

advancing the art & science of medicine in the midwest

WMJ

volume 120 • supplement 1 • march 2021



**A special issue on the Impact
of Race & Racism on Health**



Classic Presentation

Greta Berger

Digital design made during the Dermatology unit of medical school

Artist Statement:

As we dissect the etiology of pervasive health disparities seen within medicine, we must look to our training. What narratives have our educational materials taught us? What color, pattern rash do our brains scan for? Do we know what that "classic color red" looks like when our patient has dark skin? And what happens when we don't?



COVER ART

Cribs and Caskets

Ryan McAdams, MD

2020, 24 x 24 inches, acrylic on wood

Artist Statement:

As a neonatologist who has been privileged to work in neonatal intensive care units in the U.S. and globally, I have witnessed a substantial amount of suffering and death. These experiences shape why and what I paint. Themes of social injustice, survival, pain, and grief are the basis for my art. My painting, "Cribs and Caskets," reflects the disturbing high infant mortality rate for Black babies in Wisconsin, a rate almost 3 times higher than White babies.

The mission of WMJ is to provide an opportunity to publish original research, case reports, review articles, and essays about current medical and public health issues. WMJ is published through a partnership between the Medical College of Wisconsin and the University of Wisconsin School of Medicine and Public Health.

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WMJ

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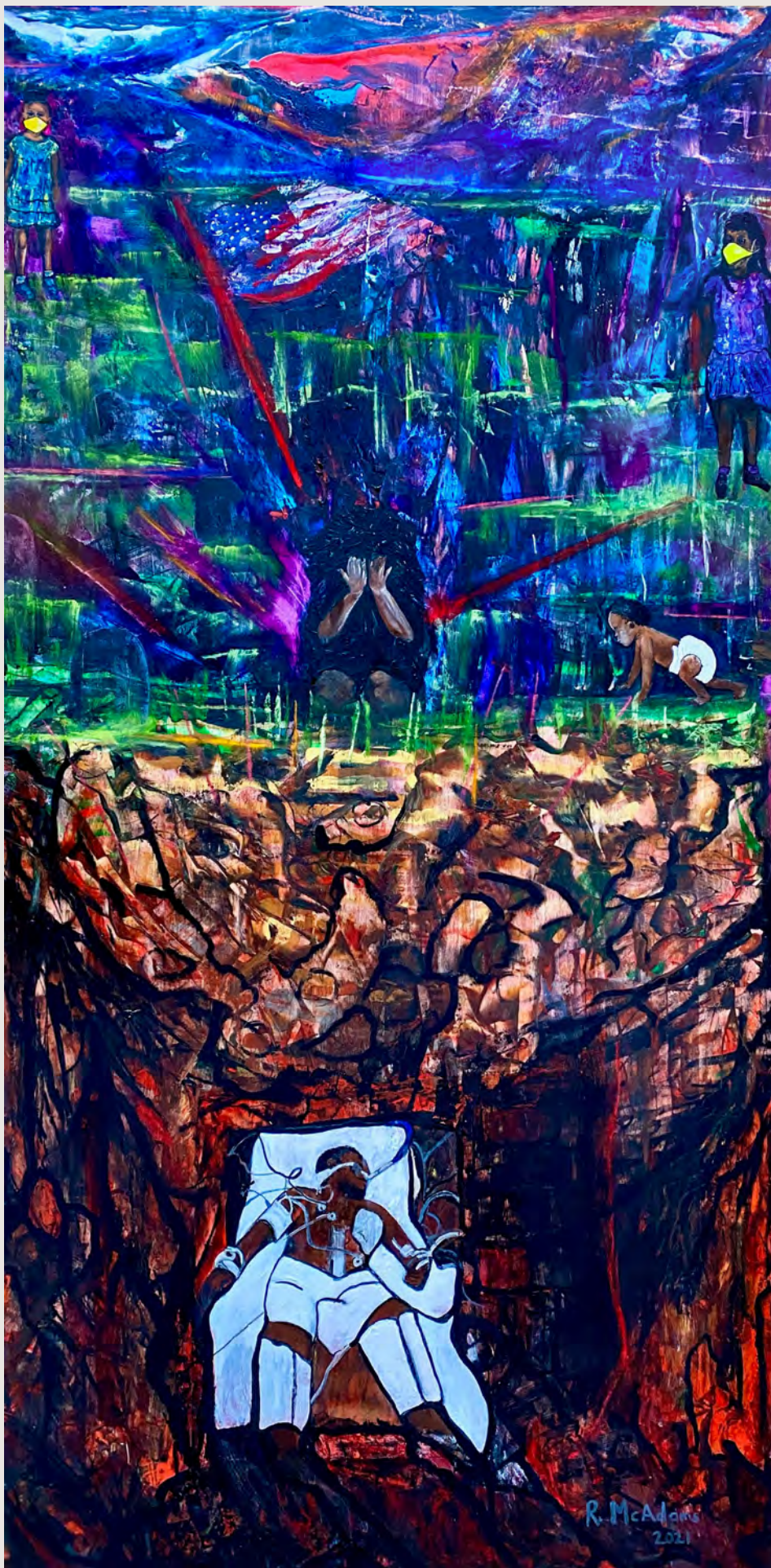
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Inequity of Six Feet

Ryan McAdams, MD

2021, acrylic and soft pastels in wood, 24 in x 48 in

Artist Statement:

As a neonatologist who has worked in neonatal intensive care units in the US and in global settings, I have witnessed a substantial amount of suffering and death. I have also witnessed the incredible resilience of children and the awe-inspiring dedication and love of their families. These experiences shape why and what I paint. Themes of social injustice, survival, pain, and grief are the basis for my art since these ageless motifs are still globally preeminent today.

Inequity of Six Feet reflects on death and suffering due to the COVID-19 pandemic, especially the disturbing high Black mortality rate when compared to the mortality in White people. My hope is that my art will raise awareness on how racial disparities impact families and children in our society, so viewers can contemplate how we can make positive changes to eliminate racial inequities.

Exploring the Impact of Race and Racism on Health

Sarina Schrager, MD, MS, *WMJ* Editor-in-Chief

This special issue of the *WMJ* focusing on how the health of the people in Wisconsin is affected by race and racism was born as a response to the high-profile police killings and the resultant civilian protests from the spring and summer of 2020. The editorial staff of the *WMJ*, with the support of the state's two medical schools—the Medical College of Wisconsin and the University of Wisconsin School of Medicine and Public Health—chose to highlight stark racial health disparities among populations in Wisconsin and provide a forum for scholars in Wisconsin to share their work.

This is not the first time the *WMJ* has addressed this topic. In fact, the *WMJ* has published many articles looking at racial disparities and health. (See the special topic collection available at wmjonline.org.) But, the focus of an entire issue, we felt, was essential to devote the needed resources and attention to this topic. Nelson Mandela stated, “Education is the most powerful weapon which you can use to change the world.”

The editorial staff was fortunate to assemble a special advisory group of distinguished and knowledgeable experts for this issue. This group, comprised of physicians, epidemiologists, social workers, psychologists, and a medical student from the state's medical schools and the University of Wisconsin-Milwaukee, represent a broad range of disciplines with a scholarly resume focused on health disparities and racism. The group graciously helped recruit authors, review papers, and advise the editorial staff about topics to highlight in the issue.

We received more than 20 submissions from scholars and community members around

the state. This overwhelming response to our call for papers (normally, we would publish 12 to 14 papers in an issue) demonstrates interest in the topic among researchers. In addition, we received 14 submissions from artists who answered the call for their interpretations of the theme. Some of these works are included in this issue, and all are featured on our website.

Anti-racism is a movement to establish conscious actions and beliefs that are counter to racism and prejudice. The idea of being anti-racist is to deliberately develop equitable opportunities for people of all races. The papers in this special issue will help Wisconsin health care providers work toward creating anti-racist communities and an anti-racist health care system. Many medical schools and health systems

have worked to develop concrete steps to move toward an anti-racist environment. Work has included providing education about racist practices in the history of medicine, calling out both explicit and implicit bias in hiring, patient care, and education, and engaging the medical community in a conversation about anti-racism. The Northwestern Feinberg School of Medicine (<https://www.feinberg.northwestern.edu/sites/fame/educator-training/Anti-racism-in-Medicine-Collection.html>) and Emory School of Medicine (<https://med.emory.edu/about/diversity/anti-racism-guide.html>) have curated two helpful collections. These websites include curricula, workshops, case studies, and research articles that provide examples for ways to incorporate anti-racism efforts into the health care system.

Box. Resources

- **New AMA policies recognize race as a social, not biological construct**
<https://www.ama-assn.org/press-center/press-releases/new-ama-policies-recognize-race-social-not-biological-construct>
- **What we mean when we say race is a social construct**
<https://www.theatlantic.com/national/archive/2013/05/what-we-mean-when-we-say-race-is-a-social-construct/275872/>
- **A history: the construction of race and racism**
<https://drive.google.com/file/d/1IHfUSeXnJO5ea-5jQ7QXfOnucGyhnDKk/view>
- **Race is a social construct, scientists argue**
<https://www.scientificamerican.com/article/race-is-a-social-construct-scientists-argue>
- **What is whiteness?**
<https://www.nytimes.com/2015/06/21/opinion/sunday/what-is-whiteness.html>
- **What is whiteness?**
<https://www.psychologytoday.com/us/blog/culturally-speaking/202006/what-is-whiteness>

There is very little biologic variation between races. The literature provides ample evidence documenting that all humans, regardless of race, ethnicity, or country of origin, have over 99.9% of their genetic material in common. Race itself is not a logical explanation for health disparities or different responses to disease. However, racism—defined as a social response to people of different races—is an underlying cause of many inequities and health disparities. The American Medical Association, joining many other medical organizations, formulated a statement on race as a social construct in November 2020 to begin identifying racism in medical care and medical education (see Box). One example of work toward an anti-racist medical culture is the move to take out race adjustments in clinical algorithms.¹ For instance, glomerular filtration rate (GFR)

is adjusted for Black patients. This adjusted calculation serves to overestimate their renal function and make them eligible for dialysis later than non-Black patients.

In the creation of this special issue of the *WMJ*, the advisory group recognized that none of the papers submitted included a discussion of the social construction of race or the issue of “whiteness.” Whiteness is defined as “the property or quality of being white in color” and “the fact or state of belonging in a human group having light-colored skin.” Defining “white” as the default skin color is a core factor in the evolution of race as a social construct. James Baldwin said, “No one was white before he/she came to America.” Race is socially defined and purposefully employed to maintain and expand power amongst people identified as white. Race and racism create a framework where the

focus is upon “the other” (those who are not white) where whiteness is considered the norm or the reference point. We have provided some resources for those who want more information to expand on the concepts of whiteness and the social construction of race.

We wish to thank the members of our advisory group, the authors, and artists who have contributed to this special issue. By highlighting the issues of race and racism, we hope to raise awareness and give health care professionals some guidance as to how to improve care for people of all races.

REFERENCE

1. Vyas DA, Eisenstein LG, Jones DS. Hidden in plain sight—reconsidering the use of race correction in clinical algorithms. *N Engl J Med*. 2020; 383:874-882. doi:10.1056/NEJMms2004740

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Homicide: A Leading Cause of Death for Black Non-Hispanics in Wisconsin

Zachary Dunton, BS; Stephen Hargarten, MD, MPH; Sara Kohlbeck, MPH; Fauzia Osman, MPH

ABSTRACT

Importance: Wisconsin has the second-highest Black homicide rate in the country, reporting a rate of 37.57 deaths per 100,000 Black non-Hispanic Wisconsinites. Meanwhile, White non-Hispanics experience a homicide rate of 2.0 deaths per 100,000.

Objective: The data identify a public health disparity that deserves further investigation. This study seeks to detail the mortality rate of all-cause homicide, firearm-related homicide, non-firearm-related homicide, and legal intervention firearm-related homicide; leading causes of death; average age of death; and years of potential life lost (YPLL) between White non-Hispanics and Black non-Hispanics in Wisconsin during 2000-2017.

Design: Wisconsin homicide rates, ranked leading causes of death, and average age of death were obtained through the Wisconsin Department of Health Services via the Wisconsin Interactive Statistics on Health (WISH) Query System. National data were obtained through the Centers for Disease Control and Prevention's Web-based Injury Statistics Query and Reporting System (WISQARS). Homicide rates, ranked leading causes of death, average age of death, and YPLL were compared by mechanism of injury, county of residence, and race and ethnicity.

Participants and Exposures: The entire population of Black non-Hispanic Americans and White non-Hispanic Americans during 2000-2017 was included. For comparison, this was narrowed to the population of Black non-Hispanic Wisconsinites and White non-Hispanic Wisconsinites during 2000-2017. Exposure groups include all homicide victims during 2000-2017.

Main Outcomes and Measures: We hypothesized that Black non-Hispanic Wisconsinites would have a significantly worse burden of disease compared to White non-Hispanic Wisconsinites, as well as Black non-Hispanic Americans.

Results: This study found that firearm-related homicide rates for Black non-Hispanics compared to White non-Hispanics were 14.6 times greater in Milwaukee, 29.9 times greater in Wisconsin, and 13.0 times greater in urban counties of the United States. Firearm-related homicide is the second-leading cause of death for Black non-Hispanics in Milwaukee and the fourth-leading cause of death in Wisconsin. YPLL per person for Black non-Hispanic victims of firearm-related homicide are 36.83 years in Milwaukee and 37.04 years in Wisconsin.

Conclusion and Relevance: Our findings strongly suggest that Black non-Hispanic Wisconsinites endure a significantly worse burden of firearm-related homicide compared to White non-Hispanic Wisconsinites and Black non-Hispanic Americans. This study demonstrates a significant disparity in firearm-related homicide that should inspire policy discussion.

INTRODUCTION

While health outcomes have been improving in the general population, Black Americans continue to be diagnosed with chronic disease more frequently, earlier in life, and have shorter life expectancies as a result.¹ This health disparity is not limited to chronic disease. According to the Centers for Disease Control and Prevention, homicide rates in the United States are highest for non-Hispanic Black men.² Wisconsin consistently ranks among the worst states for racial inequality in indicators such as poverty, unemployment, income inequality, educational attainment, incarceration, and median household income.² A recent study concluded that Wisconsin has the second-highest Black homicide rate in the nation, second only to Missouri, with a total of 144 deaths in 2016 – a rate of 37.57 deaths per 100,000

• • •

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Black non-Hispanic Wisconsinites.³ These studies identify a public health disparity that demands further investigation. According to the Violence Policy Center, 91% of these homicides involving Black non-Hispanics in Wisconsin were firearm related – 75% of which involved handguns.³ Further, 66% of victims were killed by someone they knew, and 71% of incidents were not related to the commission of any other felony; rather, they were the result of escalated arguments between the victim and the offender.³

This research outlines a foundation of a public health disparity in Wisconsin and indicates a need to better understand its related health effects. Few studies have described the extent of racial disparity among homicide victims within Wisconsin. To further elucidate the details of this health disparity, this study seeks to detail and compare the mortality rate of all-cause homicide, firearm-related homicide, non-firearm-related homicide, and firearm-related legal intervention; leading causes of death; average age of death; and years of potential life lost (YPLL) between White non-Hispanics and Black non-Hispanics in Wisconsin since the turn of the century. We hypothesize that the degree to which homicide—and firearm-related homicide specifically—contributes to leading causes of death will be greater for Black Wisconsinites and that YPLL will be greater for Black Wisconsinites.

METHODS

Data on homicide rates, ranked leading causes of death, and average age of death in Wisconsin were obtained from the Wisconsin Department of Health Services via the Wisconsin Interactive Statistics on Health (WISH) Query System.⁴ National homicide rates, ranked leading causes of death, and average age of death were obtained through the Centers for Disease Control and Prevention’s Web-based Injury Statistics Query and Reporting System (WISQARS).⁵ Homicide rates, ranked causes of death, and average age of death were compared by county of residence, and race and ethnicity. Ranked leading causes of death and average age of death for all-cause homicide were reported in “Broad Groups” of 50 Cause-of-Death ICD-10 categories, whereas ranked leading causes of death and average age of death for firearm-related and non-firearm-related homicide were reported in “Detailed Groups” of 113 Cause-of-Death ICD-10 categories. National data on firearm-related homicide ranked leading cause of death and average age of death are not available from WISQARS. However, direct queries for YPLL are available from WISQARS.

Queries from WISH and WISQARS collected information on all homicide deaths in the population aged 10-64 years during 2000-2017. The timeframe was selected to include all data available from this century at the time this study was conducted. Variables of interest included the mechanism of injury, race and ethnicity, and region of residence. These variables were divided into discrete categories: mechanism of injury by all-cause homicide, firearm-related homicide, non-firearm-related homicide, and firearm-related legal intervention; race and ethnicity by White

Table 1. Age-adjusted Mortality Rate (per 100,000 people) According to Mechanism of Injury, Region of Residence, and Race

Mechanism of Injury	Region of Residence	Race	Adjusted Rate		
Firearm Homicide	Milwaukee	Black non-Hispanic	34.679	36.733	38.787
		White non-Hispanic	2.153	2.524	2.895
	Wisconsin	Black non-Hispanic	26.358	27.842	29.326
		White non-Hispanic	0.8563	0.932	1.007
	Urban US	Black non-Hispanic	22.898	23.034	23.171
		White non-Hispanic	1.756	1.774	1.792
Legal Intervention	Milwaukee	Black non-Hispanic	0.275	0.472	0.669
		White non-Hispanic	0.081	0.111	0.142
	Wisconsin	Black non-Hispanic	0.263	0.452	0.641
		White non-Hispanic	0.088	0.115	0.141
	Urban US	Black non-Hispanic	0.322	0.338	0.355
		White non-Hispanic	0.122	0.127	0.131
All-cause Homicide	Milwaukee	Black non-Hispanic	41.171	43.404	45.637
		White non-Hispanic	3.425	3.885	4.345
	Wisconsin	Black non-Hispanic	31.596	33.217	34.838
		White non-Hispanic	1.532	1.632	1.731
	Urban US	Black non-Hispanic	27.74	27.890	28.04
		White non-Hispanic	3.043	3.066	3.09
Non-firearm Homicide	Milwaukee	Black non-Hispanic	5.795	6.671	7.546
		White non-Hispanic	1.089	1.361	1.633
	Wisconsin	Black non-Hispanic	4.723	5.375	6.027
		White non-Hispanic	0.6346	0.700	0.7653
	Urban US	Black non-Hispanic	4.793	4.855	4.918
		White non-Hispanic	1.277	1.292	1.308

non-Hispanics and Black non-Hispanics; age by groups 10-17, 18-19, 20-24, 25-34, 35-44, 45-54, and 55-64 years old; and region of residence by urban, suburban, and rural counties of Wisconsin. Regions of residence were classified by the National Center for Health Statistics (NCHS) Urban-Rural Coding 2013, where counties given a code of 1 were labeled urban; counties given a code of 2, 3, or 4 labeled suburban; and counties given a code of 5 or 6 labeled rural. In our assessment of homicide rates in Wisconsin, special consideration was given to Milwaukee County as the highest rates of homicide in the state occur in this county.

