

RACISM

EPI 253

Advanced Health Disparities Research

Meghan D. Morris, PhD, MPH

Assistant Professor

Department of Epidemiology & Biostatistics

What we have talked about so far...

- Goal of this course is to provide a toolkit/context for research on social determinants of health disparities
- In thinking about health disparities, considering multilevel influences on health (i.e., ecosocial theory) is essential
 - Does not mean having to address each aspect of the theory in your research, but provides essential context
- Having a *theory* for how social factors influence health can guide research, methods, and frame results interpretation

Prep discussion

- What does race mean to you? How do you conceptualize race?
- In what ways does race contribute to health disparities?
- If you were able to create a perfect measure to represent race, what would it be and why?
- How does the concept of embodiment apply to racial disparities of health?

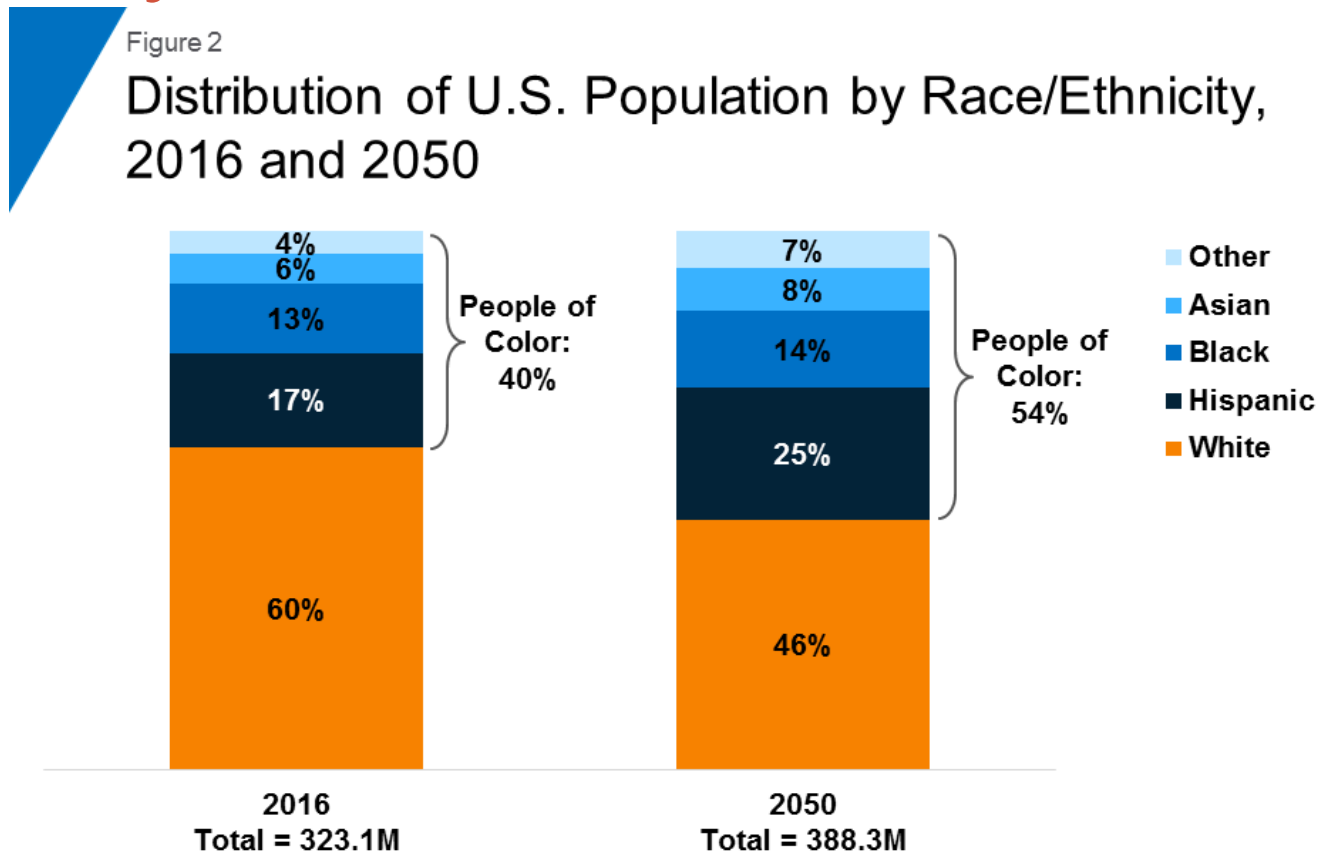
Race

- The term, racism, refers to an organized system that categorizes population groups into 'races', and uses this ranking to preferentially allocate societal goods and resources to groups regarded as superior (Bonilla-Silva 1996).

