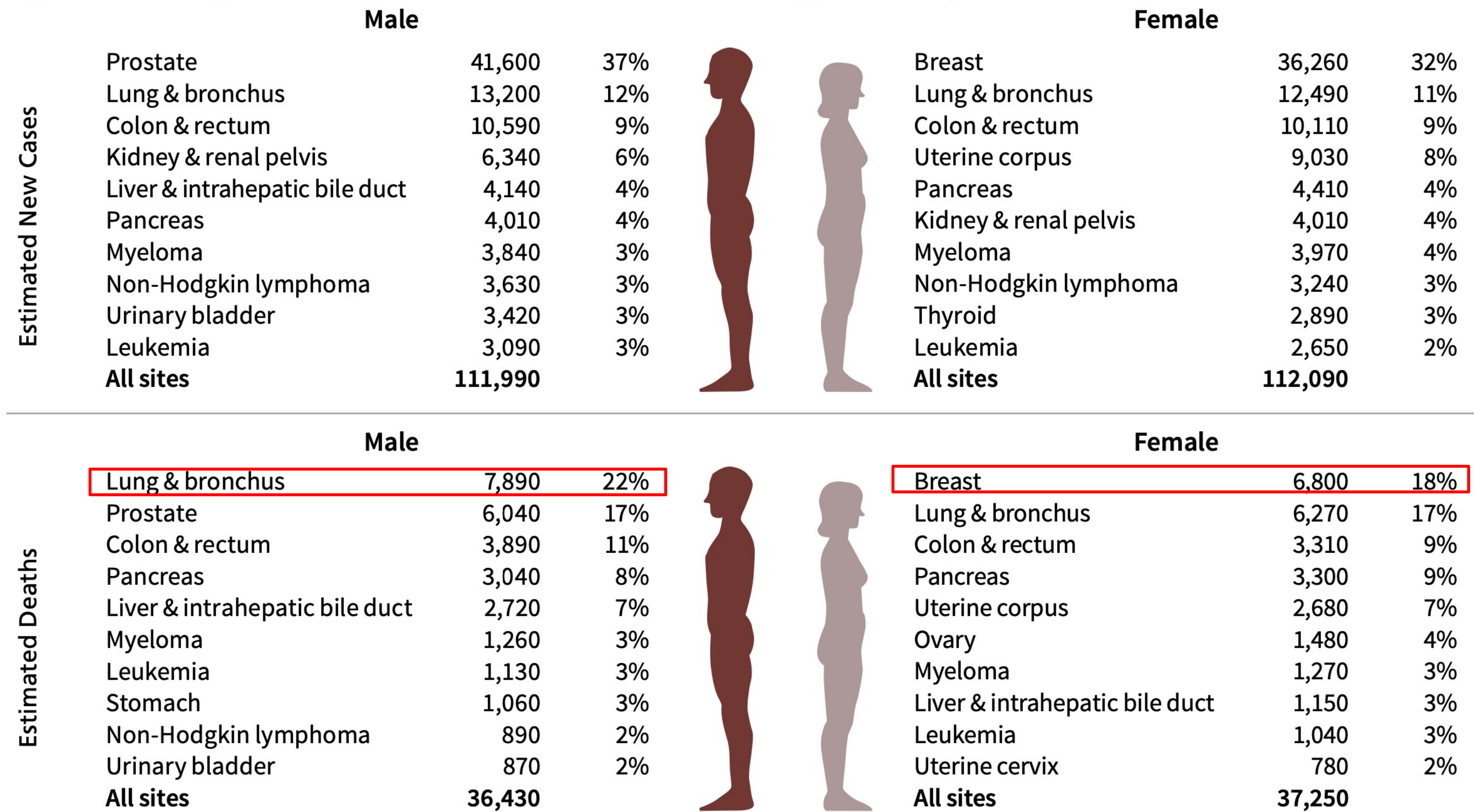# Building on Past Successes:
Targeting Racial Disparities in Breast & Lung Cancer

Scott D. Siegel, Ph.D., MHCDS
Director of Population Health Research
Institute for Research on Equity & Community Health (iREACH)
Helen F. Graham Cancer Center & Research Institute
ChristianaCare

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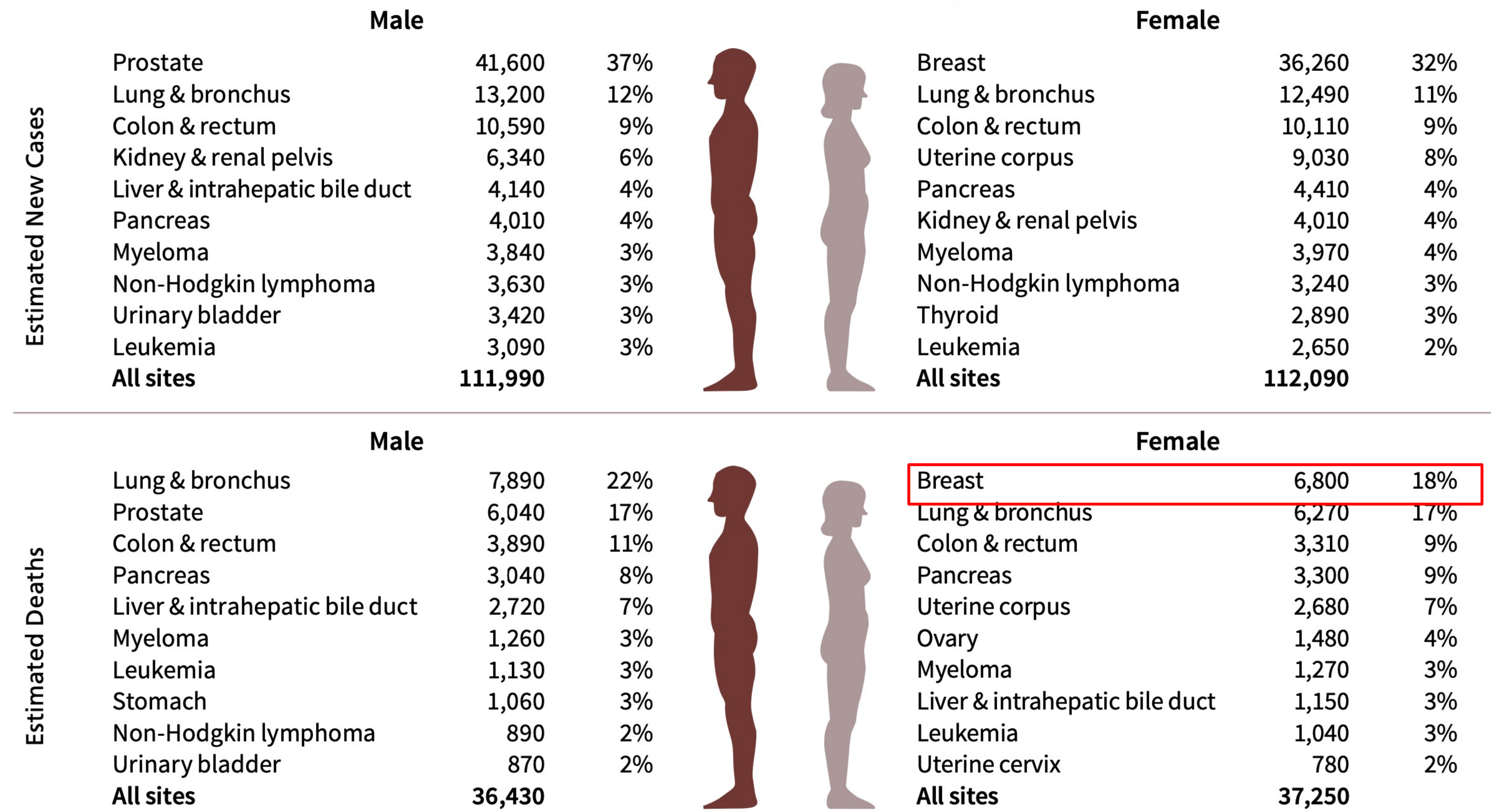# Breast and lung cancer are the leading causes of cancer mortality among Black individuals in the US