Statistical Analysis

We calculated standardized age-adjusted rates of homicide deaths within each population of interest. The reference population used for standardization was derived internally from age-specific population sizes summed over the time period in question. YPLL were calculated as a rate per 100,000 persons. All analyses were conducted using STATA (StataCorp LLC, College Station, TX; version 15).

RESULTS

The population of Milwaukee County during 2000-2017 aged 10-64 was 56.5% White non-Hispanic and 26.8% Black non-Hispanic. The population of Wisconsin for the same time period and age group was 84.6% White non-Hispanic and 6.5% Black non-Hispanic, while the population of urban counties in the

United States was 45.8% White non-Hispanic and 10.2% Black non-Hispanic, respectively.

We found that the all-cause homicide rates for Black non-Hispanics were 11.2 times greater in Milwaukee County, 20.4 times greater in Wisconsin, and 9.1 times greater in urban counties of the United States than the all-cause homicide rate for White non-Hispanics. This disparity was even more staggering when focusing on firearm-related homicide, as rates for Black non-Hispanics were 14.6 times greater in Milwaukee County, 29.9 times greater in Wisconsin, and 13.0 times greater in urban counties of the United States than the firearm-related homicide rate for White non-Hispanics. Conversely, the racial disparity for non-firearm-related homicide was less severe—albeit still significant—with rates for Black non-Hispanics 4.9 times greater in Milwaukee County, 7.7 times greater in Wisconsin, and 3.8 times greater in urban counties of the United States than the non-firearm-related homicide rate for White non-Hispanics (Table 1).

In regard to firearm-related deaths in the event of legal interventions, mortality rates for Black non-Hispanics were 4.3 times greater in Milwaukee County, 3.9 times greater in Wisconsin, and 2.7 times greater in urban counties of the United States than the legal intervention firearm-related homicide rate for White non-Hispanics (Table 1). It should be noted that 22 Black non-Hispanic Wisconsinites and 72 White non-Hispanic Wisconsinites died due to firearm-related legal intervention during 2000-2017.

This racial disparity in disease burden is also underscored by the ranked causes of death. For Black non-Hispanics aged 10-64 during 2000-2017, firearm-related homicide is the second-leading cause of death in Milwaukee County and fourth in Wisconsin. In ranked leading causes of death for Black non-Hispanics in Milwaukee County, firearm-related homicide is the leading cause of death for those aged 10-34, and the third-leading cause of death for those 35-44 years old. For White non-Hispanics aged 10-64 during 2000-2017, firearm-related homicide for ages 10-64 is the 25th cause of death in Milwaukee County and 47th in Wisconsin (Table 2). Lastly, the racial disparities in disease burden is further exemplified by the average age of death and YPLL. Black non-Hispanics were found to have an additional 7.4 YPLL compared to White non-Hispanics in Milwaukee County and an additional 9.5 YPLL in Wisconsin due to firearm-related homicide (Table 3).

DISCUSSION

This study corroborates previous studies that have indicated increased risk of homicide and, to a greater degree, firearm-related homicide for Black non-Hispanics.^{3,6} This study also indicates that Black non-Hispanics in Milwaukee County and Wisconsin have a greater risk of homicide, and an even greater risk of firearm-related homicide, when compared nationally and to White non-Hispanics. In counties with larger Black populations, Black individuals

Table 2. Ranked Leading Cause of Death Aged 10-64, 2000-2017, According to Mechanism of Injury, Region of Residence, and Race

Mechanism of Injury	Region of Residence	Race	Cause of Death Ranking
Firearm Homicide (113 ICD-10 categories)	Milwaukee	Black non-Hispanic	2
		White non-Hispanic	25
	Wisconsin	Black non-Hispanic	4
		White non-Hispanic	47
All-cause Homicide (50 ICD-10 categories)	Milwaukee	Black non-Hispanic	5
		White non-Hispanic	10
	Wisconsin	Black non-Hispanic	5
		White non-Hispanic	14
	Urban US	Black non-Hispanic	4
		White non-Hispanic	11

Table 3. Average Age of Death and Years of Potential Life Lost Per Person 2000-2017 According to Mechanism of Injury and Race

Cause of Death	Region of Residence	Race	Average Age of Death ^a		YPLL
Firearm Homicide	Milwaukee	Black non-Hispanic	27.59	28.17	28.75
		White non-Hispanic	33.29	35.55	37.80
	Wisconsin	Black non-Hispanic	27.41	27.96	28.51
		White non-Hispanic	36.13	37.45	38.77
	Urban US	Black non-Hispanic	—	—	35.94
		White non-Hispanic	—	—	27.37
All-cause Homicide	Milwaukee	Black non-Hispanic	28.46	29.13	29.80
		White non-Hispanic	36.40	38.59	40.77
	Wisconsin	Black non-Hispanic	28.13	28.76	29.40
		White non-Hispanic	35.77	36.89	38.01
	Urban US	Black non-Hispanic	—	—	36.41
		White non-Hispanic	—	—	30.13

Abbreviations: YPLL, years of potential life lost; WISH, Wisconsin Interactive Statistics on Health; WISQARS, Web-based Injury Statistics Query and Reporting System.

^aAverage age of death is reported with surrounding 95% confidence limits as left/right subscripted values. Values not reported were not available through WISH or WISQARS query systems.

are at greater risk of becoming victims of homicide. We propose that this injustice is the product of government neglect of a public health crisis disproportionately affecting the Black community. State and local governing bodies, as well as law enforcement, have failed to implement solutions for at least 18 years. This racial disparity in disease burden is most prevalent in younger populations, contributing to the substantial differences in YPLL. A young Black non-Hispanic person living in Milwaukee County is 14.6 times more likely to die from gunfire 7.4 years earlier than a White non-Hispanic person living within the same ZIP code.

The same racial inequity is also present in firearm-related deaths in the setting of law enforcement. This study corroborates previous research that defined police brutality as a social determinant of health and further outlined that Blacks are significantly more likely to experience police brutality than are Whites, as whiteness affords protection against police use of force.⁷ With growing national recognition of the racial injustice that exists

in police brutality, we must also acknowledge that Black non-Hispanics in Wisconsin are subject to a higher rate of mortality secondary to police shootings compared to the national average. These findings provide another perspective from which to view the pervasive epidemic that is systemic racism.

Our current health care infrastructure is established in such a way that marginalized racial and ethnic populations in the United States have shorter lifespans, greater burden of disease, earlier onset and more aggressive progression of disease, and less access to health care service.^{1,2,8-10} The disenfranchisement of Blacks is especially prominent in Wisconsin where, despite an overall highly ranked health care system nationally, they have the highest excess death rates at every stage of life.^{11,12} It is essential that we acknowledge the role of racism in creating and perpetuating health disparities.

This study demonstrates a significant disparity in firearm-related homicide. Black non-Hispanics in Milwaukee County are experiencing a disproportionate burden of firearm-related homicide as compared with their White non-Hispanic counterparts. This health inequity serves to further entrench poor health outcomes in the Black community. Health inequity is a structural phenomenon of our current health care system. The findings presented here demonstrate an issue of social justice – one that must be mitigated and prevented in order to achieve health equity.

CONCLUSION

Ensuring health equity is a priority for population health. This study revealed significant disparities in firearm homicide among Black non-Hispanic Wisconsinites. Given this significant inequity, efforts to achieve health equity must include a focus on firearm-related injury and firearm homicide, in order to reduce these injuries and deaths among marginalized populations.

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REFERENCES

1. National Center for Chronic Disease Prevention and Health Promotion. African American health. *Vital Signs*. Updated July 3, 2017. Accessed May 29, 2020. <https://www.cdc.gov/vitalsigns/aahealth/index.html>
2. Ertl A, Sheats KJ, Petrosky E, Betz CJ, Yuan K, Fowler KA. Surveillance for violent deaths - National Violent Death Reporting System, 32 States, 2016. *MMWR Surveill Summ*. 2019;68(9):1-36. doi:10.15585/mmwr.ss.6809a1
3. Violence Policy Center. Black homicide victimization in the United States: an analysis of 2016 homicide data. Published May 2019. Accessed May 1, 2020. <https://vpc.org/studies/blackhomicide19.pdf>
4. Wisconsin Department of Health Services. Mortality module. WISH (Wisconsin Interactive Statistics on Health). Accessed August 11, 2020. <https://www.dhs.wisconsin.gov/wish/mortality/index.htm>
5. Centers for Disease Control and Prevention. Fatal injury reports, national, regional and state, 1981 - 2018. WISQARS (Web-based Injury Statistics Query and Reporting System). Accessed August 11, 2020. <https://webappa.cdc.gov/sasweb/ncipc/mortrate.html>
6. COWS. Wisconsin's extreme racial disparity: vast chasm separates whites and African Americans in the state. Published January 2017. Accessed August 11, 2020. <https://cows.org/wp-content/uploads/sites/1368/2020/04/2017-Wisconsins-Extreme-Racial-Disparity-2017.pdf>
7. Alang S, McAlpine D, McCreedy E, Hardeman R. Police brutality and Black health: setting the agenda for public health scholars. *Am J Public Health*. 2017;107(5):662-665. doi:10.2105/AJPH.2017.303691
8. Meyer PA, Yoon PW, Kaufmann RB; Centers for Disease Control and Prevention. Introduction: CDC Health Disparities and Inequalities Report - United States, 2013. *MMWR Suppl*. 2013;62(3):3-5.
9. Bailey ZD, Krieger N, Agénor M, Graves J, Linos N, Bassett MT. Structural racism and health inequities in the USA: evidence and interventions. *Lancet*. 2017;389(10077):1453-1463. doi:10.1016/S0140-6736(17)30569-X
10. Smedley BD, Stith AY, Nelson AR, eds; Institute of Medicine (US) Committee on Understanding and Eliminating Racial and Ethnic Disparities in Health Care. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. National Academies Press; 2003.
11. Wisconsin Collaborative for Healthcare Disparities. Wisconsin Health Disparities Report, 2019. Published 2019. Accessed August 11, 2020. <https://www.wchq.org/disparities.php>
12. Hatchell K, Handrick L, Pollock EA, Timberlake K. Health of Wisconsin report card-2016. University of Wisconsin Population Health Institute. Published 2016. Accessed August 11, 2020. <https://uwphi.pophealth.wisc.edu/wp-content/uploads/sites/316/2018/01/Report-Card-2016.pdf>

An Epidemiological Crossroads: The Intersection of Incarceration and Health Care

Farah Acher Kaiksow, MD; Kristin Brunsell Merss, BSN; Noelle LoConte, MD

Wisconsin incarcerates more working-age Black men per capita than any other state in the country.¹ Based on data from the 2010 census, the incarceration rate for working-age Black men in Wisconsin was 12.8%, more than 3% higher than the second-highest state and nearly double the 6.7% national average. In contrast, Wisconsin's incarceration rate of working-age White men was about equal to the national average. Put another way, working-age Black men in Wisconsin are 10 times more likely to be incarcerated than their White neighbors. In 2020, Black men made up 7% of the state's population but accounted for 44% of those incarcerated.²

Wisconsin is also among the worst states for Black men's health (Table). It has the highest all-cancer incidence rate for Black men in the United States and the second highest all-cancer death rate.³ When compared to White

men in the state, Black men are 40% more likely to die from their cancer diagnoses.⁴ The inequities are even worse for some other conditions. In 2018, the death rate for Black

to accessing care and prioritizing personal health. This is consistent with studies showing the negative effects of other structural determinants of health – such as food and housing

Systemic racism contributes to both the disproportionate incarceration of Black men in Wisconsin and to their poor health status.

Wisconsinites with diabetes was over 78% higher than for White Wisconsin residents.⁵

Systemic racism contributes to both the disproportionate incarceration of Black men in Wisconsin and to their poor health status. Also known as institutional racism, systemic racism refers to well-established institutions and laws that exist in a society; unlike individuals, these institutions and laws are thought to be wholly objective and without bias. Further investigation and analysis, however, reveals that these fundamental building blocks of our communities are indeed biased, very often against Black men and women. It is difficult to identify the precise effects of incarceration and Blackness on a person's health given the nature and complexity of studying systemic racism. As a result, there is a lack of research in this area. However, there are data suggesting that each year of incarceration is associated with a 2-year loss in life expectancy—even after release.⁶ There is also evidence that the challenges in the immediate post-release period create significant barriers

insecurity, lack of health care services, and unemployment – on the well-being of recently released individuals.⁷

One of the structural barriers to health care for justice-involved people in Wisconsin has been the state's policy on Medicaid coverage for these individuals. At least 70% of those incarcerated in Wisconsin are eligible for Medicaid,⁸ and until October of last year, our state was 1 of 8 that terminate an individual's Medicaid enrollment upon incarceration.⁹ While this is a welcome change in policy, it remains to be seen how it will be implemented and what its impact will be. As an example, compared to other states where someone who is incarcerated can begin the Medicaid re-enrollment process upon prison or jail intake, people in Wisconsin can only begin the process on or after the 20th of the month prior to their release. This short time frame almost certainly contributes to inadequate coverage at the time of release and decreased access to care, and it is unclear how or if the new policy will address this.

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Even under the new policy, each time an individual is reincarcerated, his or her Medicaid will be suspended, jeopardizing both access to and continuity of care. Once more, this is especially relevant for Black Wisconsin residents, as this population is more likely to be reincarcerated despite recidivism rates nearly identical to those of White residents.¹⁰⁻¹² Our state is notorious for its high incidence of “revocations without a new offense,” as the Wisconsin Department of Corrections (WIDOC) calls them, which occur when an individual is put back in prison or jail for breaking the rules of his or her supervision without any additional criminal proceedings or convictions. These revocations disproportionately affect Black residents, who made up 40% of those reincarcerated this way in 2015, while the Black population in Wisconsin that same year was 6.6%.¹⁰ Revocations, in conjunction with other factors in the community and criminal justice system, create a cycle of reincarceration that compounds the negative effects of incarceration on health and health care access.

People with a history of incarceration are more likely to have significant medical diagnoses prior to incarceration, particularly mental health and substance abuse diagnoses. Over 9% of people in our state prisons are treated for serious mental illnesses, including schizophrenia, psychosis, major depressive disorder, and bipolar disorders, among others.¹³ Another 32% receive mental health services without a serious mental health diagnosis.¹³ A precise estimate of how many justice-involved people have substance abuse disorders is difficult to discern, though some estimates suggest the number is well over 75%. However, there is good data showing the disproportionate risk of death from substance use, including opioid overdoses and alcoholic liver disease, that Black men face in this state, again compounded by their increased risk of incarceration.^{5,14} Beyond mental health diagnoses and substance abuse disorders, justice-involved individuals in Wisconsin face higher rates of communicable diseases than the general population, such as hepatitis C.¹⁵ Less research has been done in this population on noncommunicable chronic diseases, including

Table. Age-Adjusted Mortality Rates for Select Conditions in Wisconsin, 2018

Cause of Death	Rate per 100,000	
	Black	White
Diabetes mellitus	47.0	18.8
Renal failure	30.3	11.0
Heart failure	23.5	20.4
Lung cancer	50.1	34.9
Breast cancer	19.3	10.7
Prostate cancer	14.7	8.6
Overall mortality	1,040.4	714.7

Source: Wisconsin Department of Health Services, Data & Statistics

hypertension, diabetes, and cancer, but we do know that these conditions disproportionately impact people of color and those with lower socioeconomic status.

There are direct and indirect economic consequences of incarceration that affect everyone in our state. Wisconsin spends more per capita than the national average on its incarceration system, and the WIDOC budget has increased in recent years while other state programs have faced funding freezes or cuts. Between 2015 and 2017, the WIDOC budget increased by 7%, while funding for state K-12 education decreased 14% and the University of Wisconsin System budget decreased by 21%.¹⁶ Indirectly, having a history of incarceration leads to economic marginalization by reducing the employment prospects and earning power of those justice-involved individuals. The vast majority of those who are released from prisons and jails in Wisconsin are working age, and having a record of incarceration is a major barrier to obtaining employment. Incarceration thus impacts the economic security of individual families and the communities they live in, while also likely weakening the state’s economy.

Through its unequal incarceration rates and the effects of incarceration on health, Wisconsin’s criminal justice system is both impacted by and contributes to the structural racism in our state. We believe that as health care providers, we can reduce the effects of this system through a number of ways:

1. Lobby our state legislators to ensure the new Medicaid policy effectively prevents lapses in care for individuals who experience incarceration.
2. Research the unique challenges this popu-

lation faces, including learning more about the risks and burdens of their chronic health conditions.

3. Encourage our health care systems to engage with the WIDOC to create a continuum of care for those being released from custody.
4. Use our positions of privilege to advocate for the decarceration and decriminalization of Wisconsinites—especially those most disproportionately affected, specifically Black men.

Taking these steps will not only benefit incarcerated individuals but will also save the state money, both by reducing the burden of disease in this population and reducing recidivism and reincarceration, especially through the provision of mental health support. Perhaps most importantly, these actions are a necessary step towards removing some of the underpinnings of structural racism and discrimination in Wisconsin.

We acknowledge that the problem of sub-optimal health care is not unique to those who have experienced incarceration. However, we hope we have illustrated the epidemiological crossroads that so many Black men in Wisconsin face as the result of an unequal criminal justice system. Until we begin to address the challenges and barriers to their health and well-being, our state will continue to be plagued by its disregard for this marginalized community. In these historic times, health care providers should embrace our roles as patient advocates by promoting the health of all of Wisconsin.

