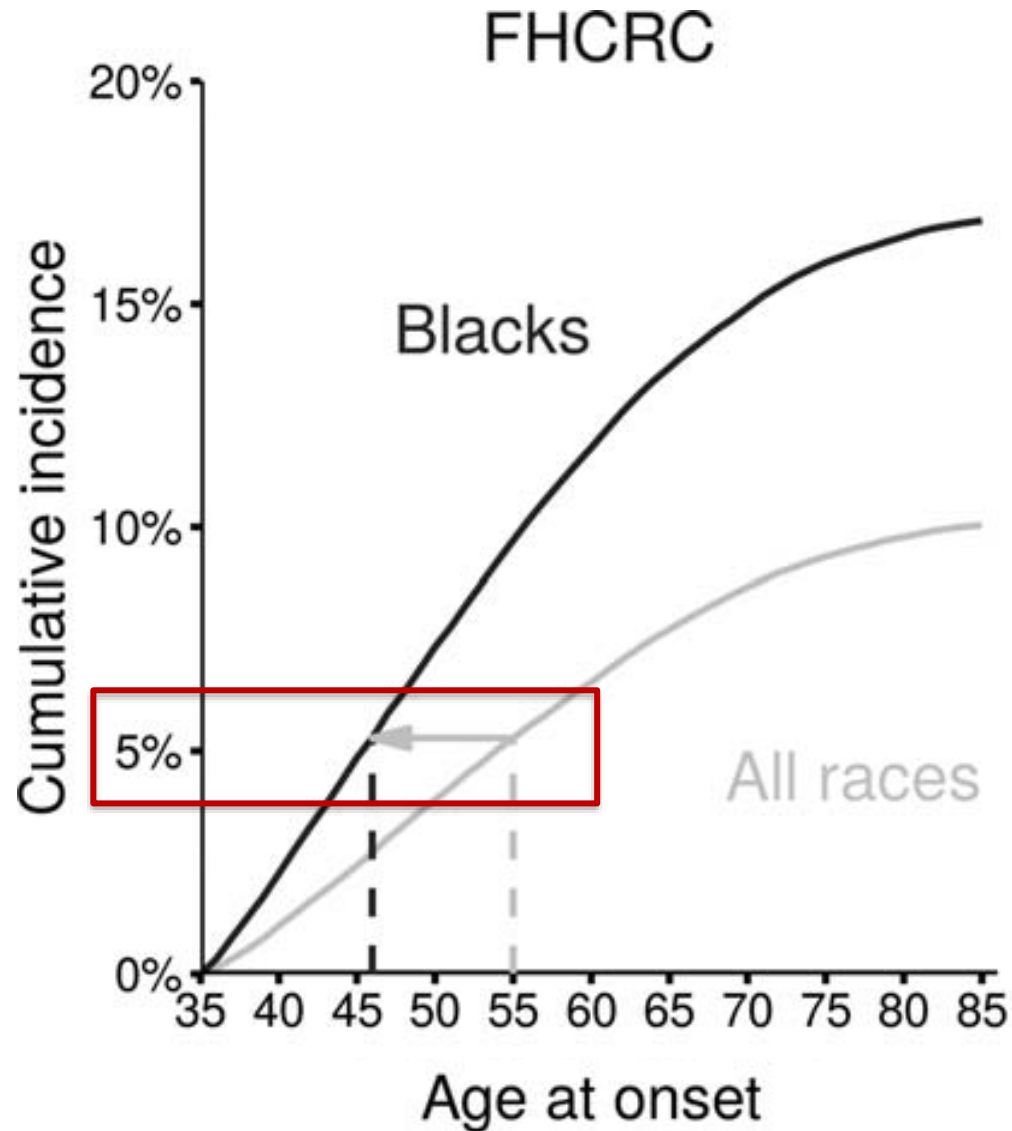
**But ...**

3%



What is an equitable prostate cancer screening practice for Black men?