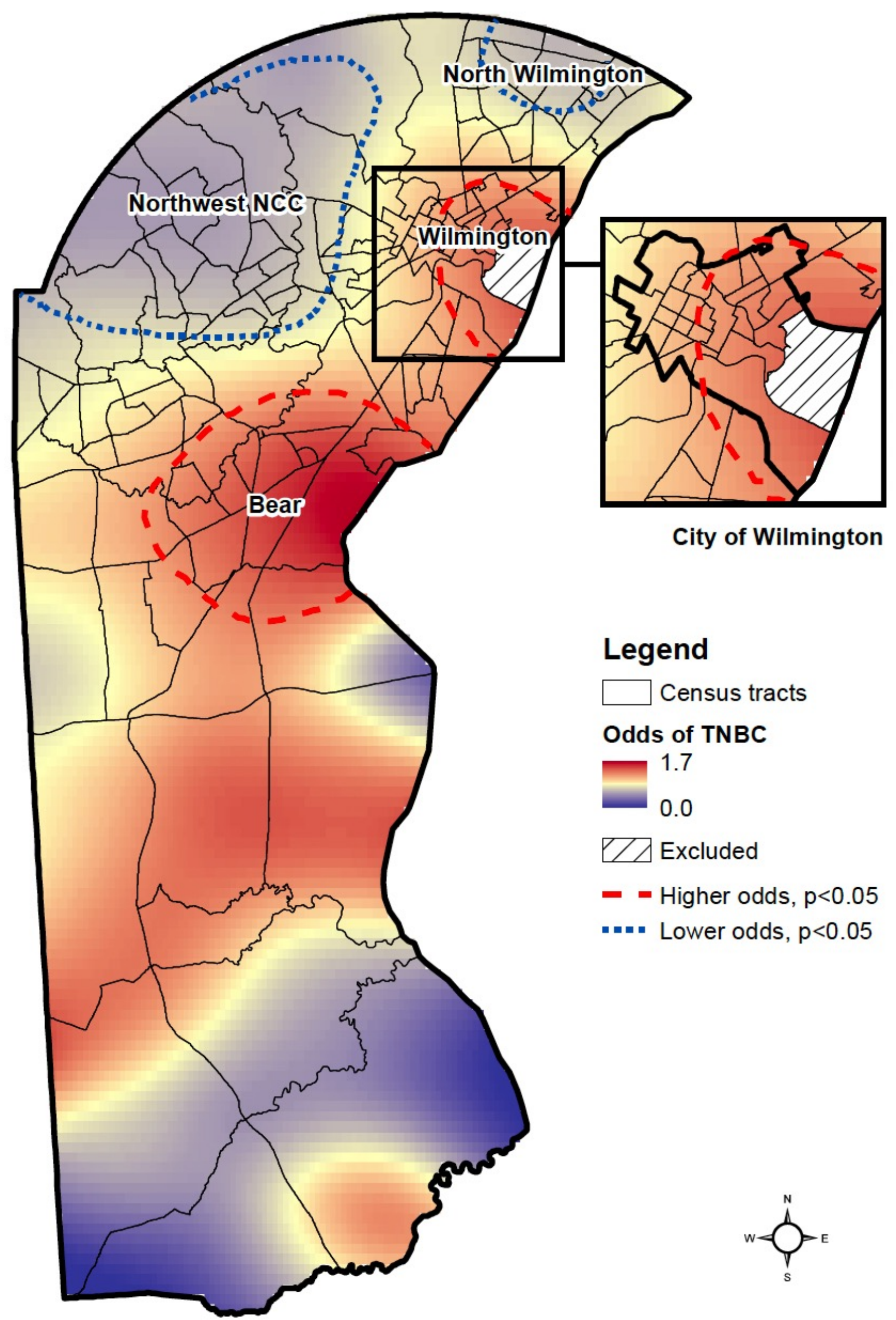**Figure 2. Leading Sites of New Cancer Cases and Deaths among Black People in US – 2022 Estimates***

Estimated New Cases

Male				Female		
Prostate	41,600	37%		Breast	36,260	32%
Lung & bronchus	13,200	12%		Lung & bronchus	12,490	11%
Colon & rectum	10,590	9%		Colon & rectum	10,110	9%
Kidney & renal pelvis	6,340	6%		Uterine corpus	9,030	8%
Liver & intrahepatic bile duct	4,140	4%		Pancreas	4,410	4%
Pancreas	4,010	4%		Kidney & renal pelvis	4,010	4%
Myeloma	3,840	3%		Myeloma	3,970	4%
Non-Hodgkin lymphoma	3,630	3%		Non-Hodgkin lymphoma	3,240	3%
Urinary bladder	3,420	3%		Thyroid	2,890	3%
Leukemia	3,090	3%		Leukemia	2,650	2%
All sites	**111,990**			**All sites**	**112,090**	