Focus on Racism

- Analysis of health disparities controlling for SES often leads to remaining differences being interpreted as biologic effects
- Need explicit language and methods to incorporate lived experiences of race as a social category and measures to study how it impacts health

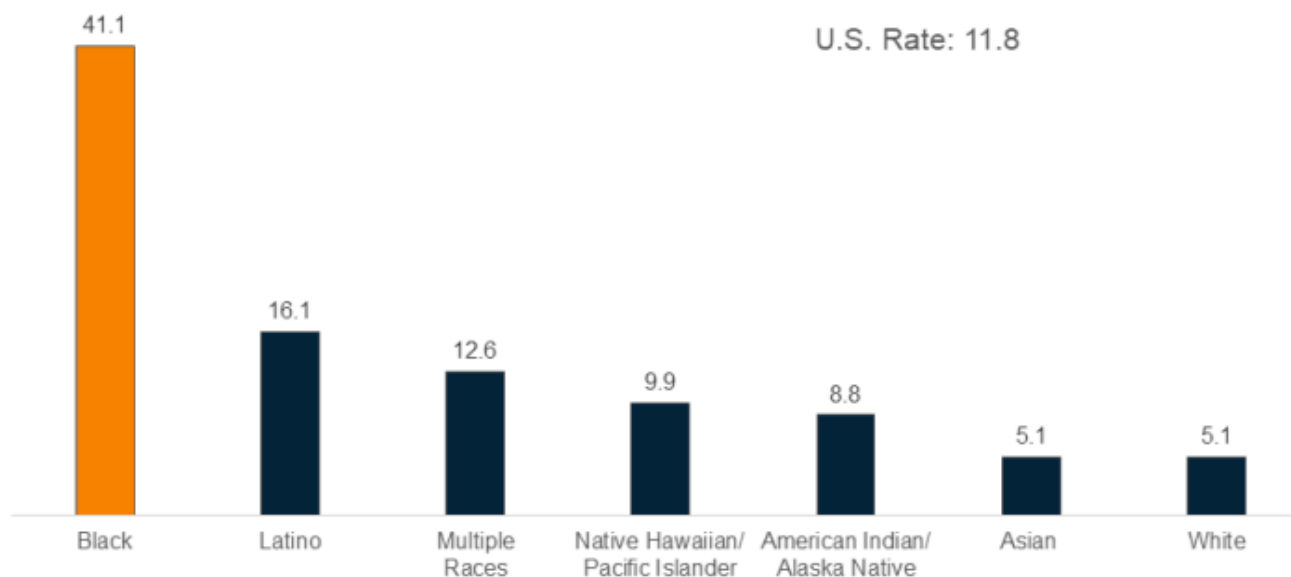
Distribution of U.S. Population by Race/Ethnicity



NOTE: All racial groups are non-Hispanic. Other includes Native Hawaiians and Pacific Islanders, Native Americans/Alaska Natives, and individuals with two or more races. Data do not include residents of Puerto Rico, Guam, the U.S. Virgin Islands, or the Northern Mariana Islands.
SOURCE: U.S. Census Bureau, 2017 National Population Projections, Projections of Race and Hispanic Origin, 2017-2060. Available at: <https://www.census.gov/data/tables/2017/demo/popproj/2017-summary-tables.html>.

Racial disparities in HIV

Figure 2
Rates of New HIV Diagnoses per 100,000, by
Race/Ethnicity, 2017



NOTES: HIV diagnosis data are preliminary estimates and do not include U.S. dependent areas.

SOURCE: CDC. HIV Surveillance Report, Diagnoses of HIV Infection in the United States and Dependent Areas, 2017, Vol. 29; November 2018.

Presenting a paper

- Five minute high level summary (with 1-3 slides)
- Some reflections/questions about the paper and the content for discussion
- Lead off the conversation for each discussion question for that paper

Williams et al.