# Equal Opportunity for Benefit

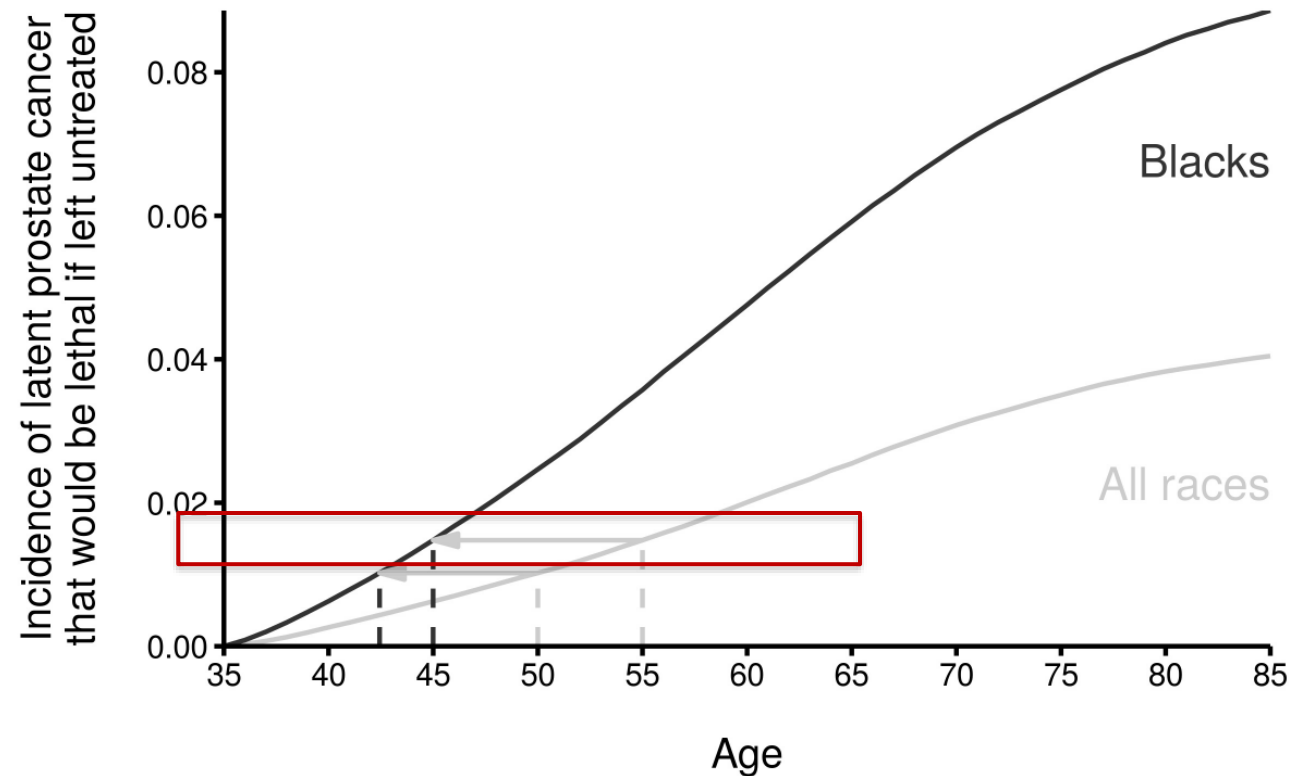


Disease onset in Black men occurs at younger age

What are the implications of different natural history by race on PSA screening?

# Equal Opportunity for Benefit

Cumulative incidence\* of latent prostate cancer that would be lethal if left untreated



Opportunity to benefit from early detection occurs at earlier age

*\*Survival in the absence of screening or treatment is based on pre-PSA-era diagnoses by race*