Estimated Deaths

Male				Female		
Lung & bronchus	7,890	22%		Breast	6,800	18%
Prostate	6,040	17%		Lung & bronchus	6,270	17%
Colon & rectum	3,890	11%		Colon & rectum	3,310	9%
Pancreas	3,040	8%		Pancreas	3,300	9%
Liver & intrahepatic bile duct	2,720	7%		Uterine corpus	2,680	7%
Myeloma	1,260	3%		Ovary	1,480	4%
Leukemia	1,130	3%		Myeloma	1,270	3%
Stomach	1,060	3%		Liver & intrahepatic bile duct	1,150	3%
Non-Hodgkin lymphoma	890	2%		Leukemia	1,040	3%
Urinary bladder	870	2%		Uterine cervix	780	2%
All sites	**36,430**			**All sites**	**37,250**	

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Breast Cancer

Figure 2. Leading Sites of New Cancer Cases and Deaths among Black People in US – 2022 Estimates*

	Male				Female	
Estimated New Cases	Prostate	41,600	37%	Breast	36,260	32%
	Lung & bronchus	13,200	12%	Lung & bronchus	12,490	11%
	Colon & rectum	10,590	9%	Colon & rectum	10,110	9%
	Kidney & renal pelvis	6,340	6%	Uterine corpus	9,030	8%
	Liver & intrahepatic bile duct	4,140	4%	Pancreas	4,410	4%
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	Leukemia	3,090	3%	Leukemia	2,650	2%
	All sites	**111,990**		**All sites**	**112,090**	

	Male				Female	
Estimated Deaths	Lung & bronchus	7,890	22%	Breast	6,800	18%
	Prostate	6,040	17%	Lung & bronchus	6,270	17%
	Colon & rectum	3,890	11%	Colon & rectum	3,310	9%
	Pancreas	3,040	8%	Pancreas	3,300	9%
	Liver & intrahepatic bile duct	2,720	7%	Uterine corpus	2,680	7%
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	Non-Hodgkin lymphoma	890	2%	Leukemia	1,040	3%
	Urinary bladder	870	2%	Uterine cervix	780	2%
	All sites	**36,430**		**All sites**	**37,250**	

In Delaware:
- Mortality rates are 56% higher among 40-64 yo
- Elevated rates of triple negative breast cancer (TNBC)
- #1 for alcohol-attributable breast cancer

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Known invasive non-TNBC subtypes include luminal A and B, HR+HER2?, and HER2 overexpressing.

Legend

- ☐ Census tracts

Odds of TNBC
- 1.7
- 0.0
- ▨ Excluded
- – – – Higher odds, p<0.05
- ····· Lower odds, p<0.05

City of Wilmington

A Population Health Assessment in a Community Cancer Center Catchment Area: Triple-Negative Breast Cancer, Alcohol Use, and Obesity in New Castle County, Delaware

Scott D. Siegel[1,2], Madeline M. Brooks[2], Jennifer Sims-Mourtada[1], Zachary T. Schug[3], Dawn J. Leonard[1], Nicholas Petrelli[1], and Frank C. Curriero[4]

ABSTRACT

Background: The NCI requires designated cancer centers to conduct catchment area assessments to guide cancer control and prevention efforts designed to reduce the local cancer burden. We extended and adapted this approach to a community cancer center catchment area with elevated rates of triple-negative breast cancer (TNBC).

Methods: Cancer registry data for 462 TNBC and 2,987 "Not-TNBC" cases diagnosed between 2012 and 2020 at the Helen F. Graham Cancer Center & Research Institute (HFGCCRI), located in New Castle County, Delaware, were geocoded to detect areas of elevated risk (hot spots) and decreased risk (cold spots). Next, electronic health record (EHR) data on obesity and alcohol use disorder (AUD) and catchment area measures of fast-food and alcohol retailers were used to assess for spatial

relationships between TNBC hot spots and potentially modifiable risk factors.

Results: Two hot and two cold spots were identified for TNBC within the catchment area. The hot spots accounted for 11% of the catchment area but nearly a third of all TNBC cases. Higher rates of unhealthy alcohol use and obesity were observed within the hot spots.

Conclusions: The use of spatial methods to analyze cancer registry and other secondary data sources can inform cancer control and prevention efforts within community cancer center catchment areas, where limited resources can preclude the collection of new primary data.

Impact: Targeting community outreach and engagement activities to TNBC hot spots offers the potential to reduce the population-level burden of cancer efficiently and equitably.

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Possible next steps:

1. Focus our outreach efforts in these hot spots

A Proportion of completed mammograms by race/ethnicity
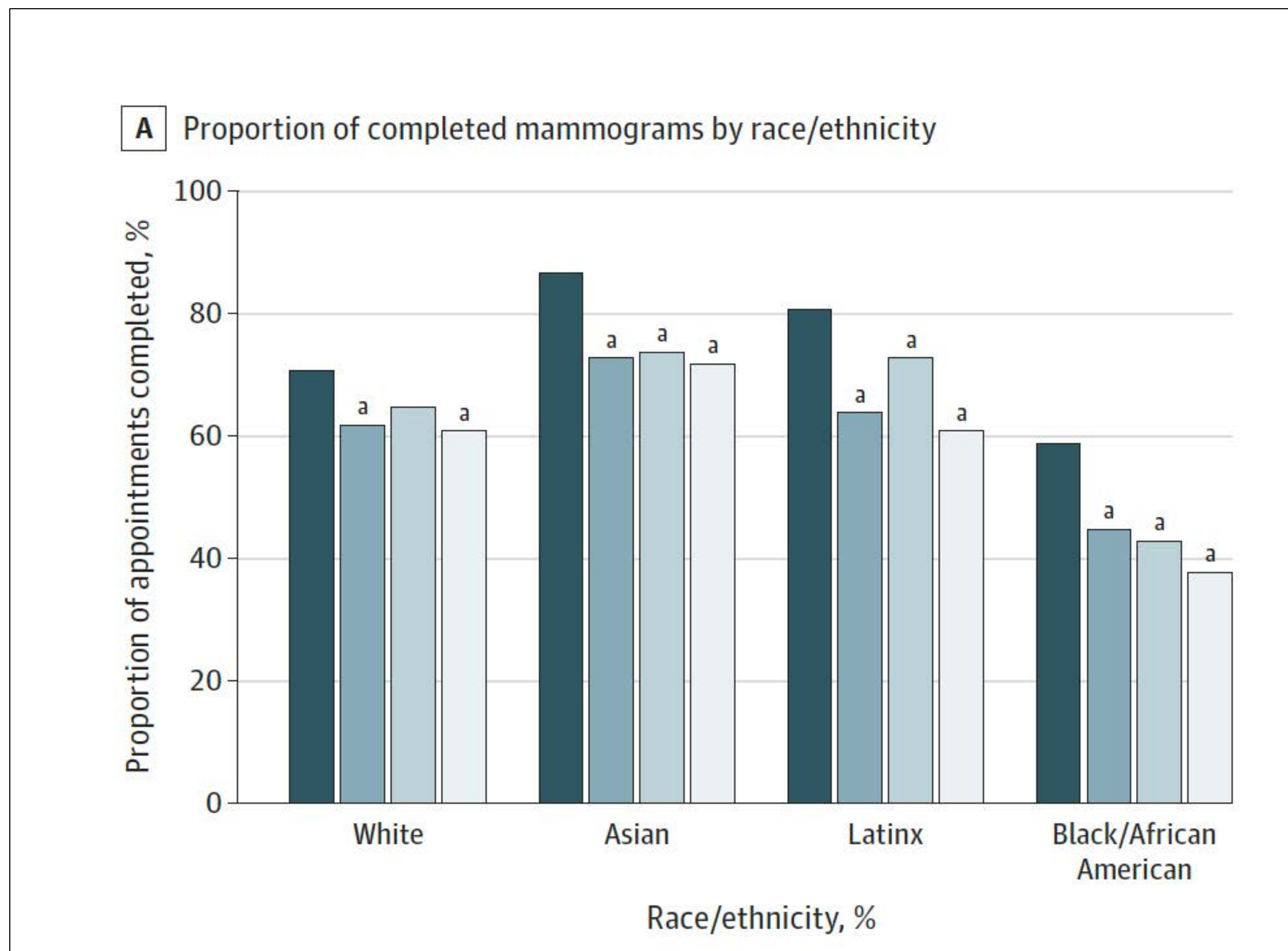
JAMA Network | Open