1. How does racism and other forms of discrimination lead to health disparities?
2. What are some identified challenges in measuring discrimination?
3. What are the most important areas to focus on in research on racism? How can this lead to interventions to impact health disparities?

DISCRIMINATION AND RACIAL DISPARITIES IN HEALTH: EVIDENCE AND NEEDED RESEARCH

Discrimination & health disparities

- Growing body of research on the association between perceived discrimination and health outcomes.
 - Inconsistent finding on physical health outcomes due to discrimination
 - Consistent psychosocial findings

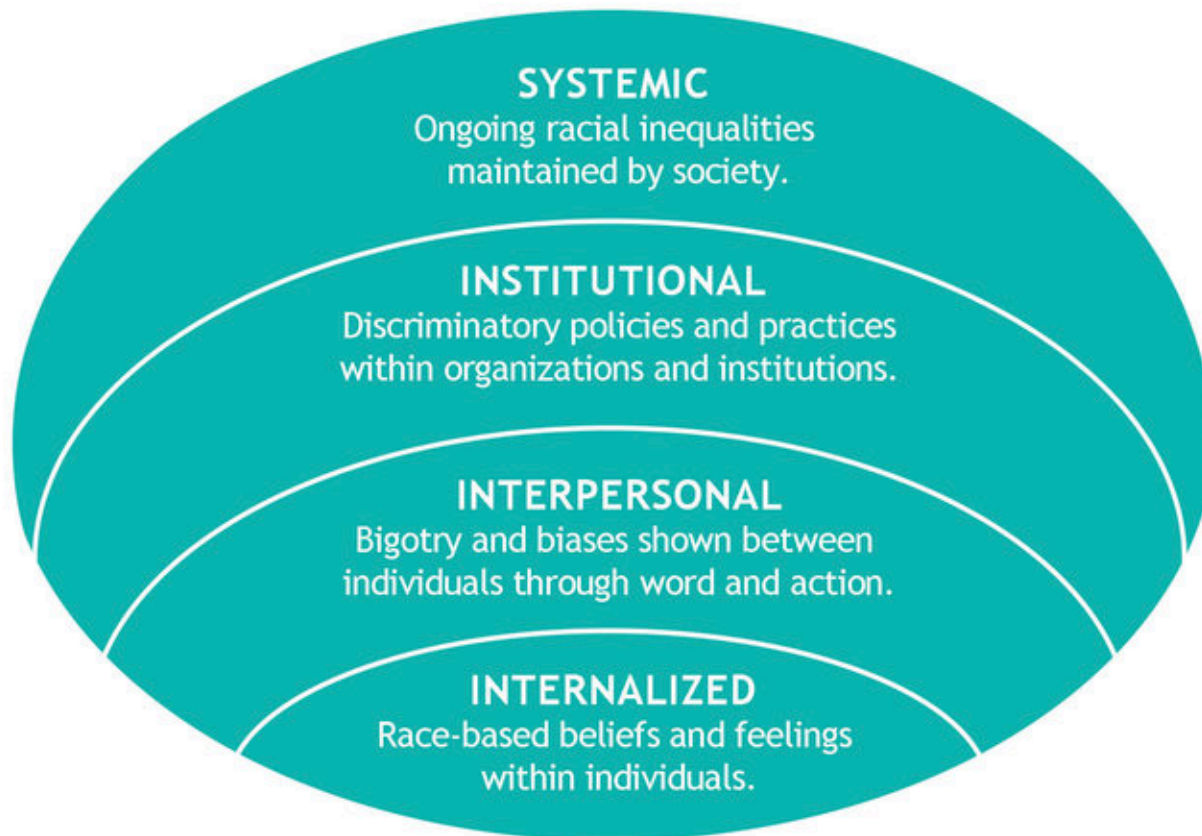
- Perceived discrimination is used as an empirical measure for stress resulting from discrimination.
 - Mechanisms for stress and health outcomes
 - No clear mechanism for discrimination
 - Raising issues of measurement and theoretical grounding
- Racism manifests in multifaceted ways in society
 - Perceived discrimination is only one measurable aspect
 - Severe, constant or historical events
 - Ambiguity
 - Implicit vs explicit

- Are measurement issues with discrimination necessarily bad?
- Can coping mechanisms that result in negative health outcomes be addressed if the environment that produces them persists?