**What defines equitable?**

# Outcomes of Other Intensified Strategies for Black Men

**Benefit**  
% Reduction in Prostate  
Cancer Mortality

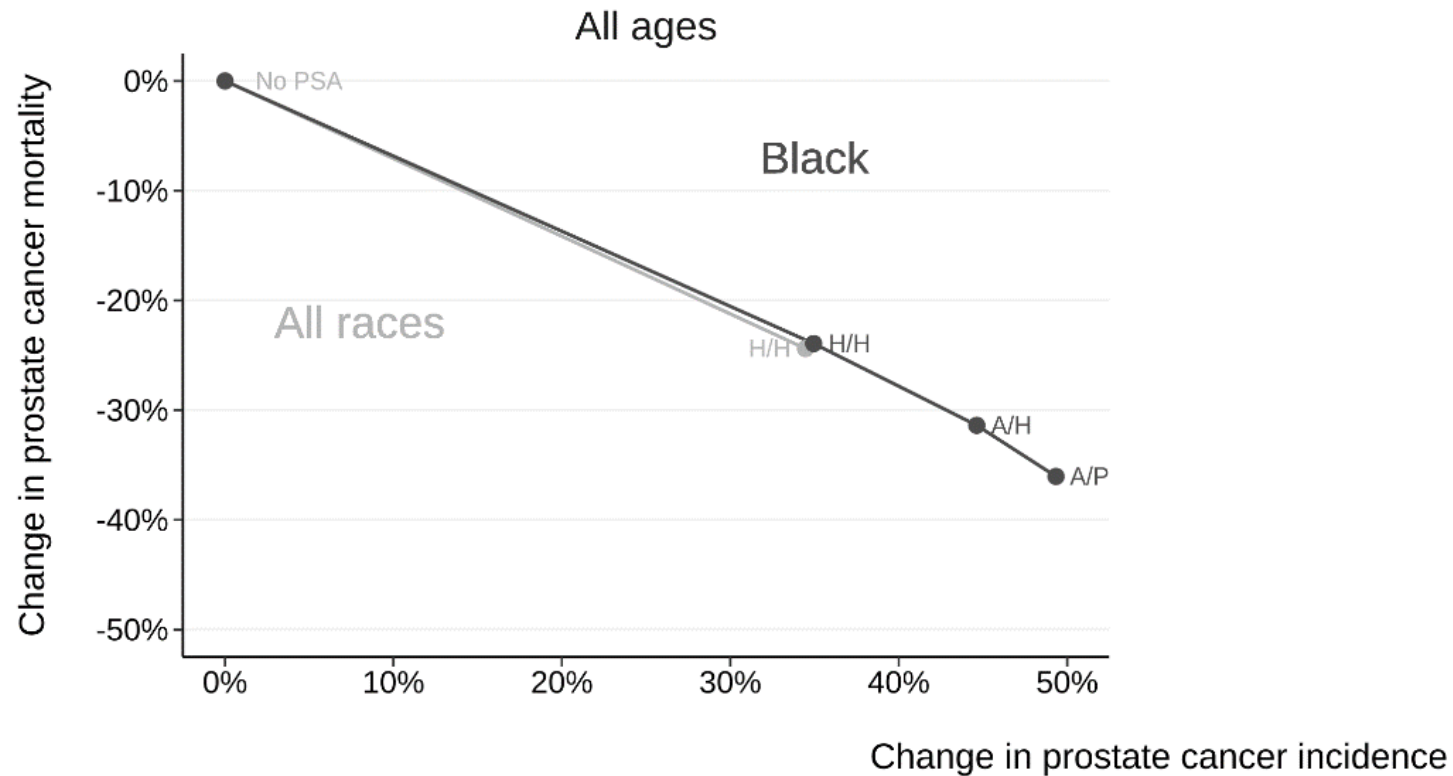


**Harm**  
% Overdiagnosed in  
Screened Populations

## **Strategies Modeled in Black Men**

- Historical Screening (40-84 years) at pop. freq. and historical biopsy (40% of positive tests)
- Historical Screening ages with annual PSA and historical biopsy
- Intensified Screening (annual, 40-69 years) and historical biopsy
- Intensified Screening (annual, 40-69 years) and intensified biopsy (100% of positive tests)