Research Letter | Oncology

Trends in Breast Cancer Screening in a Safety-Net Hospital During the COVID-19 Pandemic

Ana I. Velazquez, MD, MSc; Jessica H. Hayward, MD; Blake Gregory, MD; Niharika Dixit, MD

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Possible next steps:

1. Focus our outreach efforts in these hot spots

2. Address unhealthy alcohol use and obesity in primary care clinics

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Changes in Alcohol Use During COVID-19 and Associations With Contextual and Individual Difference Variables: A Systematic Review and Meta-Analysis

Samuel F. Acuff[1], Justin C. Strickland[2], Jalie A. Tucker[3], and James G. Murphy[1]
[1] Department of Psychology, The University of Memphis
[2] Department of Psychiatry and Behavioral Sciences, Johns Hopkins University School of Medicine
[3] Department of Health Education and Behavior, Center for Behavioral Economic Health Research, University of Florida

Objective: The present study meta-analyzed studies examining changes in alcohol consumption during the coronavirus disease (COVID-19) pandemic and systematically reviewed contextual and individual difference factors related to these changes. *Method:* Following the preferred reporting items for systematic reviews and meta-analysis (PRISMA) protocol, studies were gathered via PsycINFO, PubMed/MEDLINE, and preprint databases (published April 29, 2021) that examined individual-level changes in consumption during the initial COVID-19 mitigation measures (before October 2020). Next, sample proportion increases and decreases in consumption, in addition to mean change in consumption variables from pre- to during-COVID, were meta-analyzed, and contextual and individual difference variables related to consumption changes during the pandemic were summarized. *Results:* One hundred and twenty-eight studies provided data from 58 countries (M n = 3,876; Mdn n = 1,092; aggregate sample n = 492,235). The average mean change in alcohol consumption was nonsignificant (Cohen's d = −0.01, p = .68); however, meta-analysis revealed that 23% of participants reported increases in consumption and 23% reported decreases. These changes were moderated by per capita gross domestic product and country. Narrative synthesis revealed multiple predictors of increased drinking, including contextual changes (e.g., children at home, income loss, working remotely), individual difference variables (being female, a young-to-middle aged adult, or Black), and mental health/alcohol-related risk factors (e.g., depression). *Conclusions:* The identified factors associated with increased alcohol consumption should be considered in planning behavioral health services during future crisis events that abruptly alter everyday environments in ways that increase stress and decrease access to naturally occurring rewards.

Obesity WILEY

COVID-19 pandemic and stay-at-home mandates promote weight gain in US adults

Adam Seal[1] | Andrew Schaffner[2] | Suzanne Phelan[1] | Hannah Brunner-Gaydos[1] | Marilyn Tseng[1] | Sarah Keadle[1] | Julia Alber[1] | Isabelle Kiteck[1] | Todd Hagobian[1]

[1] Center for Health Research, California Polytechnic State University, San Luis Obispo, California, USA

[2] Statistics Department, California Polytechnic State University, San Luis Obispo, California, USA

Correspondence
Todd Hagobian, Center for Health Research, California Polytechnic State University, 1 Grand Ave, Building 83 Room 1C-2, San Luis Obispo, CA 93407, USA.
Email: thagobia@calpoly.edu

Funding information
This study was funded by the Bill and Linda Frost Foundation and the Center for Health Research.

Abstract
Objective: The purpose of this study was to prospectively examine the effect of state stay-at-home mandates on weight of US adults by BMI over 3 months during COVID-19.
Methods: US adults completed an online questionnaire containing demographics, weight, physical activity, sedentary time, fruit/vegetable intake, depressive symptoms, stress, and sleep at baseline (May 2020) and after 3 months (August 2020).
Results: Participants gained 0.6 kg (76.7-77.3 kg, p = 0.002). A total of 26% of those with obesity gained > 2 kg compared with 14.8% of those with normal weight (p < 0.001). A total of 53.3% of individuals with obesity maintained weight within 2 kg compared with 72.5% of those with normal weight (p < 0.001). Greater weight gain was related to longer stay-at-home mandates (β = 0.078, p = 0.010), lower baseline minutes of physical activity per day (β = −0.107, p = 0.004), greater declines in minutes of physical activity per day (β = −0.076, p = 0.026), depressive symptoms (β = 0.098, p = 0.034), and greater increases in time preparing food (β = 0.075, p = 0.031).
Conclusions: US adults gained weight, and stay-at-home mandates were associated with atypical weight gain and greater reported weight gain in individuals with obesity over 3 months.