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REFERENCES

1. Pawasarat J, Quinn LM. Wisconsin’s mass incarceration of African American males, summary. University of Wisconsin-Milwaukee, ETI Publications; 2014:10.
2. State of Wisconsin, Department of Corrections. Division of Adult Institutions: Corrections at a glance. September 2020. Accessed October 16, 2020. <https://doc.wi.gov/Pages/DataResearch/PrisonPointInTime.aspx>
3. American Cancer Society. Cancer Facts & Figures for African Americans 2019-2021. Atlanta: American Cancer Society; 2019. Accessed August 27, 2020. <https://www.cancer.org/content/dam/cancer-org/research/>

cancer-facts-and-statistics/cancer-facts-and-figures-for-african-americans/cancer-facts-and-figures-for-african-americans-2019-2021.pdf

4. Office of Health Informatics. Leading Causes of Death by Race and Ethnicity: 2011-2015. Division of Public Health, Wisconsin Department of Health Services; 2018. P-02252. Accessed August 27, 2020. <https://www.dhs.wisconsin.gov/publications/p02252.pdf>

5. WISH – Mortality Module. Wisconsin Department of Health Services. Revised November 19, 2017. Accessed January 8, 2021. <https://www.dhs.wisconsin.gov/wish/mortality/index.htm>

6. Patterson EJ. The dose-response of time served in prison on mortality: New York State, 1989-2003. *Am J Public Health*. 2013;103(3):523-528. doi:10.2105/AJPH.2012.301148

7. Massoglia M, Remster B. Linkages between incarceration and health. *Public Health Rep*. 2019;134(Supplement 1):8S-14S. doi:10.1177/0033354919826563

8. State of Wisconsin, Department of Corrections. Inmate Medicaid Pre-Release Application Data. March 2020. Accessed August 28, 2020. <https://doc.wi.gov/Documents/AboutDOC/Reentry/FY19%20Inmate%20Medicaid%20Pre-Release%20Application%20Data.pdf>

9. States Reporting Corrections-Related Medicaid Enrollment Policies in Place for Prisons or Jails. Kaiser Family Foundation. Accessed August 8, 2020. <https://www.kff.org/medicaid/state-indicator/states-reporting-corrections-related-medicaid-enrollment-policies-in-place-for-prisons-or-jails>

10. Excessive revocations in Wisconsin: The health impacts of locking people up without a new conviction. Human Impact Partners. December 2016. Accessed August 28, 2020. <https://humanimpact.org/hipprojects/sent-back/>

11. Release from Prison Recidivism Dashboards. State of Wisconsin Department of Corrections. Accessed March 12, 2021. <https://doc.wi.gov/Pages/DataResearch/RecidivismDashboard.aspx>

12. Reincarceration Rates. State of Wisconsin Department of Corrections. June 2015. Accessed March 12, 2021. <https://doc.wi.gov/DataResearch/InteractiveDashboards/ReincarcerationRates.pdf>

13. 40 percent of Wisconsin inmates have mental health issues. Wisconsin Justice Initiative. December 2018. Accessed October 14, 2020. <https://www.wjiinc.org/blog/40-percent-of-wi-inmates-have-mental-health-issues>

14. Nacev E, Jenkins MC, Lee CW. Opioid Overdose Mortality Trends in Wisconsin, 1999-2018. University of Wisconsin-Madison Prevention Research Center. Accessed January 8, 2021. <https://prc.wisc.edu/wp-content/uploads/sites/1127/2020/08/Opioid-overdose-mortality-.pdf>

15. Stockman LJ, Greer J, Holzmacher R, et al. Performance of risk-based and birth-cohort strategies for identifying hepatitis C virus infection among people entering prison, Wisconsin, 2014. *Public Health Rep*. 2016;131(4):544-551. doi:10.1177/0033354916662212

16. Prison price tag: The high cost of Wisconsin's corrections policies. Wisconsin Budget Project. November 2015. Accessed August 27, 2020. <http://www.wisconsinbudgetproject.org/prison-price-tag-the-high-cost-of-wisconsins-corrections-policies>



James

Philip Salamone

Artist Statement:

James is part of a series titled, "Faces of Incarceration," intended to honor the people impacted by Wisconsin's prison system by painting their portraits from life. In a world that often overlooks these individuals, in a state that has the highest rate of incarceration of people of color, and in a nation that has 5% of the world's population but 25% of its prisoners, my hope is that these paintings reflect the beauty and humanity of these people I have come to know and respect.

Identifying Substantial Racial and Ethnic Disparities in Health Outcomes and Care in Wisconsin Using Electronic Health Record Data

Maureen A. Smith, MD, PhD, MPH; Korina A. Hendricks, BS; Lauren M. Bednarz, MPH; Matthew Gigot, MPH; Abbey Harburn, MPH; Katherine J. Curtis, PhD; Susan R. Passmore, PhD; Dorothy Farrar-Edwards, PhD

ABSTRACT

Background: Our goal was to identify racial and ethnic disparities in health outcome and care measures in Wisconsin.

Methods: We used electronic health record data from 25 health systems submitting to the Wisconsin Collaborative for Healthcare Quality to identify disparities in measures, including vaccinations, screenings, risk factors for chronic disease, and chronic disease management.

Results: American Indian/Alaska Native and Black populations experienced substantial disparities across multiple measures. Asian/Pacific Islander, Hispanic/Latino, and White populations experienced substantial disparities for 2 measures each.

Discussion: Reducing health disparities is a statewide imperative. Root causes of health disparities, such as systemic racism and socioeconomic factors, should be addressed for groups experiencing multiple disparities, with focused efforts on selected measures when indicated.

average on 22 out of 27 measures of disparities in care for Hispanic and non-Hispanic Black populations relative to White populations.¹ The Health of Wisconsin Report Card, published by the University of Wisconsin Population Health Institute in 2016, gave the state a grade of “D” for overall health disparities.² The 2019 County Health Rankings Report for Wisconsin found that American Indian/Alaska Native and Black populations had substantially worse health outcomes than the Asian/Pacific Islander, Hispanic, and White populations.³ This report adds detailed information on disparities in specific health outcome and care measures that distinguish these populations.

BACKGROUND

Although Wisconsin ranks highly in overall health care quality, the state performs poorly with respect to health disparities. In a national report, Wisconsin performed worse than the US

sic health outcome and care measures that distinguish these populations.

To eliminate health disparities in Wisconsin, it is critical to understand where disparities exist. Measuring disparities in health outcomes and care allows for benchmarking of current performance and monitoring changes over time.⁴ Measurement also allows stakeholders to prioritize efforts and develop and implement programs for the populations that are most impacted by disparities. Regular monitoring of disparity measures promotes transparency and accountability and helps to ensure that efforts continue to eliminate these gaps.

The Wisconsin Collaborative for Healthcare Quality (WCHQ) is a regional health improvement collaborative that publicly reports and brings meaning to health outcome and care measures in Wisconsin. WCHQ members include 35 health systems that represent more than 65% of Wisconsin’s primary care providers. Member organizations voluntarily submit electronic health record (EHR) data to WCHQ for public reporting of quality measures on its website (<https://reports.wchq.org/>).

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Figure 1. Wisconsin Collaborative for Healthcare Quality Measures Within the Centers for Disease Control and Prevention Chronic Disease Prevention and Management Continuum

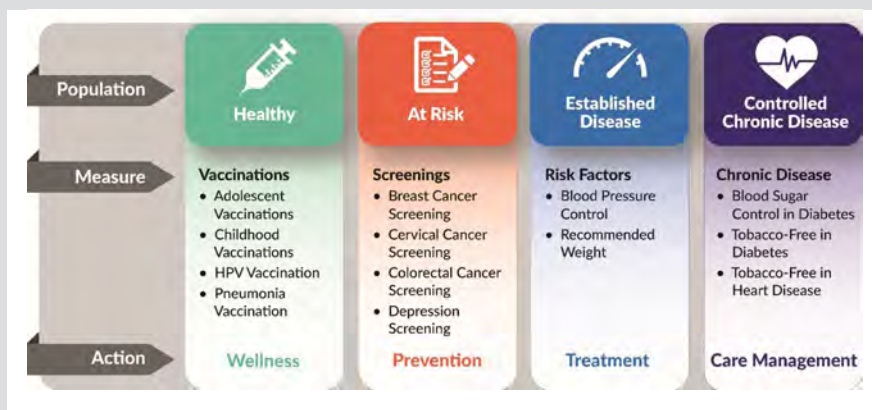


Table. Wisconsin Collaborative for Healthcare Quality Measure Results by Race/Ethnicity, 2018^a

Measure Name	American Indian/ Alaska Native	Asian/Pacific Islander	Black	Hispanic/ Latino	White
Childhood vaccinations	73% ^b N=206	83% N=1,726	71% ^b N=2,532	81% N=3,628	83% N=30,312
HPV Vaccinations	65% N=127	64% N=706	64% N=1,455	68% N=2,210	57% ^b N=22,495
Breast cancer screening	67% ^b N=1,467	69% ^b N=6,594	75% N=26,330	74% N=12,709	79% N=522,959
Colorectal cancer screening	71% N=2,584	68% ^b N=11,944	77% N=46,301	72% N=25,347	79% N=1,030,825
Recommended weight	21% ^b N=4,831	39% N=26,839	19% ^b N=87,087	21% ^b N=58,309	29% ^b N=1,602,200
Blood pressure control	82% N=1,496	82% N=6,402	74% ^b N=39,125	80% N=14,592	84% N=554,193
Blood sugar control in diabetes	65% N=1,050	69% N=4,025	66% N=15,362	62% ^b N=9,402	74% N=181,631
Tobacco-free in diabetes	69% ^b N=956	92% N=3,775	79% ^b N=15,159	87% N=8,922	86% N=164,264
Tobacco-free in heart disease	70% ^b N=313	91% N=830	72% ^b N=4,184	83% N=1,873	83% N=79,936

Abbreviation: HPV, human papillomavirus.

^aN=number of people in racial/ethnic group eligible for the measure.

^bGroup experienced substantial disparities (>10% difference in performance) compared to the highest performing population group.

With funding from the Wisconsin Partnership Program, WCHQ members and the University of Wisconsin Health Innovation Program leveraged the existing WCHQ data to develop the *2019 Wisconsin Health Disparities Report*.⁵ Herein we share highlights from this report to identify where disparities in health outcomes and care exist in Wisconsin by race/ethnicity and to help inform and accelerate programs that are working to eliminate disparities.

METHODS

The WCHQ health outcome and care measures are organized using a model (Figure 1) adapted from the Centers for Disease

Control and Prevention (CDC) Chronic Disease Prevention and Management Care Continuum.⁶ The model shows population health at 4 stages: healthy, at-risk, established disease, and controlled chronic disease. The model orients readers to actions to prevent populations from progressing from 1 health state to the next. The health outcome and care measures include vaccinations, screenings, risk factors for chronic disease, and chronic disease management.

To ensure high quality race and ethnicity data, we conducted an assessment of data completeness and quality in the WCHQ data repository. WCHQ worked directly with members to improve mapping and submission of race and ethnicity data in the EHR as needed. We used race and ethnicity categories as defined by the CDC, including American Indian/Alaska Native, Asian/Pacific Islander, Black, Hispanic/Latino, and White.⁷

Data from the WCHQ members were validated, comparing denominators and performance rates with their publicly reported measure results. Some member-level data were excluded from analysis due to incompleteness or quality issues. Statewide EHR data for 9 health outcome and care measures from January 1, 2018 through December 31, 2018 were stratified by race/ethnicity. Substantial disparities were defined as a 10% or greater difference between a population group and the highest performing population group for the measure. For all measures, higher performance is better (eg, higher screening rates, a higher percentage of people

with their blood pressure under control). Additional details on the methodology and measures, as well as results for all publicly reported measures, are available in the report appendix.⁸

RESULTS

Substantial disparities in health outcomes and care by race/ethnicity were found for each race/ethnicity group (Table). The Table shows the percent achievement of each measure by racial/ethnic group. American Indian/Alaska Native and Black populations experienced substantial disparities across multiple measures. Asian/Pacific Islander, Hispanic/Latino, and White populations experienced substantial disparities for 2 measures each.

We found that American Indian/Alaska Native children had much lower childhood vaccination rates, while American Indian/Alaska Native adults had much lower rates of breast cancer screening, attainment of recommended weight, and being tobacco-free if they had diabetes or heart disease. Black children had much lower childhood vaccination rates, while Black adults had much lower attainment of recommended weight and blood pressure control, and Black adults who had diabetes or heart disease were much less likely to be tobacco-free.

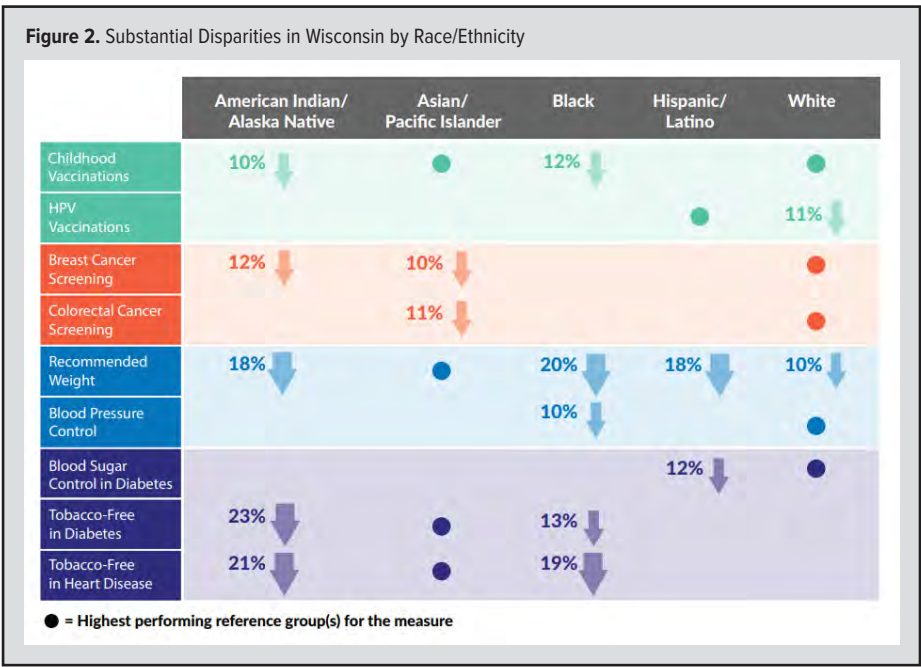
Asian/Pacific Islander adults had much lower rates of breast and colorectal cancer screening. Hispanic/Latino adults had much lower attainment of recommended weight, and those with diabetes had much lower blood sugar control. Finally, White adolescents had much lower HPV vaccination rates, and White adults had much lower attainment of recommended weight.

These results are summarized in Figure 2, where the dots indicate the racial/ethnic group that was identified as highest performing for that measure and was, therefore, the reference group.

DISCUSSION

We found that American Indian/Alaska Native and Black populations experienced substantial disparities across multiple measures spanning the continuum from wellness to chronic disease management. Asian/Pacific Islander, Hispanic/Latino, and White populations experienced substantial disparities for 2 measures each. Identifying disparities by race/ethnicity for specific, actionable health measures informs health systems about where strategies may be needed to address disparities in the quality of care and informs other stakeholders about where additional resources may be needed to promote health.

Colleagues with the University of Wisconsin Population Health Institute and County Health Rankings & Roadmaps have found that American Indian/Alaska Native and Black populations in Wisconsin experience considerably worse health outcomes.¹⁻³ This report leveraged EHR data to identify specific health measures that help to explain some of these poor health outcomes. For communities that experience a high number of substantial disparities across multiple measures, systemic changes are needed to address root causes of health inequities in addition to focused efforts. In the United States, poorer health outcomes for people of color are the result of historical trauma and racism at the individual, institutional, and structural levels. This includes inequitable distribution of access to political power, resources, and social status in settings such as education, employment, housing, criminal justice,



and health care.⁹ Investments in communities to address the social determinants of health are needed to begin to repair the effects of years of systemic racism. It is critical to improve access to health-promoting goods and services, which includes access to culturally responsive health care.

Targeted interventions may be effective in addressing disparities for communities that experience a smaller number of substantial disparities, in addition to addressing social determinants of health where indicated. Based on the findings of this report, interventions could include strategies such as removing barriers to receiving cancer screening for Asian/Pacific Islander communities¹⁰ and addressing vaccine hesitancy around HPV vaccination in White populations.¹¹ Culturally responsive diabetes self-management programs are one evidence-based intervention to improve blood sugar control in diabetes for Hispanic/Latino populations.¹² The Wisconsin Institute for Healthy Aging (WIHA) currently conducts evidence-based, diabetes self-management workshops developed by Stanford University in English and Spanish throughout the state.

The Neighborhood Health Partnerships Program (<https://nhp.wisc.edu/>) is addressing the need for local, timely, and actionable health data by leveraging the existing WCHQ data to provide health reports at the subcounty level. These reports may be used to identify and prioritize health improvement opportunities in neighborhoods where they are most needed to improve health equity and to monitor the effects of interventions over time.

To eliminate health disparities, multidisciplinary partnerships are needed to improve the opportunities for all people to be healthy where they live, work, play, and age. The health care system has an imperative to eliminate health disparities but cannot do it alone. There is strong evidence that social and environmental factors have a greater impact on length and quality of life than

clinical care. Stakeholders including health systems, policymakers, state and local public health departments, businesses, and community organizations should collaborate and synergize efforts to improve community health and work to eliminate health inequities in Wisconsin.