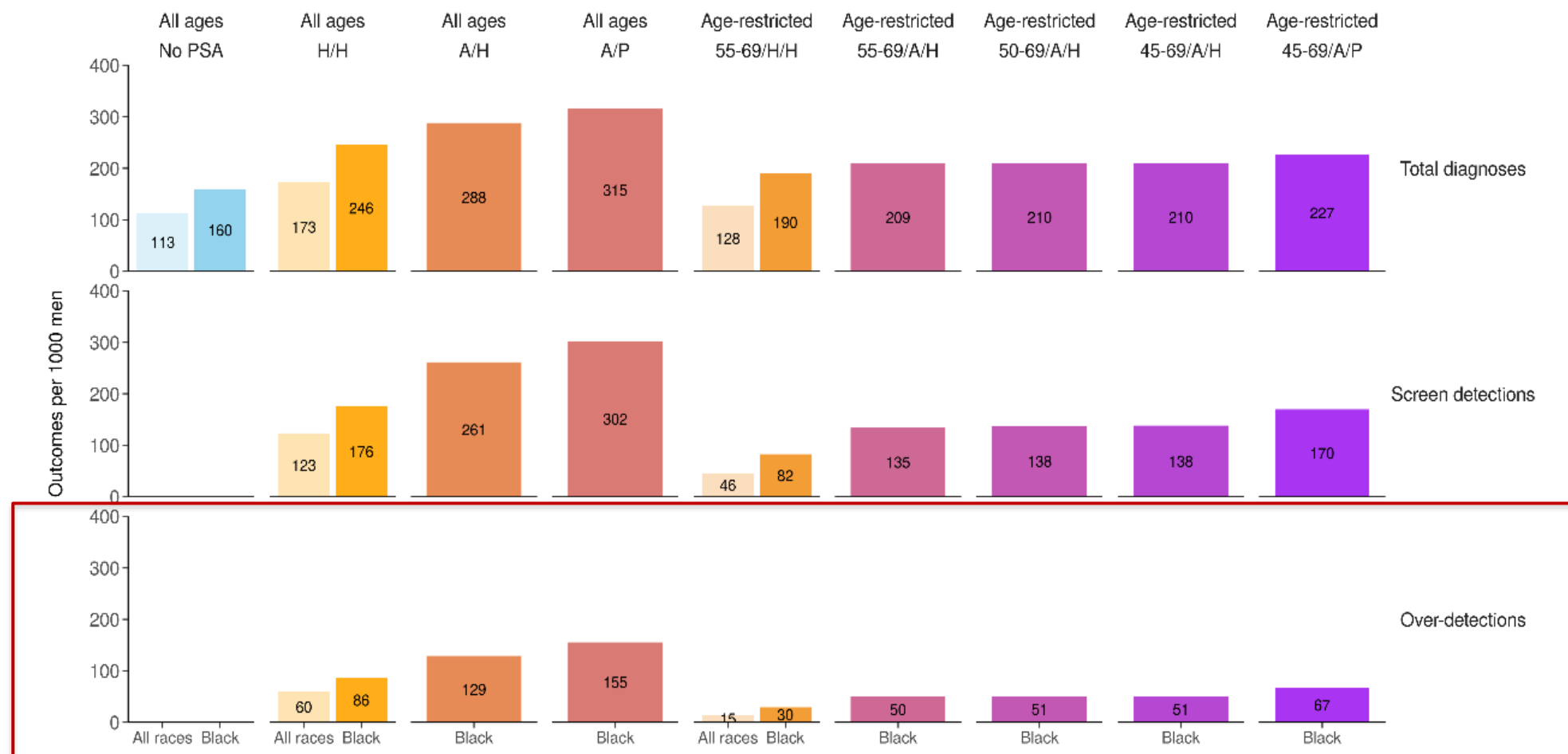
# Harm & Benefit of Various PSA Screening Strategies



H/H is Historical frequency/Historical biopsy; A/H is Annual frequency/Historical biopsy; A/P is Annual frequency/Perfect biopsy.



# Harm & Benefit of Various PSA Screening Strategies



Same screening strategy → potentially different outcomes of benefit and harm

**Equitable strategy may call for potentially earlier and more intense screening in Black Men**

**But ...**

**Can we translate these theoretical findings into real world change?**

**And if so... How?**

# Achieving the “Impossible”



# Closing the Disparity Gap

New Data

New Trials

New Cohorts



**What are our barriers to research participation by  
Black men?**

# Barriers to equity in prostate cancer care and research



## Transgenerational Trauma:

- Medical Mistrust
- Cultural Health Beliefs
- The “Medical Material”

## Social Determinants of Equity

## Social Determinants of Health

**Nobody Has Asked**

# **Building Community and Empowering Patients**

# Community Engagement and Patient Centered Research



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Community  
Partners

Reciprocal Relationships

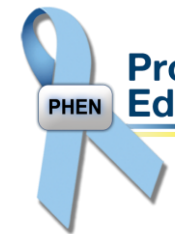
Co-Learning

Partnership

Transparency,  
honesty & trust



OCO



Prostate Health  
Education Network



UNIVERSITY of WASHINGTON

# BACPAC: Black and African Descent Collaborative for Prostate Cancer Action



Community Partners: Ben Young,  
Victor Tolbert

Research Team: Dante Morehead,  
Jenney Lee, and Elizabeth Austin

# BACPAC Initiatives



- Research Prioritization
- Patient Advocate Researchers
- Trial and Cohort Design