Williams: Discrimination and Racism

- Racism has an effect on health both directly and through behaviors
 - Interpersonal racism->chronic stress, decreased access to resources
 - Institutional racism->health and social resources, environmental exposures, stress
 - Internalized racism->chronic stress
- Stress affects health through three pathways
 - Negative emotional states
 - Behavioral coping strategies
 - Direct impacts on physiological pathways

LEVELS ON WHICH RACISM EXISTS



Scales for measuring racial discrimination

- Everyday discrimination scale (Williams 1997)
- Experiences of Discrimination scale (Krieger 1990)
- Schedule of racism events (Landrine and Klonoff 1996)
- Major experiences of discrimination scale (Williams 1997/ Kessler 1999)
- Racism and Life experiences scale (Harrell 1997)
- Index of race-related stress* (Utsey and Ponterotto 1996)
- Perceived racism scale* (McNeilly 1996)

* Indicates scale measures aspects of stress and trauma

Challenges to Measurement of Racism

- Identifying what types of discrimination is impactful on what outcomes
 - Daily hassle
 - Life course
 - Trauma
 - Macro events
 - Vicarious experiences
- Time course experiences
- Subjective vs. “Objective” experiences: What influences on impact?
 - Thinking about confounding of emotional states, vs. modification
 - Ambiguity of events
- Recall issues
- Sensitivity of questions/interviewers
- Is race-based discrimination different than other kinds of discrimination?
 - How so?
 - And how is it important to differentiate when examining health disparities?

Braveman et al.

1. What type of interventions could be informed by the findings of this study?
2. What are the implications for the findings of this study on the intergenerational impact of racism?

RESEARCH ARTICLE

Worry about racial discrimination: A missing piece of the puzzle of Black-White disparities in preterm birth?

Paula Braveman^{1*}, Katherine Heck¹, Susan Egerter¹, Tyan Parker Dominguez², Christine Rinki³, Kristen S. Marchi¹, Michael Curtis³

1 Department of Family and Community Medicine and Center on Social Disparities in Health, University of California, San Francisco, CA, United States of America, **2** School of Social Work, University of Southern California, Los Angeles, CA, United States of America, **3** California Department of Public Health, Maternal Child, and Adolescent Health Division, Sacramento, CA, United States of America

PLOS ONE 2017

Background: Preterm Birth (PTB)

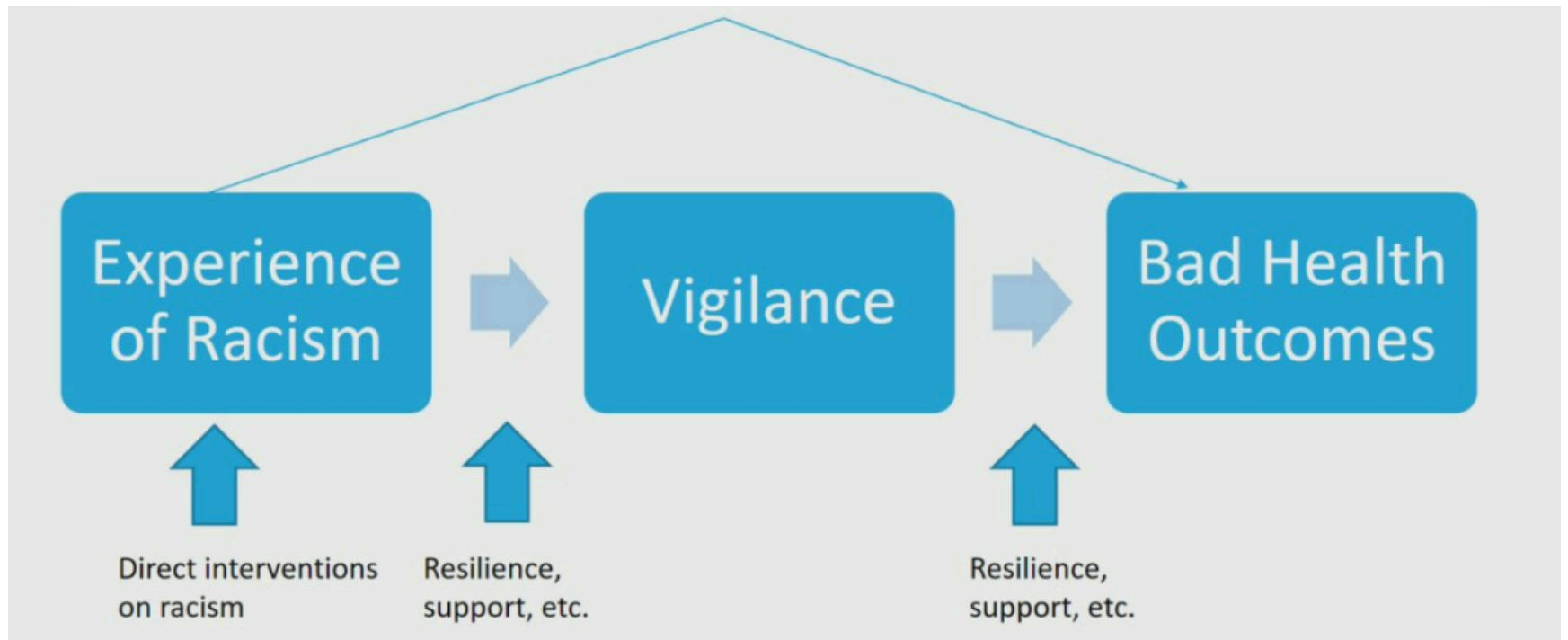
- Infant deaths
- Starting life unequal
 - Disability-- physical, mental, emotional
 - Adult heart disease, diabetes
- Burden on families
 - Economic costs
 - Medical care
 - Special education
 - Social services
 - Productivity lost
- Role for maternal stress in PTB
- Neuro-endocrine processes immune/inflammatory mechanisms which could trigger labor
 - HPA axis, CRH
 - Autonomic Nervous System
 - Telomere shortening
 - Epigenetic effects of stressful experiences