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REFERENCES

1. Friedsam D. Wisconsin's Health Care Quality: Among the Best...and Among the Worst. University of Wisconsin Population Health Institute; 2012.
2. Hatchell K, Handrick L, Pollock EA, Timberlake K. Health of Wisconsin Report Card-2016. University of Wisconsin Population Health Institute; 2016.
3. University of Wisconsin Population Health Institute. County Health Rankings State Report 2019. Accessed October 19, 2020. https://www.countyhealthrankings.org/sites/default/files/media/document/CHR2019_WI.pdf
4. National Quality Forum. *A Roadmap for Promoting Health Equity and Eliminating Disparities: The Four I's for Health Equity*. September 2017. Accessed October 19, 2020. https://www.qualityforum.org/Publications/2017/09/A_Roadmap_for_Promoting_Health_Equity_and_Eliminating_Disparities__The_Four_I_s_for_Health_Equity.aspx
5. Wisconsin Collaborative for Healthcare Quality and the University of Wisconsin Health Innovation Program. *Wisconsin Health Disparities Report, 2019*. Accessed February 11, 2021. https://www.wchq.org/pdfs/Disparities_Report_2019_9-20_FINAL.pdf
6. Trotter P, Lobelo F, Heather AJ. Chronic disease is healthcare's rising-risk. *Health IT Outcomes*. June 17, 2016. Accessed October 19, 2020. <https://healthitoutcomes.com/doc/chronic-disease-is-healthcare-s-rising-risk-0001>
7. Centers for Disease Control and Prevention. Glossary. National Health Interview Survey Special Topics. November 6, 2015. Accessed October 19, 2020. https://www.cdc.gov/nchs/nhis/rhoi/rhoi_glossary.htm
8. Wisconsin Collaborative for Healthcare Quality and the University of Wisconsin Health Innovation Program. *Wisconsin Health Disparities Report, 2019, Appendix*. Accessed February 11, 2021. <https://www.hipxchange.org/WCHQDisparities>
9. Smedley BD. The lived experience of race and its health consequences. *Am J Public Health*. 2012;102(5):933-935. doi:10.2105/AJPH.2011.300643
10. Ma GX, Shive SE, Wang MQ, Tan Y. Cancer screening behaviors and barriers in Asian Americans. *Am J Health Behav*. 2009;33(6):650-660. doi:10.5993/ajhb.33.6.3
11. Warner EL, Ding Q, Pappas LM, Henry K, Kepka D. White, affluent, educated parents are least likely to choose HPV vaccination for their children: a cross-sectional study of the National Immunization Study - teen. *BMC Pediatr*. 2017;17(1):200. doi:10.1186/s12887-017-0953-2
12. Brown SA, Garcia AA, Kouzekanani K, Hanis CL. Culturally competent diabetes self-management education for Mexican Americans: the Starr County border health initiative. *Diabetes Care*. 2002;25(2):259-268. doi:10.2337/diacare.25.2.259

Prenatal Racial Discrimination Associated With Dissatisfaction With Prenatal Care

Katie Gillespie, DNP; Fiona Weeks, MSPH

ABSTRACT

Introduction: Maternal and infant racial and ethnic health disparities persist in Wisconsin. The Black infant mortality rate is 3 to 4 times that of White infants.

Objective: In this study, we used data from the Wisconsin Pregnancy Risk Assessment Monitoring System to examine women's experiences with racism and accessing pre- and postnatal care.

Methods: Data from the 2016-2018 Pregnancy Risk Assessment Monitoring System—an ongoing state-administered surveillance system of new mothers—were used. The total number of non-White respondents was $n=2,571$. The data are weighted both for nonsampling and for nonresponse. The prevalence of late entry to prenatal care, inadequate prenatal care, and no postpartum visit in the population of non-White women were calculated. Multivariable logistic regression was used to model the association between racial discrimination in the year prior to birth and perinatal care utilization and satisfaction.

Results: Less-than-adequate prenatal care was significantly associated with racial discrimination in bivariate analysis (OR 1.4; 95% CI, 1.02-1.8), but this relationship became marginally significant after adjusting for maternal sociodemographic characteristics (OR 1.3; 95% CI, 0.9-1.7). In contrast, prenatal experience of racial discrimination was associated with about 1.5 times the odds of not receiving a postpartum visit both before and after adjusting for maternal characteristics (OR 1.6; 95% CI, 1.1-2.3).

Conclusions: Completing the postpartum visit has the potential to save mothers' lives; decreasing experiences of racial discrimination in health care settings may be one mechanism for decreasing maternal and infant mortality.

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INTRODUCTION

Since 1981, Wisconsin has endured decades of documented racial and ethnic disparities in birth outcomes for families of color.¹ The 2017 Wisconsin Birth and Infant Mortality Report identifies a widening gap in infant deaths for Black, American Indian, and Asian or Pacific Islander mothers.² The rate of deaths for Black infants has persistently been 3 to 4 times that of White infants. Racial disparities in health outcomes have multiple root causes and pathways; structural racism within health care cannot be overlooked as one of these. Racism is a stressor known to contribute to poor health outcomes³ and negative health care experiences.⁴

Individuals experience racism through their personal experiences, ethnic/racial group experiences, and intergenerational transmission of poverty and risk.⁵ Racism also is present in patient-provider interactions and through structural components of health care that include access to pay-

ment and services, fragmented care, and a lack of diversity among health providers.⁶

One important influence on birth outcomes is engagement in preconception, prenatal care, and postpartum care.⁷⁻⁸ The American College of Obstetricians and Gynecologists continues to recommend women begin prenatal care in the first trimester.^{9,10} Studies have shown a correlation between experiences of racism and mistrust in health care that may contribute to late entry and incomplete pre- and postnatal care.¹¹⁻¹³ Experiences with racism remove personal agency for women of color through actions such

as withholding or providing misleading health information.^{6,14} Women report equating the manner in which information is presented with signs of respect.⁶ Qualitative studies indicate that women with low levels of trust in their providers are less likely to adhere to prenatal care recommendations¹⁵ which, in turn, can affect health outcomes. In 2018, the Black Mamas Matter Alliance (BMMA) issued a Black paper that recommended 8 standards for holistic care.¹⁶ Their first recommendation is to listen to Black women. BMMA calls for “the voices of Black women to be heard through individual care visits, in policy decisions, and in the design of all medical interventions targeted for Black women.”

In this study, we used data from the Wisconsin Pregnancy Risk Assessment Monitoring System (PRAMS), to examine women’s experiences with racism and accessing pre- and postnatal care. Wisconsin is 1 of 13 PRAMS states that asks respondents about racial discrimination during Phase 8 questionnaire implementation (2016 to present). The PRAMS question about discrimination asks, “During the 12 months before your new baby was born, did you feel emotionally upset (for example, angry, sad, or frustrated) as a result of how you were treated based on your race?” (This exposure is hereafter referred to as “prenatal racial discrimination.”) Two previous studies have linked this experience of interpersonal discrimination in the pre-conception or pregnancy period to preterm birth,^{17,18} but we are not aware of any studies that assess the association between reported discrimination and utilization of perinatal health care, which has the potential to affect a wide range of maternal and child health outcomes. This study attempts to fill that gap.

For this study, we focus on women of color since White women’s experience of race-based interpersonal discrimination is fundamentally different from that of women of color. We seek to explore whether the experience of interpersonal discrimination has an independent effect on prenatal care utilization, realizing that structural racism is simultaneously shaping women’s experiences. We hypothesize that women who report having experienced interpersonal racial discrimination in the year prior to delivery will be less likely to have adequate prenatal care (including first trimester entry to care), less likely to report satisfaction with the prenatal care they received, and less likely to receive a postpartum visit. We use the terms woman, women, and mother throughout this article for brevity but acknowledge that not all pregnant or birthing people identify as female.

METHODS

We used 2016–2018 data from the Wisconsin PRAMS, an ongoing state-administered surveillance system of new mothers. PRAMS uses race-stratified population random sampling of women who give birth each month and surveys them between 2 and 4 months after delivery. Respondents participate with a mail-in self-administered questionnaire or by phone with an interviewer-administered questionnaire. Data collection methods have been described in

detail elsewhere.¹⁹ There were 3,667 respondents in Wisconsin in 2016–2018, representing 187,107 survey-weighted women who recently gave birth (about 96% of births in Wisconsin). The data are weighted both for nonsampling and for nonresponse based on over 20 characteristics documented in the birth certificate. The sample frame excludes planned adoptions and surrogate pregnancies.

Measures

We adjusted for variables that have been demonstrated in previous research to be associated with prenatal care utilization. Maternal age, race, education, marital status, and birth payer are taken from the birth certificate, which is linked with the PRAMS survey data. Poverty status and self-reported prenatal racial discrimination are measured by the PRAMS survey. Maternal age is coded as an ordinal variable with 4 levels: <20 years, 20–24 years, 25–29 years, and over 29 years old. Maternal education is treated as an ordinal variable with 5 levels: 0–8 years of education, 9–11 years, 12 years, 13–15 years, and greater than or equal to 16 years. Expected source of birth payment from the birth record is used as a proxy for prenatal care insurance because it has lower missingness than the prenatal insurance variables from the PRAMS survey. Poverty is approximated by self-reported prepregnancy income and household size.

The primary independent variable of interest is self-reported emotional upset due to racial discrimination in the 12 months prior to giving birth, coded as “yes” or “no.” Due to the racial hierarchy of white supremacy in the United States, race-based discrimination toward people of color (oppressed groups under white supremacy) is fundamentally different from race-based discrimination reported by White people, who have racial privilege. Therefore, the exposure under study, ie, interpersonal racism, is not equivalent among White women and women of color. For this reason, we include only women of color in our analysis, since White women are not equally “at risk” of the study exposure.

The dependent variables of interest are modeled separately. They include indicators of perinatal care utilization and satisfaction with 4 aspects of their prenatal care. The perinatal care utilization indicators include first trimester/late entry to prenatal care, according to maternal self-report of how many weeks or months she was pregnant when she received her first prenatal care visit; prenatal care adequacy, as measured by the Kotelchuck index;²⁰ and self-reported postpartum visit (“Since your new baby was born, have you had a postpartum checkup for yourself?”).

Satisfaction with prenatal care was measured by the following question on the PRAMS Survey: “How did you feel about the prenatal care you got during your most recent pregnancy? For each item, check No if you were not satisfied or Yes if you were satisfied.” Respondents were asked about their satisfaction with the amount of time they had to wait, the amount of time the provider spent with them, the advice they received on how to take care of themselves, and the understanding and respect shown to them as a person.

Analysis

We calculated the prevalence of late entry to prenatal care, inadequate prenatal care, and no postpartum visit in the population of non-White women in Wisconsin. We included all non-White (including Hispanic) PRAMS respondents from 2016 through 2018 with complete data on racial discrimination in our analyses. We then used survey-weighted multivariate logistic regression to model the association between racial discrimination in the year prior to birth and perinatal care utilization and satisfaction. All analyses were conducted using SAS 9.4.

RESULTS

A total of 2,571 non-White women responded to Wisconsin PRAMS in 2016-2018 and answered the question about prenatal racial discrimination. Non-Hispanic Black women were the largest group of respondents ($n = 1,664$) due to intentional oversampling by the Wisconsin PRAMS program during that period. After survey weights for nonsampling and nonresponse were applied, they accounted for 39.2% of the weighted sample, with Hispanic women comprising 33.4% of the weighted sample, and the remainder being non-Hispanic women of other race or of multiple races. More than half of the weighted sample were between the ages of 20 and 29 when they gave birth; two-thirds of the weighted sample's births was covered by a public payer (Medicaid, BadgerCare, or Indian Health Service); and more than 70% of the weighted sample had household incomes less than 200% of the Federal Poverty Level (FPL) federal poverty guidelines. Non-Hispanic black women were more likely than other non-White women to report experiencing racial discrimination in the 12 months before giving birth. Other sociodemographic characteristics with a heightened prevalence of prenatal racial discrimination compared with their peers were being between 20 and 24 years of age, being unmarried, and having a Medicaid-paid birth. (See Table 1 for a full summary of the sample by reported discrimination.)

Overall, almost a fifth (19.2%) of non-White women began prenatal care after their first trimester, and almost a quarter (24.5%) had less-than-adequate prenatal care (inadequate or intermediate.) However, most non-White women (87.6%) did receive a postpartum visit. Most non-White women also reported being satisfied with their prenatal care. Respondents most frequently

Table 1. Demographic Characteristics of the Sample by Reported Racial Discrimination (Weighted Percentages)

	Reported Racial Discrimination N = 2,077			Did Not Report Racial Discrimination N = 494			Total
	n	%	(95% CI)	%	(95% CI)	%	(95% CI)
Race							
Non-Hispanic Black	1664	50.6	(45.7 - 55.5)	36.7	(35.6 - 37.8)	39.2	(38.7 - 39.7)
Hispanic	487	28.9	(23.7 - 34)	34.4	(32 - 36.7)	33.4	(31.3 - 35.4)
Non-Hispanic other	420	20.5	(15.6 - 25.3)	28.9	(26.5 - 31.1)	27.4	(25.3 - 29.3)
Maternal age							
< 20 years	221	6.8	(4.1 - 9.3)	8.0	(6.5 - 9.4)	7.8	(6.5 - 9)
20-24 years	644	28.1	(23.1 - 32.9)	23.4	(21.1 - 25.6)	24.2	(22.1 - 26.2)
25-29	731	27.5	(22.5 - 32.3)	29.1	(26.7 - 31.4)	28.8	(26.7 - 30.9)
> 29 years	975	37.7	(32.6 - 42.7)	39.4	(36.9 - 41.9)	39.1	(36.9 - 41.3)
Marital status							
Married	883	32.7	(27.7 - 37.5)	40.3	(37.9 - 42.7)	39.0	(36.8 - 41)
Not married	1688	67.3	(62.4 - 72.2)	59.7	(57.2 - 62)	61.0	(58.9 - 63.1)
Maternal education							
0 - 8 years	111	4.4	(2 - 6.7)	6.6	(5.3 - 7.9)	6.2	(5 - 7.3)
9 - 11 years	354	12.5	(9 - 15.9)	13.6	(11.8 - 15.3)	13.4	(11.8 - 14.9)
12 years	893	35.8	(30.5 - 41)	35.4	(32.8 - 37.8)	35.4	(33.2 - 37.6)
13 - 15 years	765	29.1	(24.2 - 34)	24.6	(22.3 - 26.7)	25.4	(23.3 - 27.3)
≥ 16 years	433	18.2	(14.2 - 22)	19.9	(17.8 - 21.8)	19.6	(17.7 - 21.3)
Birth payer							
Public ^a	1758	70.5	(65.7 - 75.3)	65.3	(62.8 - 67.7)	66.2	(64 - 68.4)
Private	772	29.5	(24.6 - 34.2)	34.7	(32.2 - 37.1)	33.8	(31.5 - 35.9)
Poverty status							
Poor (<100% FPL)	1093	25.3	(20.5 - 29.9)	30.5	(28 - 33)	29.6	(27.4 - 31.7)
Near-poor (100% - 199% FPL)	607	49.4	(43.7 - 54.9)	40.2	(37.6 - 42.7)	41.8	(39.4 - 44.1)
Not poor (≥ 200% FPL)	610	25.3	(20.5 - 30.1)	29.3	(26.7 - 31.8)	28.6	(26.3 - 30.8)

Abbreviation: FPL, federal poverty level.

^a Includes Medicaid and Indian Health Service.

reported dissatisfaction with the amount of time they had to wait to be seen for clinic visits and the amount of time that providers spent with them, followed by dissatisfaction with the advice received. Less than 5% (4.7%) were dissatisfied with the respect they were shown as a person (see Table 2).

Table 3 presents both unadjusted and adjusted results of logistic regression models for perinatal care utilization (prenatal and postpartum care). Reported racial discrimination was not associated with late entry to prenatal care in either unadjusted or adjusted regression. Less-than-adequate prenatal care was significantly associated with racial discrimination in bivariate analysis (OR 1.4; 95% CI, 1.02-1.8), but this relationship became marginally significant after adjusting for maternal sociodemographic characteristics (OR 1.3; 95% CI, 0.9-1.7). In contrast, prenatal experience of racial discrimination was associated with about 1.5 times the odds of not receiving a postpartum visit both before and after adjusting for maternal characteristics (OR 1.6; 95% CI, 1.1-2.3).

Table 4 presents adjusted odds ratios (AOR) for the dissatisfaction with prenatal care. Prenatal racial discrimination was consistently positively associated with dissatisfaction with all measured

Table 2. Prevalence of Perinatal Care Utilization Patterns and Satisfaction Among Non-White Women

	Unweighted n=2571	Weighted Prevalence % (95% CI)
Perinatal Care Utilization		
Prenatal care		
First trimester entry	2024	80.3 (78.3-82.1)
Late entry	455	18.8 (16.9-20.6)
Prenatal care adequacy (Kotelchuck ²⁰)		
Inadequate	375	15.7 (13.9-17.4)
Intermediate	200	8.3 (6.9-9.6)
Adequate	895	37.9 (35.6-40.2)
Adequate plus	943	38.1 (35.7-40.3)
Postpartum visit		
Yes	2188	87.6 (86-89.1)
No	305	12.4 (10.8-13.9)
Satisfaction with Prenatal Care		
Satisfied with advice given by providers		
Yes	2286	91.4 (90-92.7)
No	211	8.6 (7.2-9.9)
Satisfied with treatment by staff		
Yes	2380	95.1 (94-96.1)
No	128	4.9 (3.8-5.9)
Satisfied with wait time to be seen		
Yes	2182	88.0 (86.4-89.5)
No	308	12.0 (10.4-13.5)
Satisfied with amount of time spent with providers		
Yes	2249	90.1 (88.7-91.5)
No	247	9.9 (8.4-11.2)

aspects of prenatal care, including respect shown to respondents (AOR 2.6; 95% CI, 1.5-4.3), advice received from prenatal care providers (AOR 2.6; 95% CI, 1.7-3.8), amount of time spent with prenatal care providers (AOR 1.7; 95% CI, 1.1-2.4), and the amount of time they had to wait for care (AOR 2.5; 95% CI, 1.7-3.6).

DISCUSSION

In a representative sample of non-White people who gave birth in Wisconsin over a 3-year period, we found no relationship between reported racial discrimination in the 12 months prior to delivery and late entry to prenatal care, and only a marginal relationship between discrimination and prenatal care adequacy. However, nonreceipt of a postpartum visit and dissatisfaction with all measured aspects of prenatal care were positively associated with reported racial discrimination, after adjusting for maternal sociodemographic characteristics.

Interestingly, our finding of no association between interpersonal discrimination and late entry to prenatal care does not align with previous studies that have documented a positive correlation.^{12,21} We may not have found an association because other factors, such as socioeconomic status, play a larger role in shaping prenatal care entry.²² Only living in a poor (OR 2.8; 95% CI, 1.6-4.6) or near-poor household (OR 2.0; 95% CI, 1.2-3.1) or being less than 20 years old (OR 2.1; 95% CI, 1.2-3.5) were significantly

associated with late prenatal care entry, after adjusting for maternal sociodemographic characteristics.

We found only a marginally significant association between racial discrimination and prenatal care adequacy, although identifying as Black and other non-Hispanic race was significantly positively associated with receipt of inadequate prenatal care (using the Kotelchuck index), compared with Hispanic women. Having public insurance for prenatal care (Medicaid or Indian Health Service) appears to be associated with decreased odds of receiving inadequate prenatal care visits. This observed correlation could be related to the higher prevalence of chronic conditions among Medicaid recipients²³ requiring more frequent medical visits, or perhaps due to increased efforts on the part of Medicaid-enrolled patients or providers to increase attendance at prenatal care visits.

Our finding of increased odds of not receiving a postpartum visit associated with prenatal discrimination is consistent with our hypothesis that experiences of discrimination would decrease engagement at any point during the pre- or postnatal care periods. There are several possible explanations of why we do not see prenatal discrimination manifesting as decreased engagement in care until the postpartum period.