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Possible next steps:

1. Focus our outreach efforts in these hot spots

2. Address unhealthy alcohol use and obesity in primary care clinics

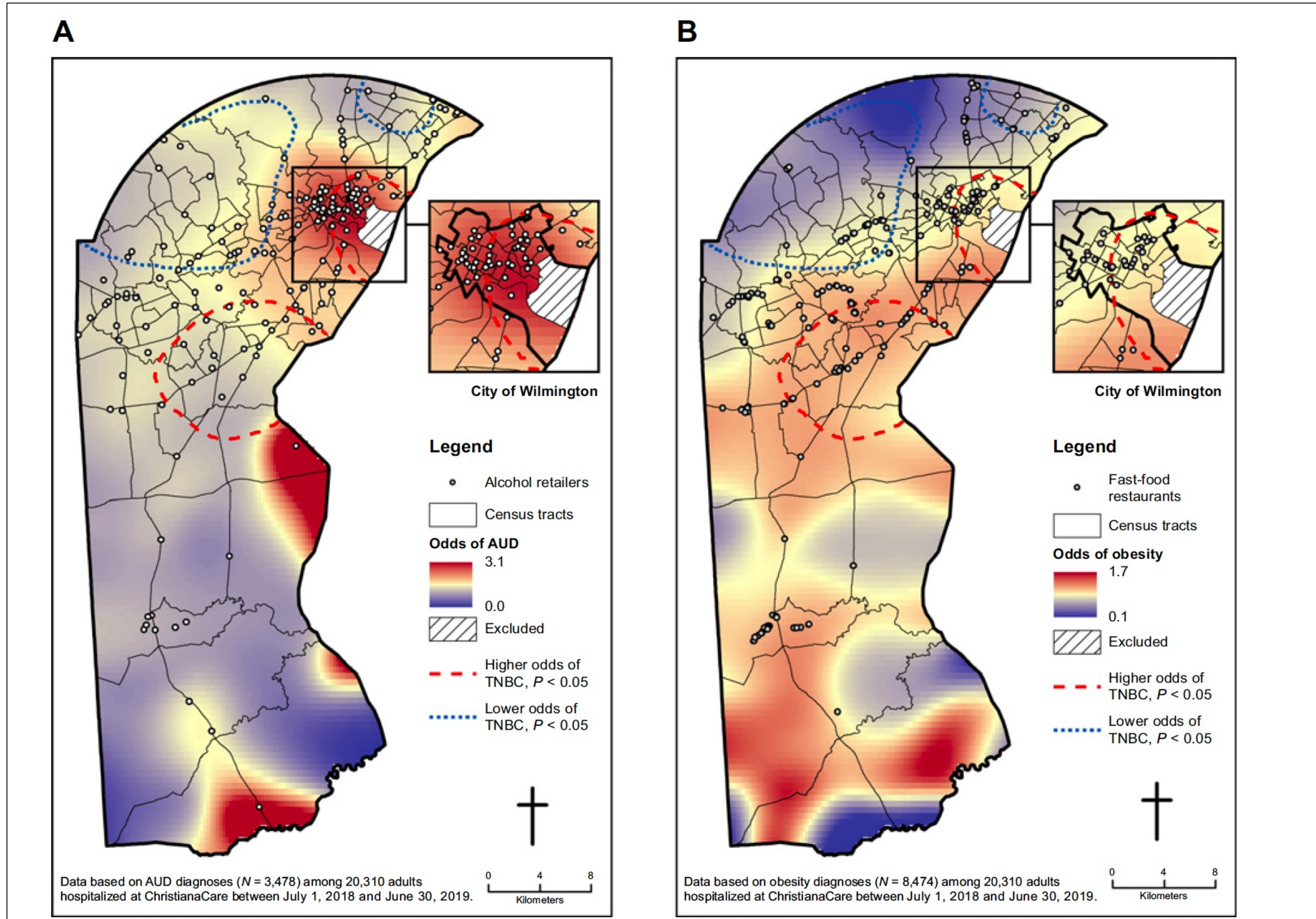3. Policy approaches to further reduce alcohol use and obesity

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Figure 2.
Spatial variation in risk of AUD and obesity in New Castle County, Delaware. This figure shows spatial variation in the odds of AUD (vs. no AUD; **A**) and obesity (vs. non-obese; **B**) among hospitalized adults, relative to "hot" and "cold spots" for TNBC. **A,** Higher odds of AUD within the top TNBC hot spot; **B,** higher odds of obesity within the bottom TNBC hot spot.

Lung Cancer

In Delaware:
- Leading cause of cancer mortality overall
- Black individuals less likely to be screened and advised to quit smoking
- When offered smoking cessation services, they are less effective

Figure 2. Leading Sites of New Cancer Cases and Deaths among Black People in US – 2022 Estimates*

Estimated New Cases

Male			Female		
Prostate	41,600	37%	Breast	36,260	32%
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All sites	**36,430**		**All sites**	**37,250**	