Study Design

- This cross-sectional study aimed to examine the role chronic worry about racial discrimination in Black-White disparities in PTB.
- Does chronic worry about racism contribute to the racial disparity in PTB?
- Population: Women's for California Maternal and Infant Health Assessment for the years 2011-2014 (excluded under age 15)
- Exposure:
- Outcome:

Result

- 37% of Black women reported that they “very or
- somewhat often” worried they “might be treated or
- viewed unfairly because of their race...”
- • Black women who chronically worried had twice the rate
- of PTB as those who did not
- • Before and after adjustment for many social,
- demographic, behavioral, & medical factors
- • No racial disparity in PTB after adjusting for chronic worry
- & social/demographic factors



Beck et al.

1. DAGs, like the one presented in this article, are critical tools for researchers interested in drawing causal inferences from study findings. Draw a simple DAT relevant to an area of health disparities that you are interested in.
2. How is the concept of race conceptualized differently in this study compared to other epidemiological studies you have read where race is included as a predictor variable? How does it change the interpretation of results?
3. The IPTW method described in this article is complex and beyond the scope of the course. However, in simple terms what is this approach trying to accomplish?

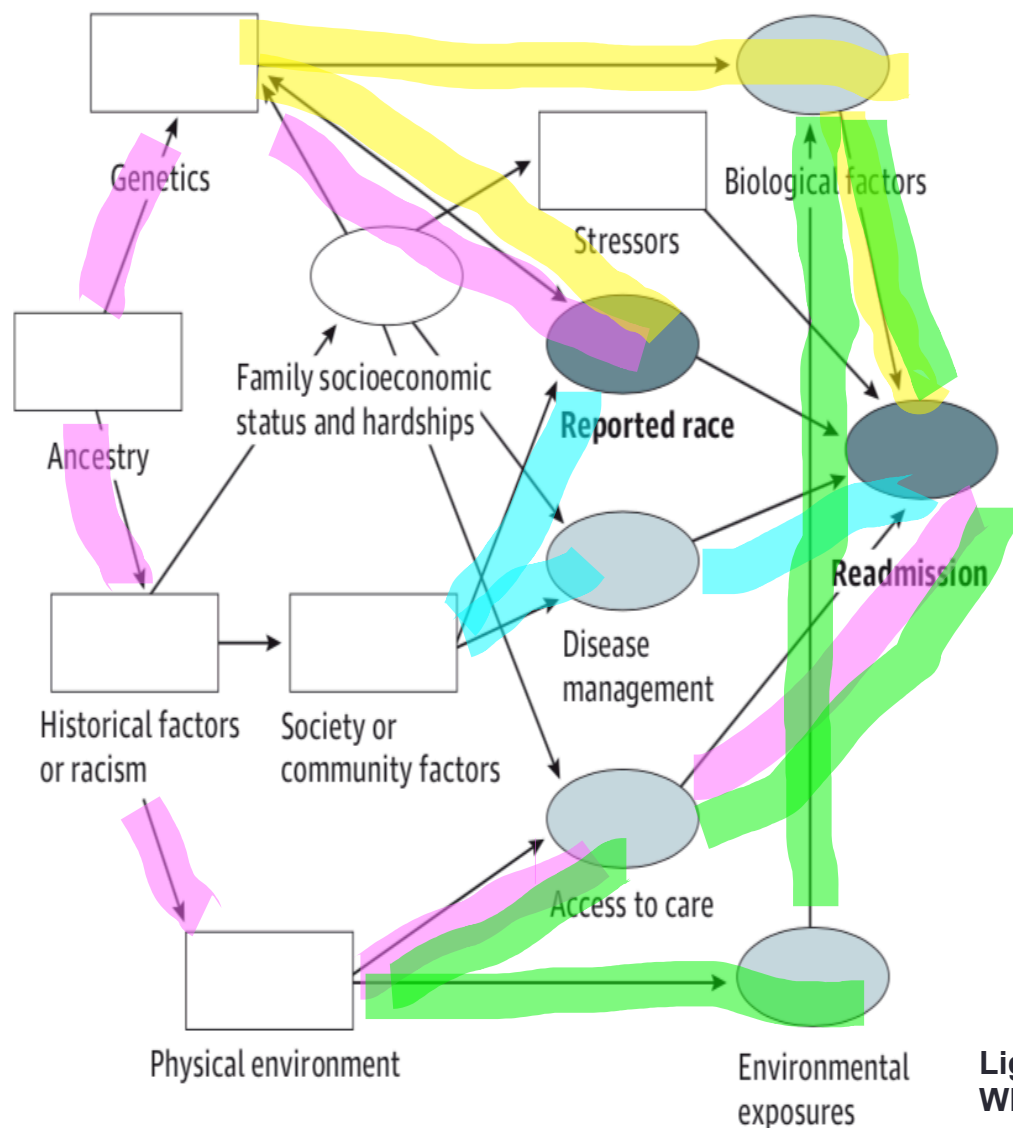
EXPLAINING RACIAL DISPARITIES IN CHILD ASTHMA READMISSION USING A CAUSAL INFERENCE APPROACH

BECK et al 2016

Why do African Americans have double the risk of being re-hospitalized for asthma within 12 months of index hospitalization compared to white children?

Study Population	N=695 children • 1-16 years old • admitted for asthma or bronchodilator-responsive wheezing at Cincinnati Children's Hospital Medical Center → Excluded children with significant respiratory or cardiovascular comorbidities, a residence outside of the 8-county service area, or with non-English speaking caregiver