One possible explanation is that the self-reported discrimination in the 12 months prior to pregnancy is frequently occurring within the context of prenatal care itself. In fact, discrimination in perinatal care has been documented as a common experience for non-White women in the US.²⁴ If this is the case in our sample, we would not expect self-reported discrimination to have any effect on entry to prenatal care, and it may not have as strong an effect on prenatal care adequacy, depending on when in the pregnancy the discrimination occurs. That is to say, if the discrimination is experienced most acutely toward the end of the pregnancy, a pregnant person may already have received enough visits to fall into the “adequate” prenatal care category before reducing their engagement in care in response to discriminatory experiences. This explanation is supported by our finding that reported racial discrimination was consistently associated with dissatisfaction with prenatal care. In fact, the strongest correlation between reported discrimination and prenatal care dissatisfaction was in regard to how the patient was treated as a person.

Another possible explanation for the observed pattern, which is not mutually exclusive with the first, is that postpartum care is more sensitive to maternal experiences of discrimination or trust in health care than is prenatal care. Postpartum care is occurring after the hospital birth experience, which can generate additional exposure to racism. Other studies have documented that higher proportions of postpartum women take their infants for well-baby checkups than get postpartum visits for themselves,²⁵ suggesting that mothers may be prioritizing their child’s health care over their own. Therefore, it does not require a huge leap to entertain the

possibility that women may be more likely to utilize prenatal care for the good of their unborn child than they would be to utilize care for themselves after their child is born. Thus, a mother may continue going to prenatal care appointments, despite her own discomfort, but may forego care for herself to avoid interacting with a health care system she does not trust.

A third explanation relates to health care coverage. A third of all births in Wisconsin are covered by Medicaid and comprise the majority of births to women of color.² Medicaid eligibility during pregnancy includes all women up to 306% of the FPL.²⁶ Women who live in households with income between 100% and 306% of the FPL lose their Medicaid coverage between 60 and 90 days postpartum, causing a churn in health care coverage. While the postpartum visit is included in the Medicaid-bundled birth coverage, it is possible that women would not be aware of the coverage for this visit. Experiences of discrimination may affect women's relationships with their providers and discourage women from inquiring about their entitlement to a postpartum visit.

If Wisconsin women are indeed experiencing racial discrimination in health care settings, this could have wide-ranging effects on the well-being of non-White Wisconsin families. For example, 13.3% of women who reported racial discrimination were dissatisfied with the advice they received from their prenatal care provider (compared to 5% of other women.) Therefore, they may be less likely to follow medical advice, as previous research has linked trust and intention to adhere to provider recommendations.¹⁵ The apparent impact of discrimination on receipt of a postpartum care visit is especially concerning. In Wisconsin, as well as nationally, women of color are more likely to die from pregnancy-related causes than their White peers.²⁷ Many of these deaths are preventable, and some of the key risk factors for maternal morbidity, such as indicators of hypertensive or cardiovascular disease, can

Table 3. Unadjusted and Adjusted Logistic Regression of Perinatal Care Utilization

	Late Entry to Prenatal Care n = 2199		Less-Than-Adequate Prenatal Care ^a n = 2123		Did Not Receive Postpartum Visit n = 2237	
	AOR	(95% CI)	AOR	(95% CI)	AOR	(95% CI)
Reported racial discrimination (Ref = no)						
Yes	1.0	(0.6 - 1.4)	1.3	(0.9 - 1.7)	1.6 ^b	(1.1 - 2.3)
Race (Ref = Hispanic)						
Non-Hispanic Black	0.9	(0.6 - 1.2)	1.8 ^b	(1.2 - 2.5)	1.1	(0.7 - 1.6)
Non-Hispanic other	1.4	(0.9 - 2.1)	1.9 ^b	(1.2 - 2.9)	1.2	(0.6 - 2)
Maternal age (Ref >29)						
<20 years	2.1 ^b	(1.2 - 3.5)	1.4	(0.8 - 2.3)	1.0	(0.5 - 1.9)
20 - 24 years	1.2	(0.8 - 1.7)	1.1	(0.7 - 1.5)	1.4	(0.8 - 2)
25 - 29	1.1	(0.8 - 1.6)	1.0	(0.7 - 1.3)	0.8	(0.5 - 1.2)
Marital Status (Ref = married)						
Not married	1.1	(0.7 - 1.5)	1.3	(0.9 - 1.8)	0.9	(0.6 - 1.4)
Maternal education (Ref ≥16 years)						
0 - 8 years	1.1	(0.4 - 2.3)	1.0	(0.4 - 2.1)	2.4	(0.8 - 6.4)
9 - 11 years	1.1	(0.6 - 1.9)	1.1	(0.6 - 1.7)	2.8 ^b	(1.3 - 6)
12 years	1.3	(0.7 - 2.1)	0.8	(0.5 - 1.3)	2.0	(0.9 - 4.2)
13 - 15 years	1.1	(0.5 - 2.1)	1.4	(0.8 - 2.5)	2.9	(1.2 - 6.6)
Prenatal care health insurance (Ref = Private)						
Public ^c	0.9	(0.5 - 1.2)	0.7	(0.4 - 0.9)	0.7	(0.4 - 1.2)
Poverty status (Ref ≥ 200% FPL)						
Poor (<100% FPL)	2.8 ^b	(1.6 - 4.6)	1.7 ^b	(1 - 2.6)	2.0 ^b	(1.1 - 3.4)
Near-poor (100% - 199% FPL)	2.0 ^b	(1.2 - 3.1)	1.1	(0.6 - 1.6)	1.5	(0.8 - 2.6)

Abbreviations: AOR, adjusted odds ratio; Ref, reference; FPL, federal poverty level.

^aKotelchuck index.²⁰

^bDenotes odds ratio statistically significant from 0 with $P < 0.05$.

^cIncludes Medicaid and Indian Health Service.

Table 4. Adjusted Logistic Regression of Satisfaction with Prenatal Care Among Non-White Women

	Dissatisfied w/ Respect Shown to Them as a Person n = 2202		Dissatisfied w/ Advice Received n = 2194		Dissatisfied w/ Amount of Time Spent w/ Provider n = 2192		Dissatisfied w/ Amount of Time Had to Wait n = 2190	
	AOR	(95% CI)	AOR	(95% CI)	AOR	(95% CI)	AOR	(95% CI)
Reported Racial discrimination (Ref = no)								
Yes	2.6 ^a	(1.5 - 4.3)	2.6 ^a	(1.7 - 3.8)	1.7 ^a	(1.1 - 2.4)	2.5 ^a	(1.7 - 3.6)
Race (Ref = Hispanic)								
Non-Hispanic Black	1.1	(0.5 - 2.2)	0.7	(0.4 - 1.2)	1.3	(0.7 - 1.9)	1.7 ^a	(1 - 2.9)
Non-Hispanic other	1.0	(0.3 - 2.3)	0.7	(0.4 - 1.3)	1.4	(0.8 - 2.4)	2.2 ^a	(1.2 - 3.9)
Maternal age (Ref > 29)								
<20 years	1.1	(0.3 - 2.9)	0.9	(0.3 - 2)	2.1	(0.9 - 4.4)	1.9	(0.9 - 3.7)
20-24 years	1.1	(0.5 - 2.1)	0.8	(0.4 - 1.4)	1.3	(0.7 - 2.1)	1.2	(0.7 - 2)
25-29	1.7	(0.8 - 3)	1.0	(0.6 - 1.6)	1.2	(0.7 - 1.8)	1.2	(0.7 - 1.8)
Marital Status (Ref = married)								
Not married	1.0	(0.5 - 1.9)	1.0	(0.5 - 1.6)	0.9	(0.5 - 1.5)	0.9	(0.5 - 1.4)
Maternal education (Ref ≥16 years)								
0 - 8 years	1.0	(0.1 - 5.2)	0.2	(0 - 1.5)	1.2	(0.4 - 3.6)	2.4 ^a	(1 - 5.7)
9 - 11 years	2.4	(0.9 - 6)	1.8	(0.9 - 3.6)	1.5	(0.7 - 2.9)	1.5	(0.8 - 2.8)
12 years	1.7	(0.7 - 3.7)	1.6	(0.8 - 2.8)	1.6	(0.8 - 2.9)	1.1	(0.6 - 2)
13 - 15 years	1.6	(0.4 - 6)	1.7	(0.7 - 3.9)	0.7	(0.2 - 1.8)	0.9	(0.3 - 1.9)
Prenatal care health insurance								
Public ^b	1.0	(0.4 - 2.2)	1.2	(0.7 - 2)	1.4	(0.8 - 2.2)	0.9	(0.5 - 1.5)
Poverty status								
Poor (<100% FPL)	0.8	(0.3 - 1.8)	0.8	(0.4 - 1.5)	1.2	(0.6 - 2.2)	1.0	(0.5 - 1.7)
Near-poor (100% - 199% FPL)	0.6	(0.2 - 1.3)	1.0	(0.5 - 1.8)	1.4	(0.7 - 2.6)	0.6	(0.3 - 1.1)

Abbreviations: AOR, adjusted odds ratio; Ref, reference; FPL, federal poverty level.

^aDenotes odds ratio statistically significant from 0 with $P < 0.05$.

^bIncludes Medicaid and Indian Health Service.

be addressed at a postpartum visit. The postpartum visit is a critical opportunity to reengage women in primary preventive care and preconception care.²⁸ These visits are opportunities to address chronic health conditions known to exacerbate maternal and infant health risks.⁸ Increased attendance at a postpartum visit has the potential to improve the trajectory of mothers' lives; decreasing experiences of racial discrimination in health care settings may be one mechanism for decreasing maternal morbidity.

Strengths and Limitations

This study adds to previous literature on distrust of the health care system by women of color by illustrating an association between self-reported interpersonal racial discrimination in the year before delivery and satisfaction with prenatal care, as well as postpartum care utilization. The strengths of the study include a large population-representative sample of women of color who recently gave birth in Wisconsin. By focusing on the variability of reported discrimination among women of color, we were able to elucidate the salience that interpersonal discrimination has, independent of structural racism. We were also able to adjust for important maternal characteristics, including poverty level.

However, there are several limitations that point to opportunities for future research. First, the measure of interpersonal discrimination was a self-report of such experiences during the full 12 months before delivery. Therefore, we were unable to establish the exact timing of the experience of discrimination. Additionally, the binary measure of discrimination likely masks the possible presence and effects of repeated incidents of racial discrimination during that period. The measure is also unable to assess the setting in which the discrimination occurred, which would likely moderate its effect on health care satisfaction and utilization. The imprecision of the measure also limits our ability to definitively establish the temporal relationship between the experience of discrimination and prenatal care, although this is not an issue for the postpartum visit outcome. Furthermore, we are unable to rule out residual confounding if experiences of racial discrimination are correlated with unmeasured factors that also affect care satisfaction and utilization. We recommend that future research assess racial discrimination in health care settings, and we recommend a qualitative investigation of women's experiences of interpersonal racism and how this affects their perceptions of and interactions with their health care providers. Intervention research also could explore how providers can effectively forge trusting relationships with diverse patients.

CONCLUSION

For women of color, a lifetime of exposure to structural racism has affected their health outcomes. Our study highlights the impact that experiences of acute interpersonal racism can have on Wisconsin women of color before, during, and after pregnancy. Perinatal care is an opportunity to improve the health of

women and their babies' health trajectories. Postpartum care is an additional opportunity to address the long-term health effects for women and reconnect them to preventive care; therefore, it is critical to address issues like prenatal discrimination that may discourage women from attending their postpartum visit. There are several steps that providers and systems can take to improve health care experiences for women of color that include diversifying the workforce, incorporating implicit bias training for all providers and staff, and adopting a reproductive justice framework.²⁹ Additionally, the BMMA recommendations emphasize the need for health care to honor the practices of midwifery and doulas that are traditional to Black women.¹⁶

Improving the maternal and infant outcomes for Black, Indigenous, and women of color in Wisconsin will require that health care acknowledge racial history that contributed to women's health practices. Providers must be educated on the history, social determinants of health, health disparities, health inequity, and community engagement and then take active steps to avoid perpetuating the systems of oppression that have created the persistent inequities for women and babies.

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REFERENCES

1. Kvale KM, Mascola MA, Glysch R, Kirby RS, Katcher ML. Trends in maternal and child health outcomes: where does Wisconsin rank in the national context?. *WMJ*. 2004;103(5):42-47.
2. Wisconsin Department of Health Services. Annual Wisconsin Birth and Infant Mortality Report, 2017. Wisconsin Department of Health Services; June 2019. Accessed October 16, 2020. <https://www.dhs.wisconsin.gov/publications/p01161-19.pdf>
3. Dominguez TP. Race, racism, and racial disparities in adverse birth outcomes. *Clin Obstet Gynecol*. 2008;51(2):360-370. doi:10.1097/GRF.0b013e31816f28de
4. Ben J, Cormack D, Harris R, Paradies Y. Racism and health service utilisation: a systematic review and meta-analysis. *PLoS One*. 2017;12(12):e0189900. doi:10.1371/journal.pone.0189900
5. Harrell SP. A multidimensional conceptualization of racism-related stress: implications for the well-being of people of color. *Am J Orthopsychiatry*. 2000;70(1):42-57. doi:10.1037/h0087722
6. Altman MR, Oseguera T, McLemore MR, Kantrowitz-Gordon I, Franck LS, Lyndon A. Information and power: women of color's experiences interacting with health care providers in pregnancy and birth. *Soc Sci Med*. 2019;238:112491. doi:10.1016/j.socscimed.2019.112491
7. Gadson A, Akpovi E, Mehta PK. Exploring the social determinants of racial/ethnic disparities in prenatal care utilization and maternal outcome. *Semin Perinatol*. 2017;41(5):308-317. doi:10.1053/j.semperi.2017.04.008
8. Atrash H, Jack B. Preconception care to improve pregnancy outcomes: the science. *J Hum Growth Dev*. 2020;30(3):334-341. doi:10.7322/jhgd.v30.11064
9. National Academies of Sciences, Engineering, and Medicine; Health and Medicine Division; Division of Behavioral and Social Sciences and Education; Board on Children, Youth, and Families; Committee on Assessing Health Outcomes by Birth Settings; Backes EP, Scrimshaw SC, eds. *Birth Settings in America: Outcomes, Quality, Access, and Choice*. National Academies Press (US); 2020. doi:10.17226/25636
10. Kilpatrick SJ, Papile LA, Macones GA, Watterberg KL, eds. *Guidelines for Perinatal Care*. 8th ed. American Academy of Pediatrics, The American College of Obstetricians and Gynecologists; 2017.

11. Slaughter-Acey JC, Caldwell CH, Misra DP. The influence of personal and group racism on entry into prenatal care among African American women. *Womens Health Issues*. 2013;23(6):e381-e387. doi:10.1016/j.whi.2013.08.001
12. Mattocks KM, Baldor R, Bean-Mayberry B, et al. Factors impacting perceived access to early prenatal care among pregnant veterans enrolled in the Department of Veterans Affairs. *Womens Health Issues*. 2019;29(1):56-63. doi:10.1016/j.whi.2018.10.001.
13. Scott KA, Britton L, McLemore MR. The ethics of perinatal care for Black women: dismantling the structural racism in "mother blame" narratives. *J Perinat Neonatal Nurs*. 2019;33(2):108-115. doi:10.1097/JPN.0000000000000394
14. Salm Ward TC, Mazul M, Ngui EM, Bridgewater FD, Harley AE. "You learn to go last": perceptions of prenatal care experiences among African-American women with limited incomes. *Matern Child Health J*. 2013;17(10):1753-1759. doi:10.1007/s10995-012-1194-5
15. Sheppard VB, Zambrana RE, O'Malley AS. Providing health care to low-income women: a matter of trust. *Fam Pract*. 2004;21(5):484-491. doi:10.1093/fampra/cmh503
16. Black Mamas Matter Alliance. *Setting the Standard for Holistic Care of and for Black Women*. Accessed October 17, 2020. http://blackmamasmatter.org/wp-content/uploads/2018/04/BMMA_BlackPaper_April-2018.pdf
17. Kim S, Im EO, Liu J, Ulrich C. Maternal age patterns of preterm birth: exploring the moderating roles of chronic stress and race/ethnicity. *Ann Behav Med*. 2020;54(9):653-664. doi:10.1093/abm/kaaa008
18. Bower KM, Geller RJ, Perrin NA, Alhusen J. Experiences of racism and preterm birth: findings from a Pregnancy Risk Assessment Monitoring System, 2004 through 2012. *Womens Health Issues*. 2018;28(6):495-501. doi:10.1016/j.whi.2018.06.002
19. Shulman HB, D'Angelo DV, Harrison L, Smith RA, Warner L. The Pregnancy Risk Assessment Monitoring System (PRAMS): overview of design and methodology. *Am J Public Health*. 2018;108(10):1305-1313. doi:10.2105/AJPH.2018.304563
20. Kotelchuck M. The Adequacy of Prenatal Care Utilization Index: its US distribution and association with low birthweight. *Am J Public Health*. 1994;84(9):1486-1489. doi:10.2105/ajph.84.9.1486
21. Kogan MD, Alexander GR, Kotelchuck M, Nagey DA, Jack BW. Comparing mothers' reports on the content of prenatal care received with recommended national guidelines for care. *Public Health Rep*. 1994;109(5):637-646.
22. Green TL. Unpacking racial/ethnic disparities in prenatal care use: the role of individual-, household-, and area-level characteristics. *J Womens Health (Larchmt)*. 2018;27(9):1124-1134. doi:10.1089/jwh.2017.6807
23. Chapel JM, Ritchey MD, Zhang D, Wang G. Prevalence and medical costs of chronic diseases among adult Medicaid beneficiaries. *Am J Prev Med*. 2017;53(6S2):S143-S154. doi:10.1016/j.amepre.2017.07.019
24. McLemore MR, Altman MR, Cooper N, Williams S, Rand L, Franck L. Health care experiences of pregnant, birthing and postnatal women of color at risk for preterm birth. *Soc Sci Med*. 2018;201:127-135. doi:10.1016/j.socscimed.2018.02.013
25. DiBari JN, Yu SM, Chao SM, Lu MC. Use of postpartum care: predictors and barriers. *J Pregnancy*. 2014;2014:530769. doi:10.1155/2014/530769
26. Wisconsin Department of Health Services. *BadgerCare Plus Eligibility Handbook*. Wisconsin Department of Health Services; 2020. Accessed October 17, 2020. <http://www.emhandbooks.wisconsin.gov/bcplus/bcplus.htm>
27. Petersen EE, Davis NL, Goodman D, et al. Racial/ethnic disparities in pregnancy-related deaths - United States, 2007-2016. *MMWR Morb Mortal Wkly Rep*. 2019;68(35):762-765. Published 2019 Sep 6. doi:10.15585/mmwr.mm6835a3
28. Tully KP, Stuebe AM, Verbiest SB. The fourth trimester: a critical transition period with unmet maternal health needs. *Am J Obstet Gynecol*. 2017;217(1):37-41. doi:10.1016/j.ajog.2017.03.032
29. Ross L, Solinger R. *Reproductive Justice: An Introduction*. 1st ed. University of California Press; 2017.