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Possible next steps

1. Equitably increase access to lung cancer screening

FIGURE 4-14: PERCENTAGE OF LUNG CANCER CASES DIAGNOSED AT AN ADVANCED STAGE BY AGE AND RACE/ETHNICITY IN DELAWARE, 2010-2014
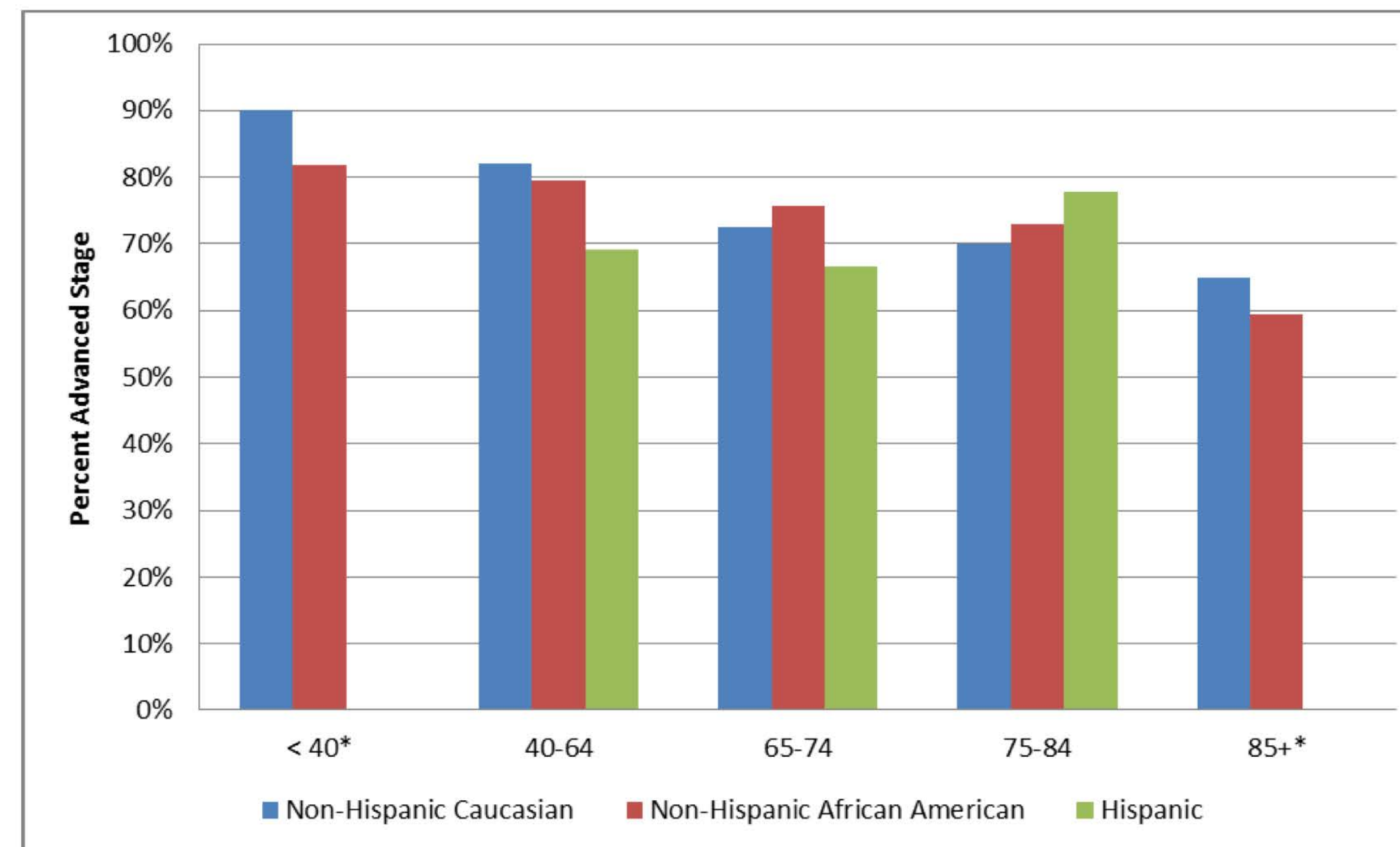

*Percentages for counts less than 6 are not shown
Source: Delaware Department of Health and Social Services, Division of Public Health, Delaware Cancer Registry, 2017

Possible next steps

1. Equitably increase access to lung cancer screening

2. Prioritize access to smoking cessation treatment and provided personalized treatment options to improve outcomes

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The Use of the Nicotine Metabolite Ratio as a Biomarker to Personalize Smoking Cessation Treatment: Current Evidence and Future Directions
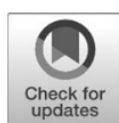
Scott D. Siegel[1], Caryn Lerman[2], Alex Flitter[3], and Robert A. Schnoll[3]

ABSTRACT

The nicotine metabolite ratio (NMR), a genetically informed biomarker of rate of nicotine metabolism, has been validated as a tool to select the optimal treatment for individual smokers, thereby improving treatment outcomes. This review summarizes the evidence supporting the development of the NMR as a biomarker of individual differences in nicotine metabolism, the relationship between the NMR and smoking behavior, the clinical utility of using the NMR to personalize treatments for smoking cessation, and the potential mechanisms that underlie the relationship between NMR and smoking cessation. We conclude with a call for additional research necessary to determine the ultimate benefits of using the NMR to personalize treatments for smoking cessation. These future directions include measurement and other methodologic considerations, disseminating this approach to at-risk subpopulations, expanding the NMR to evaluate its efficacy in predicting treatment responses to e-cigarettes and other noncigarette forms of nicotine, and implementation science including cost-effectiveness analyses.