120%

3%

80%



A patient-centered approach is our key to  
translating our studies into solutions

# Acknowledgements

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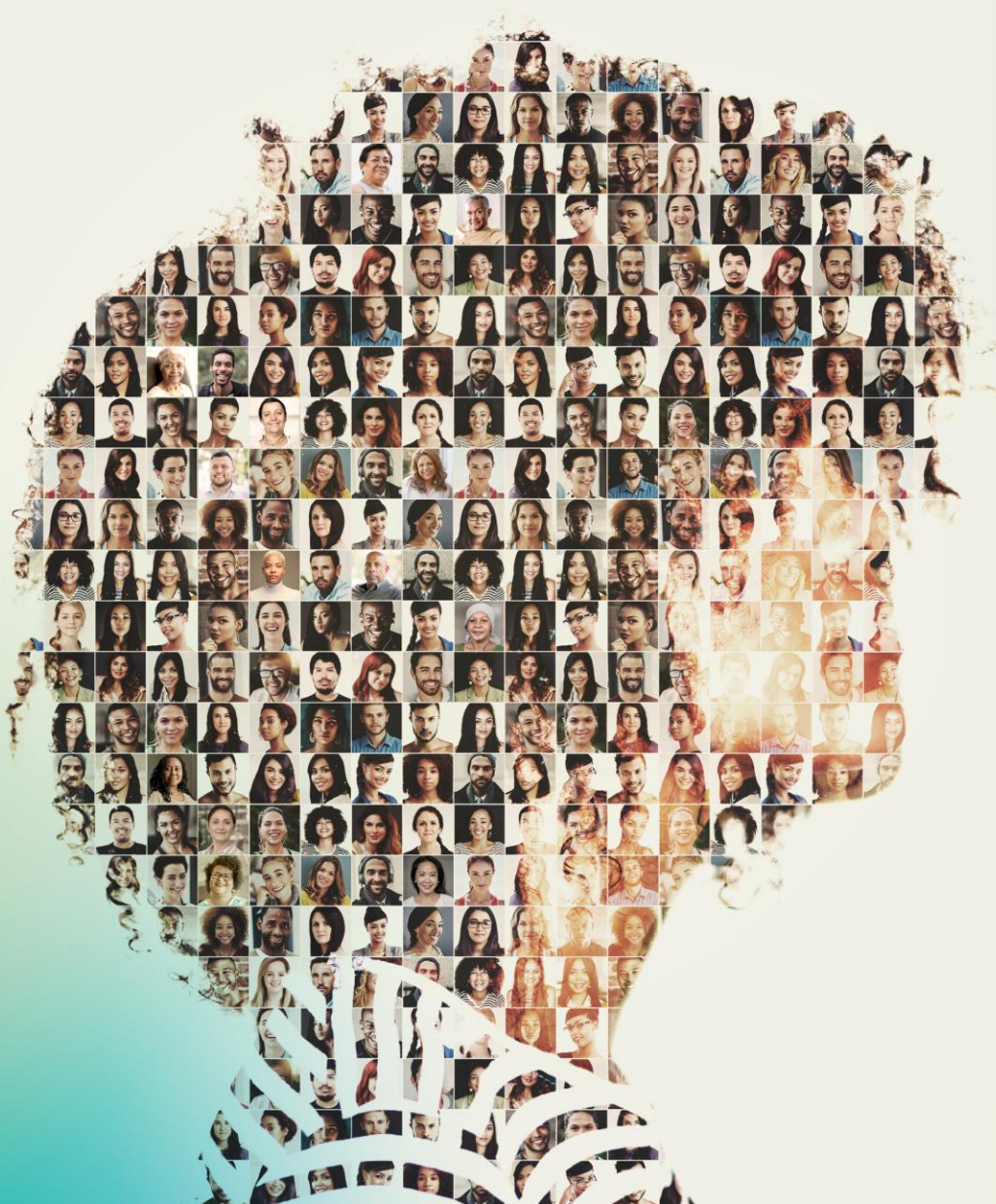
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