Intervention/exposure	Child race identified as non-Hispanic black/African American • obtained from primary caregiver via face-to-face survey at index admission (using US Census categories)
Comparison	Child race identified as non-Hispanic white
Outcome	Time to first asthma-related readmission, defined as interval between discharge date of the index hospitalization and the date of first asthma-related rehospitalization

Figure 1. Illustration of the Directed Acyclic Graph Developed to Guide Analyses



Methods

IPTW1: accounted for socioeconomic status and hardship differences by race

IPTW2: accounted for unmeasured confounding by (see highlighted pathways)

- Biological
- Environmental
- Disease management
- Access to care

Performed LR tests to compare models before and after IPTW1/IPTW2

Cox proportional hazards regression

Do you agree with the assumptions in this DAG?
Kaplan-Meier approaches

Light blue ovals: directly associated with readmission
White ovals: factors directly associated with race and certain factors?
White rectangles: unavailable/unmeasured variables

Results

MODEL 1 – Unadjusted	MODEL 2 – Financial and social hardship caregiver education caregiver marital status	MODEL 3 – Outdoor allergen sensitization, salivary cotinine, traffic-related air pollution, running out of or missing dose of meds, vehicle ownership, financial and social hardship, caregiver education, caregiver marital
2.26 (95% CI 1.56-3.26)	1.47 (95% CI 1.05-2.05)	1.18 (95% CI 0.87-1.60)
	53% disparity explained by hardship variables	80% disparity explained by hardship variables + others (biologic, environmental, access, and disease management)

Conclusion: When considering and balancing differences across a range of factors, the racial disparity gap for asthma-related readmission closes.