See all articles in this Special Collection Honoring Paul F. Engstrom, MD, Champion of Cancer Prevention
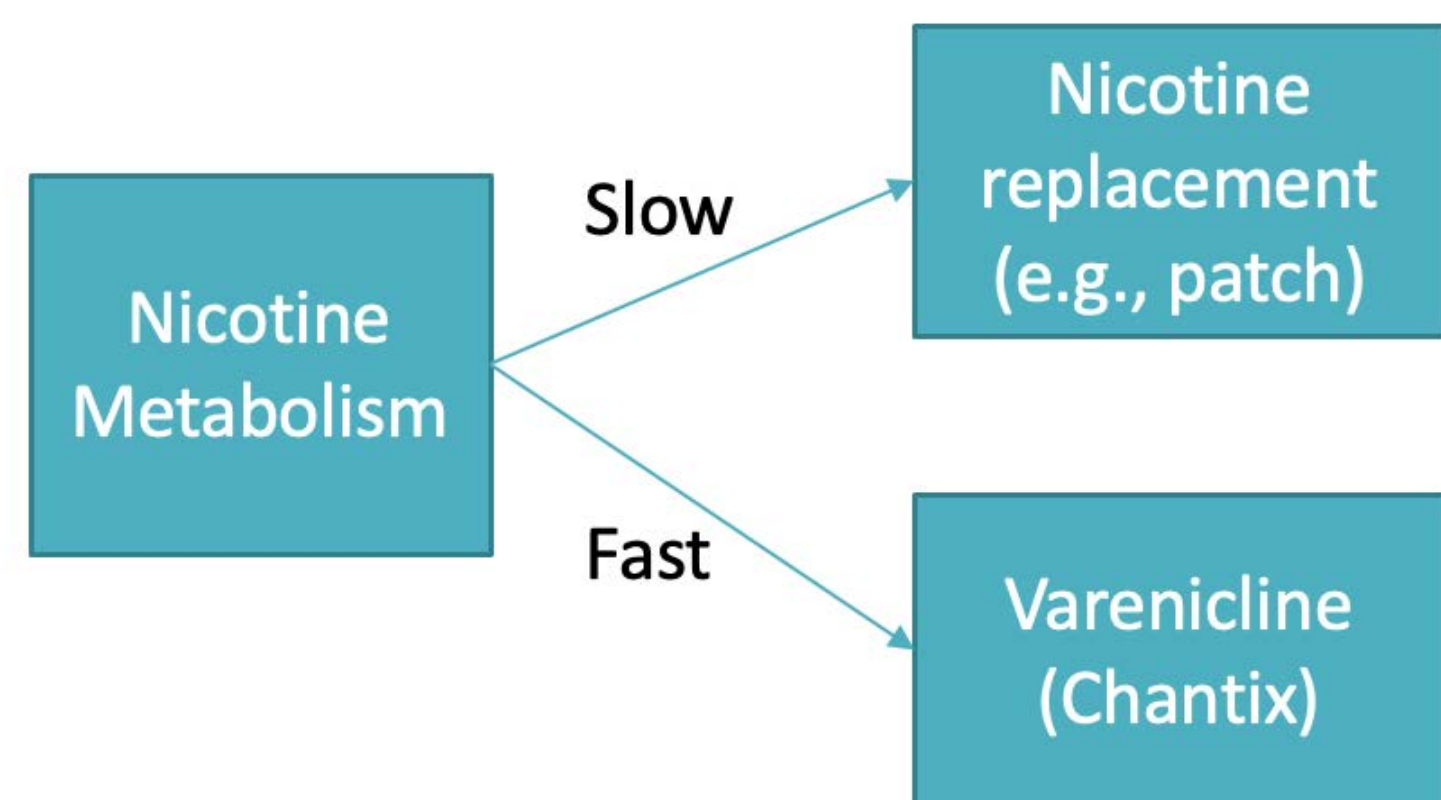
Using a personalized approach,
QUIT RATES INCREASE BY 5X
for those who typically have a harder time quitting
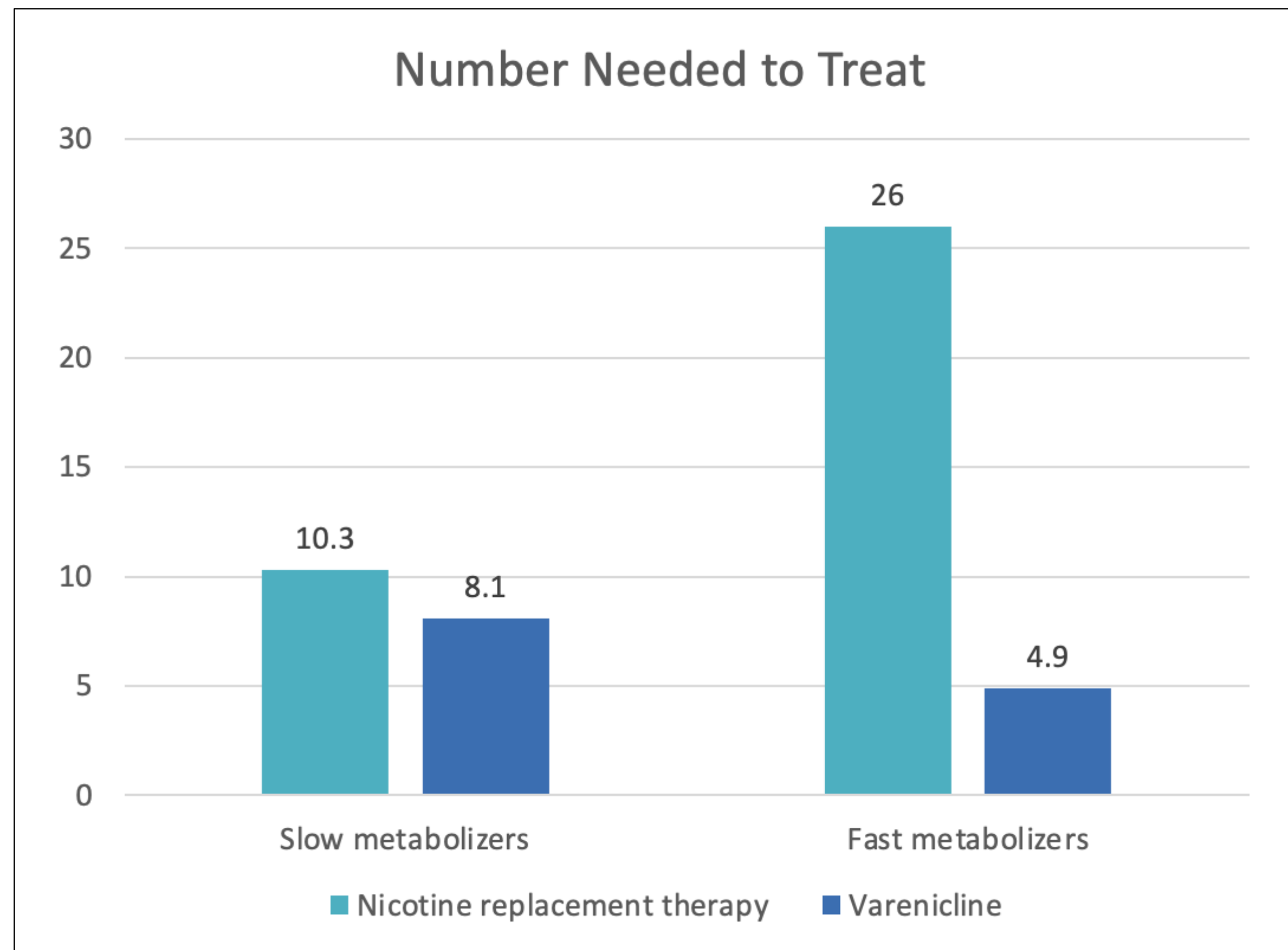
Important policy issue:
Delaware Medicaid requires patients must fail nicotine replacement therapy to qualify for Varenicline