Examining the Association Between Racial Bias Exposure and Postpartum Depression Among Women in Wisconsin

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ABSTRACT

Objective: To analyze the association between racial bias and postpartum depression among women in Wisconsin.

Methods: Analyzed the Wisconsin Pregnancy Risk Assessment Monitoring System with a weighted sample of 125,581 women/mothers who delivered a live birth in 2016-2017. The outcome was self-reported postpartum depression. The independent variable was racial bias exposure. Survey-weighted logistic regression analyses were performed adjusting for confounders in 6 models—socioeconomic position, psychosocial factors, health risk behaviors, health care access, stress/obesity, and disease condition. All analyses were completed using STATA accounting for complex survey design and sample weights.

Results: In this sample, 6.6% of women/mothers experienced racial bias and 11.5% had postpartum depression. In unadjusted analysis, the odds of postpartum depression were higher for women who experienced racial bias than those who did not (OR 2.15; 95% CI, 1.35-3.41). Non-Hispanic Black women had higher odds for racial bias exposure than other racial/ethnic groups (OR 6.01; 95% CI, 1.69-21.41). However, the relationship between racial bias and postpartum depression was not significant after adjusting for socioeconomic position (OR 1.17; 95% CI, 0.69-1.97), psychosocial factors (OR 1.07; 95% CI, 0.63-1.81), health risk behaviors (OR 0.90; 95% CI, 0.55-1.49), health care access (OR 1.01; 95% CI, 0.60-1.70), stress/obesity (OR 0.73; 95% CI, 0.41-1.30), and disease/morbidity (OR 0.85; 95% CI, 0.46-1.57).

Discussion/Conclusion: Racial bias was associated with significantly increased risk of postpartum depression. Black women had higher odds for racial bias exposure than other groups. The relationship between racial bias and postpartum depression was not significant after adjusting for confounders, suggesting that social determinants potentially influenced this relationship. These findings should inform screening and health education interventions to minimize racism and poor maternal health outcomes.

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INTRODUCTION

Postpartum depression (PPD) in women is a serious medical condition (different from “baby blues”) that is triggered by and occurring after childbirth.¹ PPD involves feelings of extreme sadness and anxiety that result in sleep, energy, and appetite changes.² Women who have recently delivered are vulnerable to the entire spectrum of PPD.³ PPD is significantly associated with adverse maternal and infant outcomes, such as lower breastfeeding initiation and poor maternal and infant bonding.⁴

Postpartum depression is a major public health concern in the United States, and it can affect all women, even if they had a healthy pregnancy and/or a healthy child.¹ According to the Centers for Disease Control and Prevention (CDC), 1 in 10 women in the US reported severe symptoms that suggest they experienced an episode of major PPD. Studies report similar cases in women in the US in the 12 months after delivery.¹ In Wisconsin, 14% of moth-

ers experience PPD every year; however, 12% of these mothers are not screened for PPD after they give birth.⁵

The etiology of PPD is multifaceted. Risk factors include the experience of stressful life events, low social support, being a teenage mother, having a previous history of depression, preterm delivery, and pregnancy complications.⁴ PPD is associated with the psychoactive effects of female hormones (low estrogenic levels) and interpersonal and environmental factors.³

Significant racial disparities in PPD have been observed. High levels of PPD, lower levels of PPD treatment initiation, and the attendance of postpartum visits have been found in low-income

women, especially non-Hispanic Black women.⁶ Even when they attend postpartum visits, 1 in 8 reported not being screened for depression by their health care provider during postpartum visits.¹ Many cases of PPD remain undiagnosed due to time constraints and issues related to social acceptability of screening.⁷

Existing studies have examined the relationship between race/ethnicity as proxy measures for structural racism and maternal and child health outcomes and disparities among diverse racial and ethnic groups.^{1,4,6,8,9} Race consistently has been found to be associated with reproductive health outcomes.⁹ Today and historically, non-Hispanic Black women experience racial discrimination, even when receiving prenatal care.¹⁰ Cumulatively, these experiences can affect their reproductive health and well-being,⁹ as well as their trust in the health care system.¹⁰

There are several pathways through which racial bias could increase the risk of PPD experienced by non-Hispanic Black women. For example, cumulative maternal stress from multiple exposures to social stressors over the life course could affect the body's allostatic systems.¹¹ Studies have shown that exposure to different social stressors (social-human interactions, economic conditions, housing and discrimination) over time can cause wear and tear on the body's adaptive systems, leading to adverse maternal health outcomes.¹² Interpersonally mediated racism also has a long and deeply rooted history in the US. Studies have documented the historical experiences¹³ of non-Hispanic Black women since slavery to present, revealing a long saga of medical mistreatment and social injustice.⁹ In addition, there is a disconnect in patient-centered communication,¹⁴ especially on issues relating to racial bias, which reinforces the problem. This history adds crucial context for understanding maternal health and health disparities. An understanding of this historical context¹³ can help in the design of system changes and preventive interventions.

Additionally, maternal stress due to increased exposure to life-time stressors,¹² such as racial bias may lead to high-risk behaviors as a coping mechanism.⁹ Racism can impact maternal and reproductive health by stimulating psychological distress in the form of low self-worth, low self-confidence, and depression, which can negatively affect behavioral decisions such as cigarette smoking and alcohol use.⁹ Studies found that cigarette smoking or alcohol abuse significantly increased risk of adverse maternal health outcomes.¹⁵ The interaction of substance abuse with other life-course factors, such as low household income and psychosocial distress, may cause higher virulence with differential impact on maternal health.¹⁶ Hence, Black women can be more susceptible to the interactive effects of smoking and distress and adverse maternal outcomes due to their increased exposure to life-course stressors compared to their White counterparts.¹²

Despite the burden racism places on non-Hispanic Black women,⁹ studies have not examined racial bias (the emotional effect of having been treated differently because of race) and PPD in Wisconsin, even though it is ranked as the most segregated state

in America.¹⁷ Studies have found that non-Hispanic Black women experience PPD at a disproportionately higher rate than their peers; however, little is known about how racial bias influences PPD outcomes, especially for non-Hispanic Black women in Wisconsin.

To fill this gap in the literature, the association between racial bias and PPD in Wisconsin was analyzed, adjusting for social determinants of health and using a statewide weighted representative sample of women/mothers. Our findings aim to inform policies (including the Wisconsin Public Health Association resolution declaring racism as a public health crisis in Wisconsin¹⁸), system changes, and clinical interventions to address persistent discrimination linked to poor health outcomes.

METHODS

Data and Population Description

Data were analyzed from the Pregnancy Risk Assessment Monitoring System (PRAMS) for 2016-2017 Wisconsin births. PRAMS is a surveillance system administered by state and territorial health departments that covers about 83% of all US births and is supported by the CDC.¹⁹ It collects state-specific, population-based data in the field of reproductive health, including maternal experiences months before, during, and shortly after pregnancy. State and local governments use PRAMS to inform planning interventions to reduce health problems related to reproductive, maternal, and infant health. The Wisconsin Data Governance Board at the Department of Health Services approved the data request for this study. The inclusion criteria were women who gave birth to a live infant in Wisconsin who responded to the PRAMS questions on racial bias and PPD during the surveillance period (2016-2017). There were 2,609 (unweighted) women who responded to PRAMS and were included in the study, representing 125,581 (weighted) women who delivered a live birth in Wisconsin during 2016-2017.

Key Study Measures and Outcomes

The key independent variable was experiencing racial bias (categorized as no/yes), defined as being emotionally upset (angry, sad, or frustrated) as a result of being treated differently based on race within 12 months before the baby was born. The key dependent variable was PPD indicator, categorized as no/yes. PPD was defined—according to the CDC—as a serious medical condition that is activated by and occurring after child delivery, including having feelings of extreme sadness and anxiety that result in energy, sleep, and appetite changes.

Potential Confounders

This study was conceptualized using a framework on racial and ethnic differences in health.²⁰ The framework included respondent's socioeconomic status, psychosocial factors, health risk behaviors, health care access, stress/obesity, and disease condition.

Socioeconomic status included maternal age (categorized as ≤19 years, 20-24 years, 25-29, 30-34, and ≥35 years), maternal race/ethnicity (non-Hispanic White, non-Hispanic Black,

Hispanic, and non-Hispanic Other), maternal education (college and above and high school or less), marital status/married (no/yes), Federal Poverty Levels (FPL) for the year of the birth (2016-2017) (not poor $\geq 200\%$ FPL and low income [poor/near poor $\leq 199\%$ FPL]), and feeling unsafe in neighborhood (no/yes). Psychosocial factors (all coded as no/yes) were being exposed to intimate partner violence, such as physical abuse, 12 months before and during pregnancy; sexual abuse during pregnancy; and psychological aggression (feeling unsafe, controlled, and threatened) during pregnancy. Health risk behaviors (all coded as no/yes) were comprised of cigarette smoking 12 months before and during pregnancy, alcohol use/drinking 3 months before pregnancy, and poor diet (financial food insecurity, yes/no) 12 months before the infant was born. Health care access included insurance during pregnancy (private/self-pay/other: uninsured and Medicaid) and prenatal care visits grouped according to the Kessner index²¹ (8 or less [inadequate] and 9+ visits [adequate]). Stress/obesity variables contained stressful events (divorce, homeless, family member ill/hospitalized, could not pay the bills, did not want pregnancy, someone closer had a problem with drinks/drugs, someone closer to me died, husband/partner/mother went to jail) grouped as no stressors, 1 to 2 stressors, and 3 or more stressors; depression 12 months before pregnancy (no/yes); and maternal weight gain in pounds (categorized as body mass index [BMI] in pounds categories: underweight [BMI < 19.8], normal [BMI 19.8-26], and overweight/obese [BMI > 26]). Stress and obesity were considered as 2 broad physiological conditions that partly mediate the effects of behavior and psychosocial factors on health and disease conditions. Stress is an important consequence of the experience of racial bias and discrimination, and the complications in the effects of stress comprise not only its reciprocal relationship with overall health, but also nonlinearities in its effects.²⁰ It can be treated as a separate factor, potentially mediating the effects on health not only of racial bias, but also of other social and behavioral factors. Disease conditions were high blood pressure before pregnancy, birth weight (normal weight ≥ 2500 g or $\sim \geq 5.5$ lbs), and low birth weight (< 2500g or $\sim < 5.5$ lbs).

Statistical Analysis

First, the characteristics of the weighted study population of women/mothers were described. Second, an unadjusted analysis between racial bias and PPD was performed. Third, an unadjusted analysis between race/ethnicity and racial bias was conducted. Finally, survey-weighted multiple logistic regression analyses were performed to test the independent association of racial bias and PPD while controlling for potential confounders in 6 models—socioeconomic position, psychosocial factors, health risk behaviors, health care access, stress/obesity, and disease condition. All analyses were performed using STATA/SE v.15.1, accounting for complex survey design and sample weights. *P* values < 0.05 were considered statistically significant. The reported percentages, odds ratios, and their 95% confidence

intervals in the results section are estimates for the population (weighted).

RESULTS

2016-2017 Population Characteristics

There were 2,609 women included in the study, representing a weighted population size of 125,581 women/mothers in Wisconsin during 2016-2017. Of this weighted population, 6.6% experienced racial bias and postpartum depression (11.5%). Of the women under 19 years of age, 33.2% reported experiencing PPD compared to 19.2% of women aged 20-24 years, 9.3% 25-29 years, 9.1% 30-34 years, and 8.7% 35 years of age or greater ($P < .01$). Of the non-Hispanic Black women, 21.2% had PPD compared to 16.7% non-Hispanic Other, 15.8% Hispanic, and 9.0% of non-Hispanic White ($P < .01$). See Table 1 for summary of population characteristics.

Association Between Racial Bias and PPD Among Women, 2016-2017

In the unadjusted weighted analysis (Table 2), the odds of experiencing PPD were 2.2 times more likely among women who reported experiencing racial bias, compared to those who did not (OR 2.15; 95% CI, 1.35-3.41). Among the women who reported experiencing PPD (Table 3), the odds of experiencing racial bias were 6 times higher for non-Hispanic Black women than other racial/ethnic groups (OR 6.01; 95% CI, 1.69-21.41).

In the adjusted weighted analysis (Table 4), the relationship between racial bias and PPD was no longer statistically significant after adjusting for potential confounders (including social determinants of health), such as socioeconomic position (OR 1.17; 95% CI, 0.69-1.97), psychosocial factors (OR 1.07; 95% CI, 0.63-1.81), health risk behavior (OR 0.90; 95% CI, 0.55-1.49), health care access (OR 1.01; 95% CI, 0.60-1.70), stress/obesity (OR 0.73; 95% CI, 0.41-1.30), and disease/morbidity (OR 0.85; 95% CI, 0.46-1.57).

DISCUSSION

This study analyzed the association between racial bias exposure and PPD using a statewide weighted sample of women who gave birth in Wisconsin during 2016-2017. In the unadjusted analysis, we found that the odds of PPD were higher for women who experienced racial bias than those who did not, and non-Hispanic Black women had higher odds for racial bias exposure than other racial/ethnic groups. The relationship between racial bias and PPD was no longer statistically significant after adjusting for confounders, suggesting that social determinants of health factors potentially influenced this relationship. These findings help to inform screening and health education interventions to minimize racism and poor maternal health outcomes.

Previous studies^{6,8} have examined racial and ethnic disparities in maternal, infant, and child health outcomes. One study using PRAMS data (2004-2012) found that the experiences of emo-

Table 1. Population Characteristics, 2016-2017

Variables/Measures		Unweighted		Weighted	Postpartum Depression ^a		P value
		2,609		125,581	88.46%	11.54%	
Total/Overall		n	%	%	No	Yes	
Socioeconomic position							
Maternal age	≤19 years	178	6.82	3.44	66.79	33.21	<0.01
	20-24 years	586	22.46	16.64	80.81	19.19	
	25-29 years	760	29.13	31.68	90.66	9.34	
	30-34 years	729	27.94	34.27	90.86	9.14	
	≥35 years	356	13.65	13.96	91.33	8.67	
Maternal race/ethnicity	Non-Hispanic White	666	25.53	71.07	90.97	9.03	<0.01
	Non-Hispanic Black	1,291	49.48	11.56	78.81	21.19	
	Hispanic	348	13.34	9.69	84.19	15.81	
	Non-Hispanic other	304	11.65	7.68	83.27	16.73	
Maternal education ^a	College and above	1,442	55.65	63.97	91.57	8.43	<0.01
	High school or less	1,149	44.35	36.03	82.99	17.01	
Marital status (married)	No	1,408	53.97	35.16	81.62	18.38	<0.01
	Yes	1,201	46.03	64.84	91.98	8.02	
Federal poverty levels ^a	Not poor (≥200% FPL)	746	32.13	49.92	93.62	6.38	<0.01
	Low income (≤199% FPL)	1,576	67.87	50.08	84.01	15.99	
Feeling unsafe in neighborhood ^a	No	1,819	72.70	76.98	90.52	9.48	<0.01
	Yes	683	27.30	76.98	81.68	18.32	
Psychosocial factors							
Experienced racial bias ^a	No	2,139	85.59	93.37	89.15	10.85	<0.01
	Yes	360	14.41	6.63	79.25	20.75	
Exposed to intimate partner violence–all forms ^a	No	2,257	89.74	93.26	89.79	10.21	<0.01
	Yes	258	10.26	6.74	70.29	29.71	
Health risk behavior							
Cigarette smoking ^a	No	2,248	86.69	86.13	89.85	10.15	<0.01
	Yes	345	13.31	13.87	79.42	20.58	
Alcohol use/drinking ^a	No	1,045	41.62	30.30	87.90	12.10	0.70
	Yes	1,466	58.38	69.70	88.70	11.30	
Poor diet (Eat less/no money/food unsecured) ^a	No	2,196	89.34	91.74	90.90	9.10	<0.01
	Yes	262	10.66	8.26	65.53	34.47	
Health care access							
Insurance during pregnancy ^a	Private/self pay/other	1,154	44.59	64.89	92.94	7.06	<0.01
	Medicaid	1,434	55.41	35.11	79.41	20.59	
Prenatal care visits grouped as Kessner index ^a	8 or less: inadequate	2,090	83.47	87.30	89.65	10.35	<0.01
	9+ visits: adequate	414	16.53	12.70	80.61	19.39	
Stress/Obesity							
Stressful events	No stressors	1,366	52.36	60.06	91.36	8.64	<0.01
	1-2 Stressors	954	36.57	33.26	87.89	12.11	
	3 or more Stressors	289	11.08	6.68	65.91	34.09	
Diagnosed depression before pregnancy ^a	No	2,125	82.94	83.78	91.46	8.54	<0.01
	Yes	437	17.06	16.22	72.91	27.09	
Maternal weight gain during pregnancy (BMI) ^a	Underweight (<19.8 lbs)	407	16.15	14.56	89.34	10.66	0.04
	Normal (19.8-26 lbs)	803	31.87	26.45	84.69	15.31	
	Overweight/obese (>26 lbs)	1,310	51.98	58.99	89.99	10.01	
Disease/Morbidity							
High blood pressure ^a	No	2,373	92.73	94.53	89.08	10.92	0.06
	Yes	186	7.27	5.47	81.93	18.07	
Birth weight	Normal weight (≥2500 g / ≥5.5 lbs)	2,360	90.46	93.86	89.25	10.75	<0.01
	Low birth weight (<2500 g / <5.5 lbs)	249	9.54	6.14	75.95	24.05	

^aVariables with ≤12% of missing values were included in the analysis.

Variables with >12% of missing values were excluded.