Do the results from this study support race as a fundamental cause (re Week 1)?

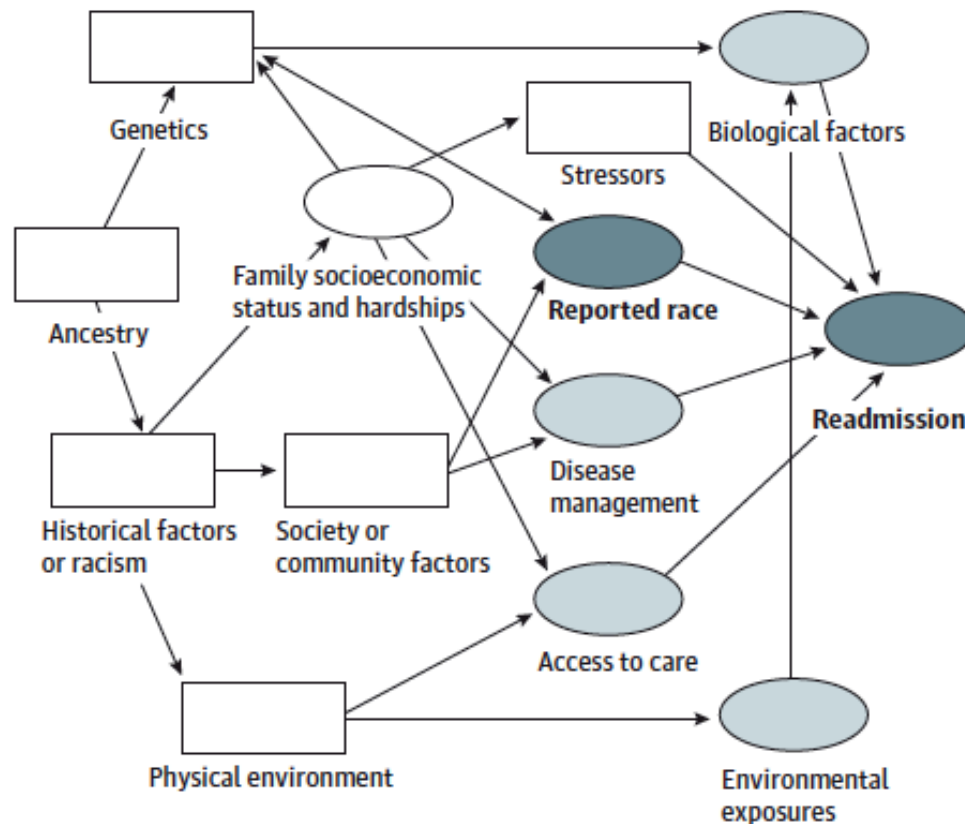
How is race conceptualized differently in this study?

- Broader lens on potential “underlying factors”
 - Family socioeconomic status and hardships (via historical factors or racism)
 - Biologic factors (genetics)
 - Disease management
 - Access to care
 - Environmental exposures
- Focus on modifiable factors that affect disparities
 - More aggressive treatment with medication changes or immunotherapy (sensitized to allergens)
 - In-home interventions designed to remove environmental triggers (environmental)
 - Home- or school-based care providers (disease management challenges or access to care)

What is the authors' use of IPTW approach trying to accomplish?