Possible next steps

1. Equitably increase access to lung cancer screening

2. Prioritize access to smoking cessation treatment and provided personalized treatment options to improve outcomes

3. Policy approaches to further reduce smoking rates

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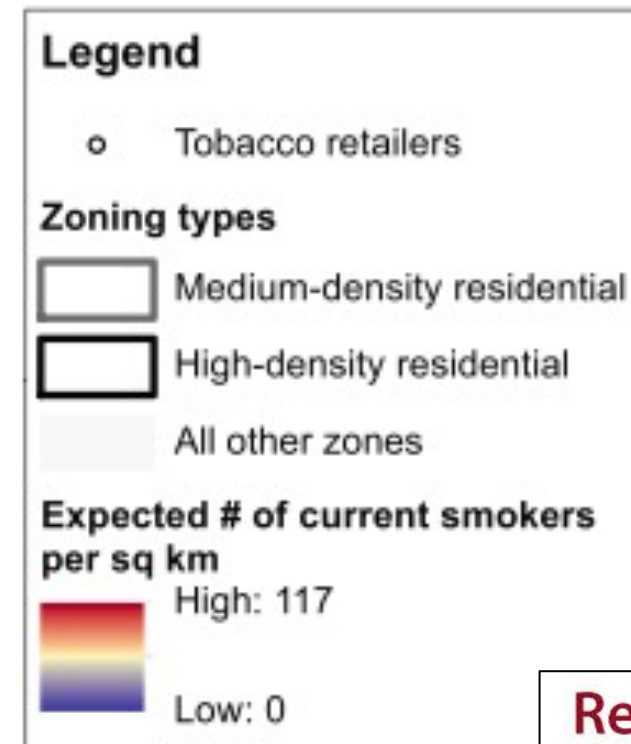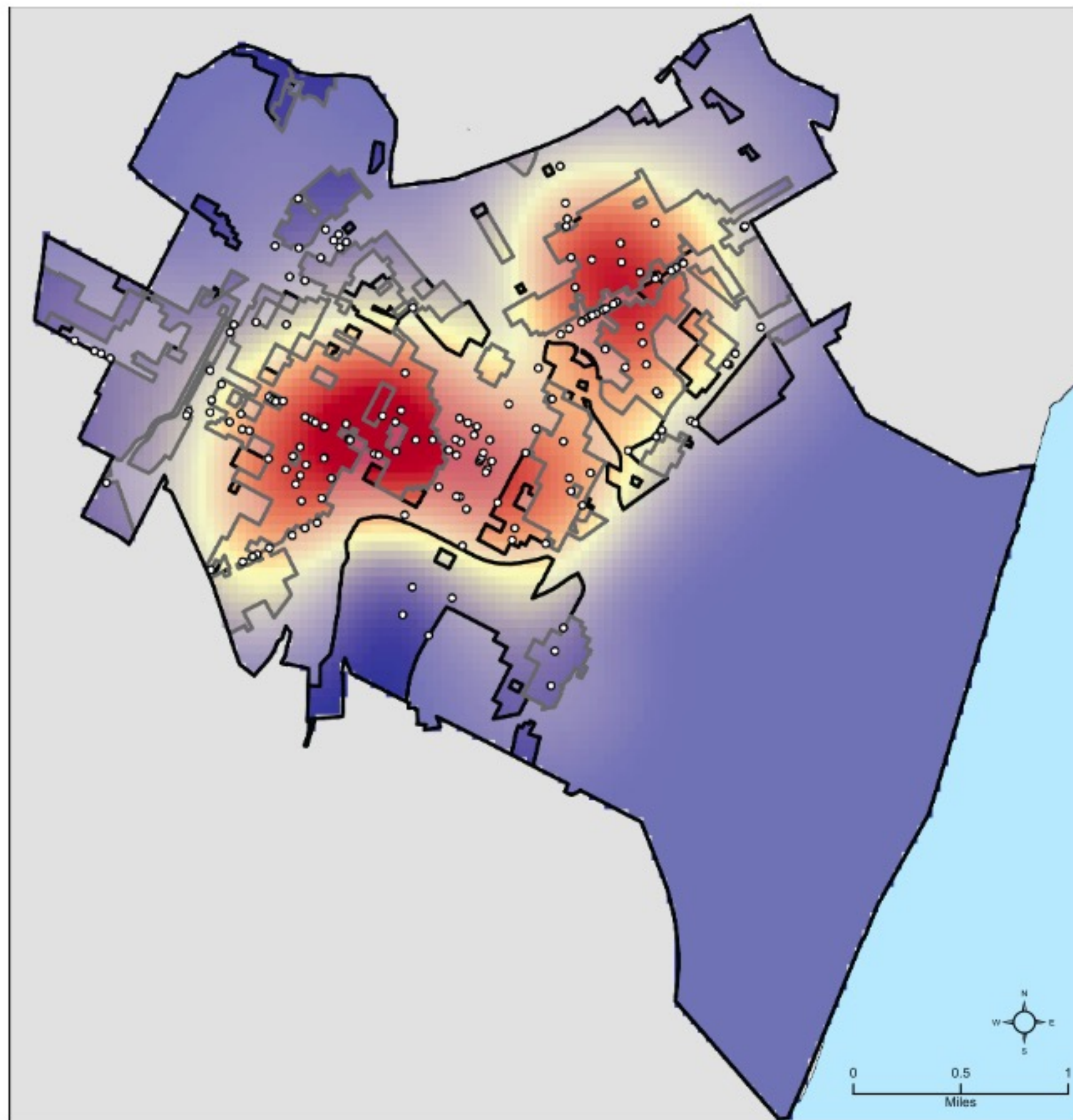
Reducing exposure to tobacco retailers with residential zoning policy: insights from a geospatial analysis of Wilmington, Delaware

Scott D. Siegel [iD][a,b], Madeline Brooks[a], Jason Bourke[c] and Frank C. Curriero[d]

[a]Institute for Research on Equity and Community Health, Christiana Care Health System, Newark, DE, USA; [b]Helen F. Graham Cancer Center & Research Institute, Christiana Care Health System, Newark, DE, USA; [c]Master of Public Administration Program at Delaware State, Delaware State University, Dover, DE, USA; [d]Johns Hopkins Spatial Science for Public Health Center, Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

ABSTRACT

Cigarette use remains the leading preventable cause of premature mortality in the US, with declines in smoking rates slowing in recent years. One promising target for improved tobacco control is the expanded regulation of tobacco retailers. Evaluations of such policy attempts have largely produced mixed results to date. The objective of this study was to the assess the potential of using a novel, residentially-focused zoning approach to produce a more targeted and equitable reduction in tobacco retailers in high-risk urban settings. We focused on Wilmington, Delaware, a city characterized by high poverty rates, a majority Black population, a disparate number of tobacco retailers, and an elevated smoking prevalence. Through the use of geospatial analyses, we observed disproportionately higher counts of convenience store tobacco retailers in medium- and high-density residential zones in Wilmington relative to the surrounding county. By linking electronic health record (EHR) data from a local health care system and US Census Bureau data, we further found that approximately 80% of Wilmington smokers and 60% of Wilmington youth lived in these residential zones. These findings highlight the potential to more equitably reduce tobacco retailer exposure through a residentially-focused zoning approach. Tobacco control policy and research implications are considered.

New Playbook

- Even more targeted outreach to improve screening and risk reduction

- Policy approaches to make neighborhoods healthier

- Research to continually improve our approaches