Abbreviations: BMI, body mass index

Table 2. Association Between Racial Bias and Postpartum Depression Among Women in Wisconsin, 2016-2017

	Odds Ratio	P value	95% CI
Racial bias			
No	Ref.		
Yes	2.15	<0.01	1.35-3.41

Table 3. Association Between Race/Ethnicity and Racial Bias in Women With Postpartum Depression in Wisconsin, 2016-2017

	Odds Ratio	P value	95% CI
Race/ethnicity			
Non-Hispanic White	Ref.		
Non-Hispanic Black	6.01	0.01	1.69-21.41
Hispanic	5.68	0.02	1.37-23.58
Non-Hispanic Other	1.56	0.62	0.27-8.97

tional upset due to racial discrimination contributed to the risk of preterm birth in non-Hispanic Black women.⁸ Another report using PRAMS data (2004-2007) found significant disparities in self-reported PPD among Asian, Hawaiian, and Pacific Islander women.²² Our study was consistent with previous results indicating that women—particularly women of color—experience both racial discrimination and PPD at higher rates than their White peers. However, our analysis suggests that while social determinants of health factors potentially influenced the relationship between racial bias and PPD, higher maternal age was protective against PPD. Our findings also suggest that concentration of socioeconomic disadvantage due to racial bias/discrimination in non-Hispanic Black women was evidently a significant driver of PPD. To our knowledge, this is the first weighted analysis to examine the influence of experiencing racial bias on PPD among women in Wisconsin, adjusting for social determinants of health, which are known to influence maternal health outcomes.

Study Strengths and Limitations

This study has several strengths. A weighted analysis that can be applied to all women who delivered a live birth in Wisconsin during the study period was provided. Novel social determinants of health variables were used in our statistical adjustment. The racial bias measure was based not only on the race of the respondent, but also their experience with racial bias or racism. However, findings should be interpreted in light of the following limitations. First, PRAMS data did not use clinician diagnoses of depression to define women who suffered postpartum depression. This means that depressive symptoms reported by respondents could have been due to other mental health conditions (eg, schizophrenia or bipolar disorder) or may not be indicative of clinical depression. Second, findings are limited to women who delivered a live birth in Wisconsin and cannot be generalized to all women at the national level. Finally, the relationship between racial bias and PPD was an association and cannot be interpreted as causal. Future research that prospectively establishes the tem-

poral relationship between racial discrimination and PPD could better assess causality.

Study Implications

This study contributes to the scientific literature by examining the impact of racial bias on PPD and the influence of social determinants of health. Implications for research include the need for larger and longitudinal analysis of women at the county and national levels to examine the prevalence and pervasiveness of the association.

Our findings underscore several implications and help to inform policies, system changes, and clinical practices to address the impact of racial bias on poor maternal mental health outcomes, especially for a historically marginalized population. One in 8 women does not report a health care professional asking about depression during postpartum visits.¹ Hence, health care professional universal screening of non-Hispanic Black women in the perinatal period is recommended to increase the identification of women at risk and promote provision of medical care or referral.¹ There is a need to promote health education, prevention, and treatment of perinatal mental health issues such as PPD affecting all mothers, especially those in higher need and greater vulnerability.

Racism causes persistent discrimination and is linked to poor health outcomes;²³ therefore, racial health disparities cannot be addressed without addressing racism itself. However, racism is generally acknowledged and addressed through the lens of being an acute interpersonal issue instead of a chronic systemic epidemic. Although racism is deeply integrated into the physical, social, psychological, and institutional constructs of American culture,²⁴ it is often viewed as individual events or isolated moments in the lives of African Americans.²⁵ To address this issue holistically, policymakers and health care professionals should not only recognize racism as historical or event-based, but as pervasive, systematic, and widespread across all sectors of society. Any policy or intervention must take these factors into account to be effective in addressing racism.

In light of these findings, exposure to racial bias and discrimination of Black Americans have adverse effects on maternal mental health among Black American women in the general population. Programs should be designed and implemented to decrease the frequency of racial prejudices and discrimination and to mitigate adverse maternal mental health effects within communities when such racial prejudices occur. Interventions should employ a holistic approach in addressing the lack of fairness, inferior beliefs about one's own worth or lower social status, activation of prior traumas, and freedom from differential legal or social treatment based on one's race or skin color.^{26,27} There is the need to invest in culturally sensitive interventions in the form of social support that could promote positive coping methods to deal with racial bias. The use of support systems and racial identity development²⁸ may be an uplifting coping mechanism to reinforce positive psychological self-image, especially in African American women experiencing PPD.

While American women recognize the negative health out-

Table 4: Adjusted Weighted Analysis. Outcome: Post-Partum Depression; Primary Independent Variable: Racial Bias

	Model 1: Socioeconomic Position		Model 2: Psychosocial Factors		Model 3: Health Risk Behavior		Model 4: Health Care Access		Model 5: Stress/Obesity		Model 6 (All): Disease/Morbidity	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Racial bias												
No	Ref		Ref		Ref		Ref		Ref		Ref	
Yes	1.17	0.69-1.97	1.07	0.63-1.81	0.90	0.55-1.49	1.01	0.60-1.70	0.73	0.41-1.30	0.85	0.46-1.57
Race/ethnicity												
Non-Hispanic White	Ref		Ref		Ref		Ref		Ref		Ref	
Non-Hispanic Black	1.52	0.96-2.39	1.54	0.98-2.43	1.81 ^a	1.11-2.95	1.43	0.85-2.41	1.44	0.85-2.44	1.37	0.78-2.41
Hispanic	1.12	0.66-1.90	1.13	0.67-1.92	1.45	0.83-2.54	1.30	0.71-2.37	1.26	0.68-2.35	1.36	0.70-2.62
Non-Hispanic other	1.53	0.92-2.53	1.61	0.97-2.66	1.87 ^a	1.09-3.22	1.63	0.92-2.90	1.62	0.89-2.95	1.74	0.93-3.25
Maternal age												
≤19 years	Ref		Ref		Ref		Ref		Ref		Ref	
20-24 years	0.70	0.30-1.62	0.69	0.29-1.62	0.57	0.22-1.45	0.57	0.21-1.52	0.58	0.21-1.58	0.58	0.21-1.60
25-29 years	0.40 ^a	0.17-0.93	0.39 ^a	0.16-0.92	0.33 ^a	0.13-0.84	0.31 ^a	0.12-0.81	0.34 ^a	0.13-0.92	0.31 ^a	0.11-0.87
30-34 years	0.50	0.21-1.18	0.48	0.20-1.16	0.37 ^a	0.14-0.94	0.33 ^a	0.12-0.89	0.37	0.14-1.00	0.35 ^a	0.13-0.97
≥35 years	0.46	0.18-1.19	0.45	0.17-1.17	0.37	0.13-1.05	0.29	0.10-0.85	0.32 ^a	0.11-0.95	0.29 ^a	0.10-0.88
Maternal education												
College and above	Ref		Ref		Ref		Ref		Ref		Ref	
High school or less	1.29	0.82-2.03	1.27	0.81-2.01	1.13	0.70-1.84	1.01	0.62-1.65	1.01	0.61-1.68	0.99	0.57-1.73
Marital status (married)												
No	Ref		Ref		Ref		Ref		Ref		Ref	
Yes	0.80	0.48-1.34	0.86	0.51-1.45	0.92	0.52-1.63	1.02	0.55-1.87	1.02	0.55-1.90	1.02	0.56-1.87
Federal Poverty Level												
Not poor	Ref		Ref		Ref		Ref		Ref		Ref	
Low income	1.54	0.87-2.73	1.47	0.82-2.62	1.29	0.70-2.35	1.07	0.55-2.09	1.11	0.56-2.20	1.08	0.54-2.14
Feeling unsafe in neighborhood												
No	Ref		Ref		Ref		Ref		Ref		Ref	
Yes	1.69 ^a	1.13-2.55	1.58 ^a	1.05-2.37	1.40	0.90-2.16	1.28	0.82-1.98	1.19	0.74-1.89	1.11	0.70-1.76
Exposed to IPV all forms												
No			Ref		Ref		Ref		Ref		Ref	
Yes			2.11 ^a	1.25-3.57	1.65	0.95-2.89	1.55	0.85-2.84	1.21	0.60-2.45	1.17	0.58-2.37
Cigarette smoking												
No					Ref		Ref		Ref		Ref	
Yes					1.10	0.60-2.00	1.02	0.57-1.84	0.91	0.49-1.69	0.76	0.41-1.41
Alcohol use/drinking												
No					Ref		Ref		Ref		Ref	
Yes					1.37	0.90-2.07	1.52	0.98-2.36	1.55	1.00-2.39	1.48	0.93-2.36
Eat less/no money/food insure												
No					Ref		Ref		Ref		Ref	
Yes					3.09 ^a	1.72-5.57	2.84 ^a	1.55-5.19	2.53 ^a	1.34-4.77	2.03 ^a	1.05-3.91
Insurance during pregnancy							Ref		Ref		Ref	
Private/self pay/other												
Medicaid							1.88 ^a	1.05-3.36	1.78	0.99-3.21	1.95 ^a	1.05-3.63
Prenatal care visits grouped												
8 or less: inadequate							Ref		Ref		Ref	
9+ visits: adequate							1.72	0.98-3.01	1.64	0.92-2.92	1.39	0.77-2.49
Stressful events												
No stressors									Ref		Ref	
1-2 stressors									1.05	0.66-1.67	0.94	0.59-1.49
3 or more stressors									2.34 ^a	1.10-4.97	1.74	0.83-3.69
Diagnosed depression												
No									Ref		Ref	
Yes									1.23	0.65-2.31	1.09	0.58-2.05
Maternal weight gain (BMI)												
Normal									Ref		Ref	
Underweight									1.2	0.65-2.31	1.09	0.58-2.05
Overweight/obese									1.06	0.59-1.92	1.03	0.56-1.86
High blood pressure												
No											Ref	
Yes											1.07	0.49-2.32
Birth weight												
Normal weight											Ref	
Low birth weight											2.34 ^a	1.11-4.95

^a Significant at $P < 0.05$; Abbreviations: IPV, intimate partner violence; BMI, body mass index.

comes of mental illness, studies have shown that the use of prayer and counseling are essential coping mechanisms for mental illness in African American women.²⁹ In addition to internal coping strategies, such as relying on faith, prayer, and spirituality, other more external resistance coping strategies that Black women use to generally manage the stress of racism include leaning on the shoulders of and drawing strength from African American ancestors to sustain a positive self-image, relying on social support mechanisms, avoiding contact with certain situations, and directly challenging the source of the problem using pacific or de-escalation means.³⁰ Culturally responsive interventions should also address factors that influence treatment-seeking barriers, including stigmatization, inadequate access to mental health care, and lack of awareness of mental illness.²⁹

CONCLUSION

Racial bias was associated with significantly increased risk of postpartum depression. Black women had higher odds for racial bias exposure than other groups. The relationship between racial bias and postpartum depression was not significant after adjusting for confounders, suggesting that social determinants potentially influenced this relationship. These findings should inform screening and health education interventions to minimize racism and poor maternal health outcomes.

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REFERENCES

- Bauman BL, Ko JY, Cox S, et al. Vital signs: postpartum depressive symptoms and provider discussions about perinatal depression - United States, 2018. *MMWR Morb Mortal Wkly Rep*. 2020;69(19):575-581. doi:10.15585/mmwr.mm6919a2
- Del Barrio V. Diagnostic and statistical manual of mental disorders. In: Stein J, Bennett D, Coen C, et al., eds. *The Curated Reference Collection in Neuroscience and Biobehavioral Psychology*. Elsevier; 2016.
- Mauri M, Borri C, Cargioli C, Miniati M, Banti S. Postpartum depression. In: Uguz F, ed. *Psychiatric Disorders during the Postpartum Period in Light of Current Advances*. Nova Science Publishers; 2016.
- Ko JY, Rockhill KM, Tong VT, Morrow B, Farr SL. Trends in postpartum depressive symptoms - 27 states, 2004, 2008, and 2012. *MMWR Morb Mortal Wkly Rep*. 2017;66(6):153-158. doi:10.15585/mmwr.mm6606a1
- Wisconsin Department of Health Services. Wisconsin PRAMS: Pregnancy Risk Assessment Monitoring System: Perinatal depression. April 2019. Accessed October 4, 2020. <https://www.dhs.wisconsin.gov/publications/p0/p00242.pdf>
- Thiel de Bocanegra H, Braughton M, Bradsberry M, Howell M, Logan J, Schwarz EB. Racial and ethnic disparities in postpartum care and contraception in California's Medicaid program. *Am J Obstet Gynecol*. 2017;217(1):47.e1-47.e7. doi:10.1016/j.ajog.2017.02.040
- Messinger-Rapport BJ, Thomas DR, Gammack JK, Morley JE. Clinical update on nursing home medicine: 2009. *J Am Med Dir Assoc*. 2009;10(8):530-553. doi:10.1016/j.jamda.2009.08.001
- Bower KM, Geller RJ, Perrin NA, Alhusen J. Experiences of racism and preterm birth: findings from a pregnancy risk assessment monitoring system, 2004 through 2012. *Womens Health Issues*. 2018;28(6):495-501. doi:10.1016/j.whi.2018.06.002
- Prather C, Fuller TR, Marshall KJ, Jeffries WL 4th. The impact of racism on the sexual and reproductive health of African American women. *J Womens Health (Larchmt)*. 2016;25(7):664-671. doi:10.1089/jwh.2015.5637
- Benkert R, Peters RM, Clark R, Keves-Foster K. Effects of perceived racism, cultural mistrust and trust in providers on satisfaction with care. *J Natl Med Assoc*. 2006;98(9):1532-1540. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2569718/>
- Oliver M, Shapiro T. *Black wealth/white wealth: A new perspective on racial inequality*. Taylor & Francis; 2006.
- Lu MC, Halfon N. Racial and ethnic disparities in birth outcomes: a life-course perspective. *Matern Child Health J*. 2003;7(1):13-30. doi:10.1023/a:1022537516969
- Trawalter S, Bart-Plange DJ, Hoffman KM. A socioecological psychology of racism: making structures and history more visible. *Curr Opin Psychol*. 2020;32:47-51. doi:10.1016/j.copsyc.2019.06.029
- Cooper LA, Roter DL, Johnson RL, Ford DE, Steinwachs DM, Powe NR. Patient-centered communication, ratings of care, and concordance of patient and physician race. *Ann Intern Med*. 2003;139(11):907-915. doi:10.7326/0003-4819-139-11-200312020-00009
- Nykjaer C, Alwan NA, Greenwood DC, et al. Maternal alcohol intake prior to and during pregnancy and risk of adverse birth outcomes: evidence from a British cohort. *J Epidemiol Community Health*. 2014;68(6):542-549. doi:10.1136/jech-2013-202934
- Knopik VS, Maccani MA, Francasio S, McGeary JE. The epigenetics of maternal cigarette smoking during pregnancy and effects on child development. *Dev Psychopathol*. 2012;24(4):1377-1390. doi:10.1017/S0954579412000776
- Lorey C. Wisconsin is the most segregated state in America, according to new report. *Channel 3000*. January 16, 2019. Updated January 7, 2020. Accessed August 24, 2020. <https://www.channel3000.com/wisconsin-is-the-most-segregated-state-in-america-according-to-new-report/>
- Wisconsin Public Health Association. 2018 Resolution: Racism is a public health crisis. Published May 2018. Accessed October 2, 2020. https://cdn.ymaws.com/www.wpha.org/resource/resmgr/2018_folder/WPHA_Racial_Equity_Resolutio.pdf
- Shulman HB, D'Angelo DV, Harrison L, Smith RA, Warner L. The Pregnancy Risk Assessment Monitoring System (PRAMS): overview of design and methodology. *Am J Public Health*. 2018;108(10):1305-1313. doi:10.2105/AJPH.2018.304563
- Bulatao RA, Anderson NB, eds. *Understanding Racial and Ethnic Differences in Health in Late Life: A Research Agenda*. National Academies Press; 2004.
- Kotelchuck M. An evaluation of the Kessner Adequacy of Prenatal Care Index and a proposed Adequacy of Prenatal Care Utilization Index. *Am J Public Health*. 1994;84(9):1414-1420. doi:10.2105/AJPH.84.9.1414
- Hayes DK, Ta VM, Hurwitz EL, Mitchell-Box KM, Fuddy LJ. Disparities in self-reported postpartum depression among Asian, Hawaiian, and Pacific Islander Women in Hawaii: Pregnancy Risk Assessment Monitoring System (PRAMS), 2004-2007. *Matern Child Health J*. 2010;14(5):765-773. doi:10.1007/s10995-009-0504-z
- Wisconsin Public Health Association. Racism declaration: racism is a public health crisis. May 2018. Updated May 2020. Accessed August 23, 2020. <https://www.wpha.org/page/RacismDeclaration>
- Baratz S, Baratz J. Early childhood intervention: the social science base of institutional racism. *Harv Educ Rev*. 1970;40(1):29-50. doi:10.17763/haer.40.1.m243170whqq36766
- Paradies Y, Ben J, Denson N, et al. Racism as a determinant of health: a systematic review and meta-analysis. *PLoS One*. 2015;10(9):e0138511. doi:10.1371/journal.pone.0138511
- Lewis TT, Cogburn CD, Williams DR. Self-reported experiences of discrimination and health: scientific advances, ongoing controversies, and emerging issues. *Annu Rev Clin Psychol*. 2015;11:407-440. doi:10.1146/annurev-clinpsy-032814-112728
- Bor J, Venkataramani AS, Williams DR, Tsai AC. Police killings and their spillover effects on the mental health of black Americans: a population-based, quasi-experimental study. *Lancet*. 2018;392(10144):302-310. doi:10.1016/S0140-6736(18)31130-9
- Brondolo E, Brady Ver Halen N, Pencille M, Beatty D, Contrada RJ. Coping with racism: a selective review of the literature and a theoretical and methodological critique. *J Behav Med*. 2009;32(1):64-88. doi:10.1007/s10865-008-9193-0
- Ward EC, Clark le O, Heidrich S. African American women's beliefs, coping behaviors, and barriers to seeking mental health services. *Qual Health Res*. 2009;19(11):1589-1601. doi:10.1177/1049732309350686
- Shorter-Gooden K. Multiple resistance strategies: How African American women cope with racism and sexism. *J Black Psychol*. 2004;30(3):406-425. doi:10.1177/0095798404266050

Combatting Anti-Vaccination Misinformation: Improving Immunization Rates of Black/African American Children at UW Health

Sharon-Rose Nartey, BS; Jonathan Temte, MD, PhD, MS; Elizabeth Petty, MD

ABSTRACT

Introduction: Vaccine hesitancy is a rising public health threat, thwarting progress to reduce vaccine-preventable diseases. While drivers of racial disparities in childhood immunization rates (CIR) have been described, none have explored these disparities at UW Health, and few have highlighted the role of anti-vaccination (anti-vaxx) campaigns in the Black/African American (BAA) community.