- African American and white children are different on various factors of interest
 - See Table 2 for differences prior to IPTW (e.g. 44% of whites had private insurance vs 10% of African Americans)
- IPTW balances differential distributions of factors between groups, or accounts for these differences
- ie. reduce bias due to residual confounding (and prevent overfitting by putting all variables in the model as covariates?)
- Authors constructed propensity scores using stepwise variable selection with logistic regression

Figure 1. Illustration of the Directed Acyclic Graph Developed to Guide Analyses

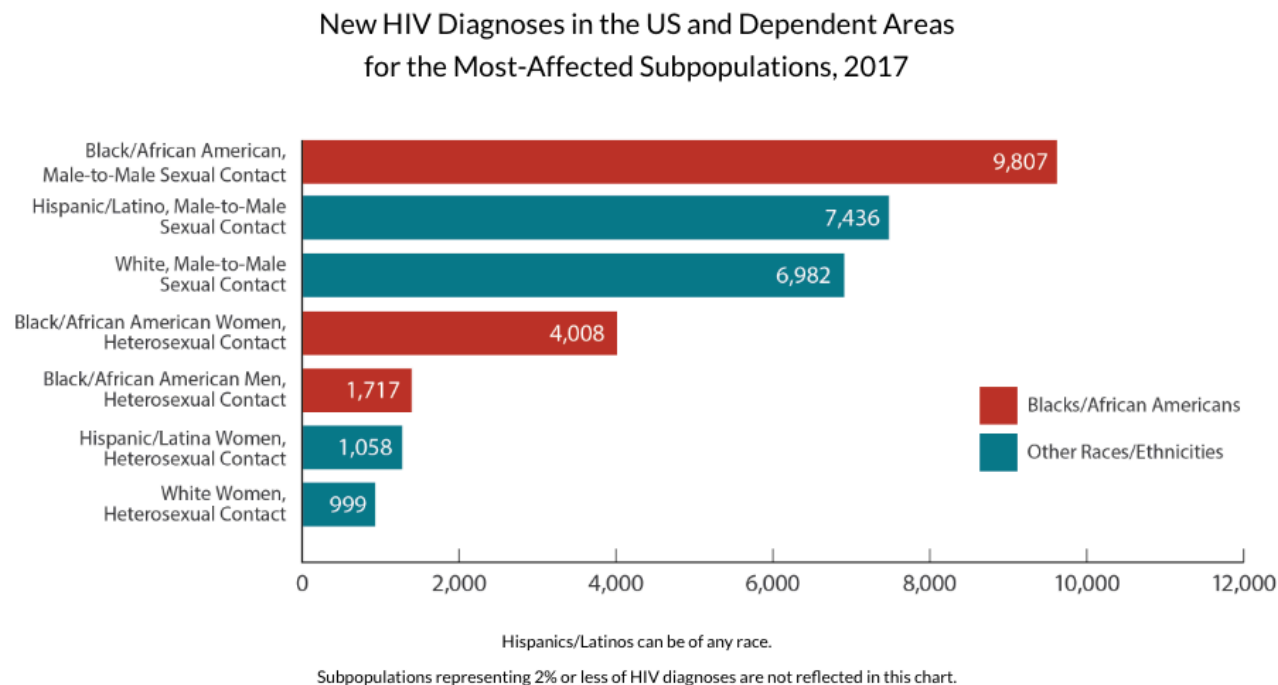


Causal inference in observational studies

- Drawing conclusions about causality in observational studies relies on accounting for other factors that may influence the relationship between X and Y
- Do this by:
 - Drawing DAGS (Directed, Acyclic Graphs)
 - Conceptualize relationships between measured and unmeasured factors
 - Controlling for measured confounding
 - Including standard regression techniques (based on stratification) and more complex methods such as IPW, propensity scores...
 - Instrumentation of exposure variables
 - Instruments should be correlated with exposure, but not outcome

Next week: Intersectionality

- Bowleg et al.
- Viruell-Fuentes et al.
- New paper



Multilevel Models

- Attention to SEM and theories that incorporate ecological considerations need to consider contextual effects→multiple levels!
- Study influences across multiple levels requires attention to measurement and analytic considerations:
 - What are the potential contextual influences on health outcomes of interest?
 - What are the exposures that are most amenable to change?
 - How can these influences be measured?
 - What are the appropriate analytic techniques for contextual measures and multilevel measures?
 - Need clear understanding of the relationship between individual and contextual variables (i.e., correlation structures).
- Main point– think about contextual influences!!

Causal Inference

- Observational studies present challenges in providing causation and finding best ways to improve health outcomes
 - Particularly problematic in studies of social actors and negative health behaviors given difficulty with randomization
- Approaches to improve ability to draw casual conclusions include:
 - Quasi-experimental approaches (including instrumental variables)
 - Longitudinal studies
 - Casual analytic approaches using time-varying covariates such as marginal structural models