Objectives: This quality improvement study evaluates childhood immunization data for racial and ethnic disparities, identifies possible drivers, and proposes equitable solutions.

Methods: UW Health CIR were analyzed for racial and ethnic disparities between December 31, 2015, and December 31, 2019. A root cause analysis was done to explore potential drivers. An in-depth media review of targeted anti-vaxx campaigns was chosen for further exploration using “anti-vaccine leaders targeting minority becomes growing concern at NYC forum” as the initial search query template. Google Trend and literature searches were performed to understand questions BAA parents have about vaccines.

Results: UW Health data show significant increasing racial and ethnic disparities in CIR. As of December 31, 2019, the immunization rates were 90.74% for White children, 88.11% for Asian children, and 68.29% for BAA children. Media review suggests anti-vaccination leaders have increasingly targeted the BAA community with vaccine misinformation and skepticism. Analysis of vaccine-related queries suggest 8 core questions BAA parents have about vaccines.

Conclusions: Health systems must assess their CIR for disparities and further dissect drivers to effect change. We focus on suggesting strategies to combat negative media campaigns, among others, to close the gap. Understanding of all factors is needed to develop effective interventions to reduce disparities in childhood immunization rates in the BAA community served by UW Health and beyond.

INTRODUCTION

Vaccine hesitancy, defined as the reluctance or refusal to vaccinate despite its availability, is one of the greatest threats to public health and thwarts years of progress in the fight against vaccine-

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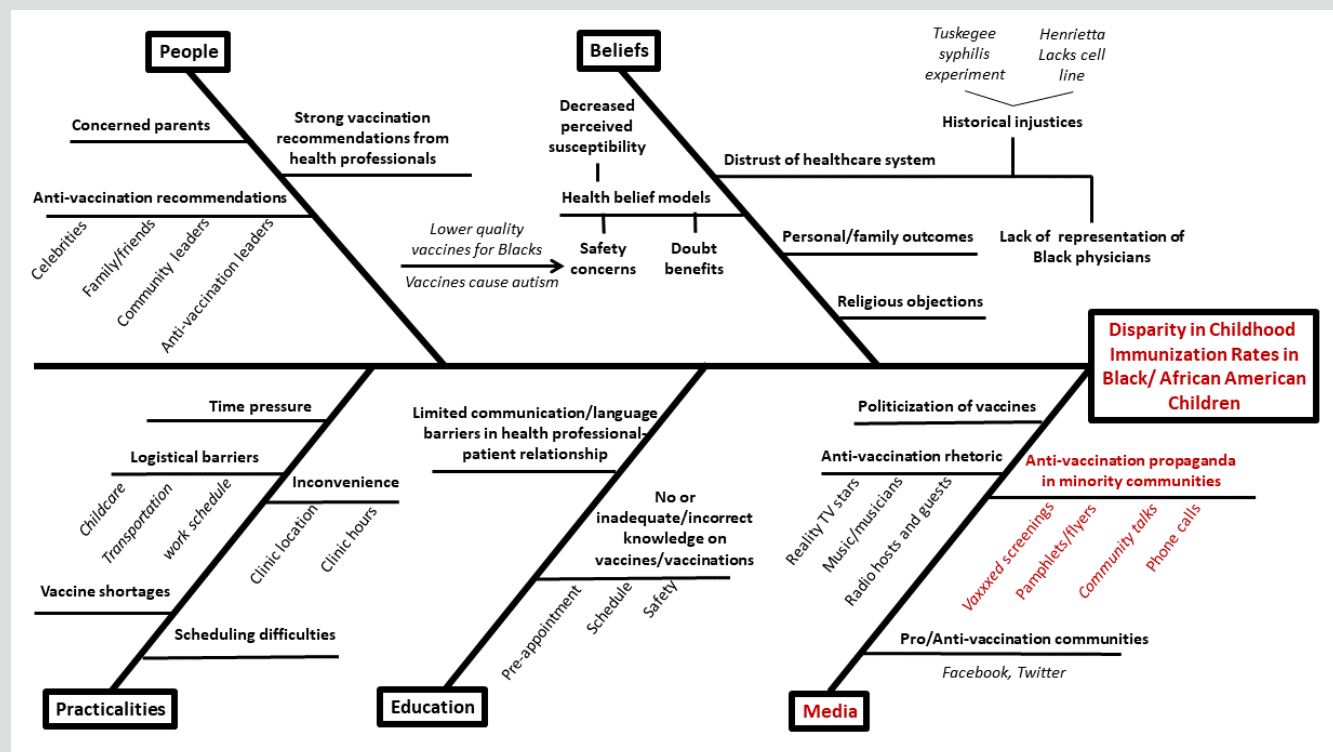
preventable diseases.¹ In 2019, the Centers for Disease Control and Prevention (CDC) reported 1,282 new cases of measles—the highest incidence in the United States since 1992.² Mumps and pertussis exhibited similar trends in the last decade, with the largest outbreaks seen since the introduction of their respective vaccines.

To avoid vaccine-preventable diseases, the CDC recommends a series of 10 vaccinations before age 2. Yet, disparities exist in childhood immunization rates (CIR). The 2019 Wisconsin Health Disparities Report (WHDR), for example, highlights a significant disparity in the immunization series between Black/African American (BAA) children and White children, with coverage rates of 70.54% and 82.74%, respectively.³ Shui et al suggest that concerns about vaccine safety, lack of information, and medical mistrust contribute to vaccine hesitancy in the BAA community,⁴ while Ventola asserts that moral or religious objections and lack of access due to socioeconomic factors are additional drivers.⁵ Schumaker highlights the role of anti-vaccination lead-

ers in vaccine misinformation and hesitancy in the Somali community.⁶

The aim of this initial stage of a quality improvement approach to explore this immunization disparity was threefold: (1) to assess whether increasing hesitancy has resulted in decreasing vaccination rates in BAA children in the past 5 years, using the UW Health as a model health care system; (2) to create a root cause analysis of possible drivers of the CIR disparity in the BAA community; and (3) to focus more deeply on one of the identified arms of the root

Figure 1. Root Cause Analysis Outlining 5 Drivers of the Disparity in Childhood Immunization Rates in the Black/ African American Community



Box. Terms Searched on Google

Initial search queries

- Antivax targets in minority communities
- Antivax in Black community

Related queries

- Vaxxed in Black community
- MMR in Black community
- MMR and autism in African American boys
- Vaxxed autism Black boys
- Nation of Islam antivaxx
- Robert F. Kennedy and Nation of Islam
- Louis Farrakhan vaccine
- Compton Vaxxed screening

cause analysis—the use of media as a means to drive the disparity. We felt that focusing on the media arm at this time was critically important given the urgency of elucidating the role media plays in vaccine hesitancy, as it might inform how immunization is approached in the era of the existing pandemic. With increased understanding of all factors that contribute to the hesitancy, effective interventions can be made to engage the BAA community, improve vaccine education, and decrease the immunization gap.

METHODS

The quality improvement FOCUS model was used to: F-find a problem, O-organize a team, C-clarify the problem, U-understand the problem, and S-select an intervention.

UW Health Disparity Search

The racial and ethnic disparities in childhood immunization rates

observed in the WHDR prompted a search of the UW Health system for similar disparities. UW Health is the integrated health system of the University of Wisconsin (UW)-Madison serving more than 600,000 patients each year in the Upper Midwest and beyond with approximately 1,750 physicians and 21,000 staff at 7 hospitals and more than 80 outpatient sites.

This project did not meet the federal definition of research pursuant to 45 CFR 46, according to UW-Madison's Quality Improvement/Program Evaluation Self-Certification Tool for education and social/behavioral science, and thus did not require institutional review board approval. A data request was filed using the UW Health ServiceNow portal. Input variables included:

- Year: 2015, 2016, 2017, 2018, 2019
- Childhood immunization coverage for 4:3:1:3:3:1:4 series — This measure calculated completion of the primary childhood series for children age 2, on or before their 2nd birthday.³
- Percent of children immunized by race/ethnicity: BAA, White, American Indian/Alaskan Native, Hispanic/ Latino, Asian/ Pacific Islander.

Root Cause Analysis

To clarify drivers of the CIR disparity in the BAA community, a root cause analysis was performed utilizing the fishbone diagram tool. Factors addressed in Shui et al⁴ and Ventola et al⁵ were explored as potential drivers. From these drivers, media was chosen for further analysis because of the likely increase in media-related

anti-vaxx misinformation between 2015 and 2020,⁶ while factors including education, practicalities, beliefs, and people were more likely to have remained constant (see Figure 1).

Google and Google Trends Searches

A media search was performed to explore whether minority communities had been targeted with anti-vaccination propaganda in 2015-2020. An incognito Google Chrome browser was used to minimize search bias, and the ABC News article “Anti-vaccine leaders targeting minority becomes growing concern at NYC forum,”⁶ was used as a search query template. From this article, the search queries were created (see Box).

Next, to understand questions parents have about vaccines, a procedure similar to Elkin et al⁷ was followed, utilizing Google Trends to mimic “real-life” vaccine information searches conducted by parents. Table 1 from Elkin et al was used as a template for search queries and related queries. Queries were updated on June 8, 2020 by entering each one into the Google Trends database and assessing for additional related queries, which were termed “modified related queries.” Search queries, related queries, and modified related queries were pooled to form a comprehensive, stratified list of questions parents shared concerning vaccines.

To mimic search queries by BAA parents, pooled queries were matched with concerns BAA mothers raised in Shui et al,⁴ resulting in 8 core queries:

1. Are vaccines safe?
2. Are vaccines safe for infants?
3. What is in vaccines?
4. Information about vaccines
5. Are vaccines dangerous?
6. Vaccines cause autism
7. Vaccines pros and cons
8. Should I vaccinate my baby?

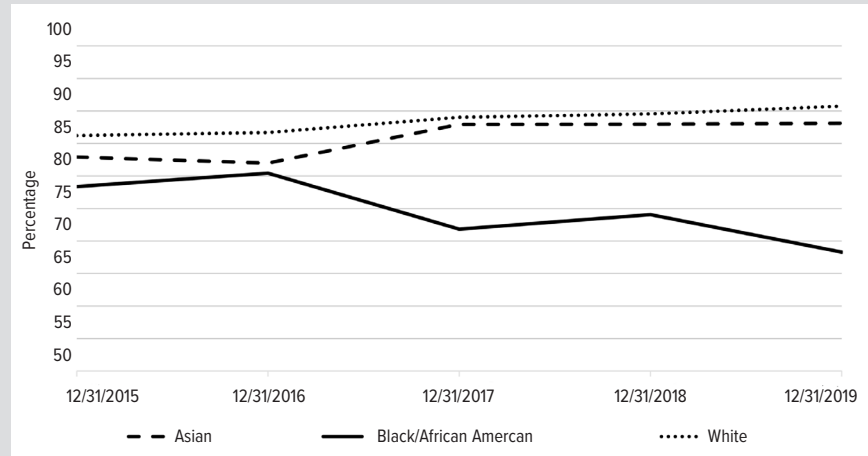
These queries were analyzed for changes over time between January 1, 2015 and June 9, 2020, using advanced search on Google Trends. Data were imported from Google and graphed using Microsoft Excel.

RESULTS

UW Health Childhood Immunization Rates

Data revealed a growing disparity in the CIR of patients of differing racial/ethnic groups at UW Health (Figure 2). A root cause analysis identified a unique rise in anti-vaxx rhetoric and propaganda (Figure 3).

Figure 2. UW Health Childhood Immunization Rates, 2015-2019



As of December 31, 2019, the childhood immunization rate was White: 90.74%, Asian: 88.11%, and Black/African American: 68.29%.

Google Search

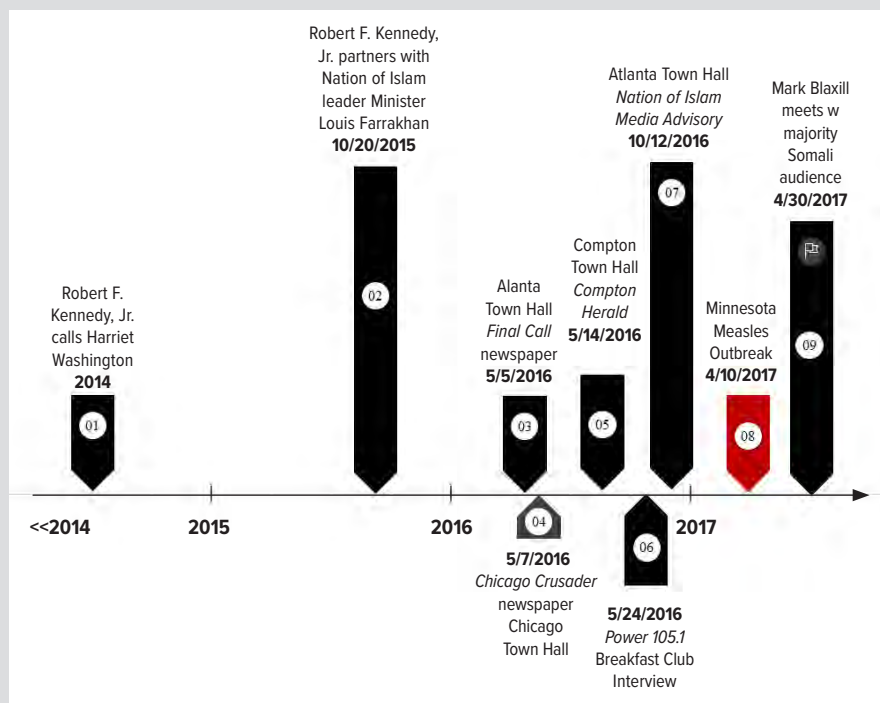
The Google search revealed a number of examples in which the BAA community were targeted through the media with anti-vaccination messages between 2015 and 2019, including the following.

After the 2014 measles outbreak at Disneyland, California Senate Bill (SB) 277 was introduced, outlawing personal and religious immunization exemptions for children attending school.⁸ This was opposed by Nation of Islam Minister Tony Muhammad, who warned African American lawmakers and members of the California Legislative Black Caucus that supporting the bill was a “traitorous act” and that “they [would] not be welcome in the Black community if they vote[d] like that.”⁹ Nation of Islam head Minister Louis Farrakhan also urged Black families in Los Angeles to keep their children home from school if SB 277 was passed, asserting that vaccines were linked to autism, particularly in Black male children.¹⁰

On October 20, 2015, Send2Press Newswire released an article indicating anti-vaccination leader Robert F. Kennedy, Jr., had requested a meeting and subsequently partnered with Farrakhan.^{11,12} On May 5, 2016, the official Nation of Islam newspaper, *The Final Call*, advertised an anti-vaccine conference in Atlanta featuring the documentary “*Vaxxed: From Cover-Up to Catastrophe*.” The film alleged the CDC withheld information about the dangers of vaccines and that the MMR vaccine resulted in a 3.36 increased risk for autism in BAA boys. The article also noted that a similar townhall meeting was scheduled on May 7, 2016 in Chicago.

The Chicago townhall was publicized by the *Chicago Crusader*, a newspaper circulating in 23 predominately BAA Chicago communities.¹³ In its April 29, 2016 publication “Did the CDC Cover-Up a Vaccine/ Autism Connection?”, the authors encouraged readers to attend the town hall to watch the *Vaxxed* documentary, discuss questions like “have certain childhood vaccines

Figure 3. The Spread of Vaccine Hesitancy via Media and Community Events



Between 2015 and 2017, the Robert F. Kennedy, Jr. and Nation of Islam partnership, led to town halls in Atlanta, Chicago, and Compton that were advertised via news media. Additional outlets included radio shows such as *The Breakfast Club*.

caused an increase in autism in Black children, particularly boys?” and participate in a discussion with the documentary’s producer and director, Andrew Wakefield and Del Bigtree. Nation of Islam Ministers Ishmael Muhammed and Tony Muhammad and epidemiologist Brian Hooker, PhD, PE, also were there.¹⁴

On May 14, 2016, the *Compton Herald* released the article “Vaxxed: Smoking gun on autism in Black boys, others,”¹⁵ which detailed claims of the Vaxxed documentary and advertised a movie screening on May 19, 2016. During the Compton question and answer session, Del BigTree stated:

“Medicine is supposed to be about health. The CDC is supposed to be about protecting everybody in the country and in the world, and they’ve failed us there...I just want anyone that has a vaccine-injured family member, could you please stand up right now? This is not right. You’ve been harmed, you’ve been lied to, we’ve all been lied to, but I want you to know this: we have heard your story. We are here. This story is now being told and tonight from here on out you are going to be listened to and we are going to make sure the world hears your story.”¹⁶

The next speaker relayed historical injustices in the Black community, including experimentation on slaves by Dr. Marion Sims, The Tuskegee Syphilis experiment, and the current “holocaust” of Black children via “autism-causing” vaccines, encouraging the crowd to “take back [their] communities, take back

[their] children...walk out of the doctors’ offices and decide, no, [they were] not going to take that shot in the dark.”¹⁶ On May 24, 2016, the Breakfast Club, a prominent radio show on Power 105.1 in New York City, aired an interview with Farrakhan where he stated, “There are scientists who worked for the CDC, that have blown the whistle and admitted that they were a part of creating genetically specific vaccines that do damage to Black boys...If you’re pregnant right now, I pray to God you are wise enough to protect what’s growing in your womb...we are too trusting of our enemies.”¹⁷

On October 12, 2016, the Nation of Islam released a media advisory calling for “safe vaccines now!” and encouraged readers to attend another Atlanta-based protest and town hall meeting. Like the Compton town hall, this included Wakefield, Hooker, Bigtree, Farrakhan, and Kennedy via skype. This also focused on the “CDC cover-up of research showing links between...vaccines and autism in Black boys.”¹⁸ Protestors and

participants were expected from across the country.

Google search also revealed a pdf titled “Mandates-African-American-Facts,” which was linked to childrenshealthdefense.org, an organization for which Kennedy serves as chair of the board of directors and senior prosecuting attorney. The pdf lists the following 8 “facts,” along with supporting statements and reference links.¹⁹

1. CDC has destroyed evidence that Black boys are 3.36 times more likely to develop autism if they receive the MMR vaccine before age 3.
2. CDC published their results in *Pediatrics* in 2004, but they omitted the damaging data. The study fraudulently declared there was no risk of autism from the MMR vaccination.
3. An estimated 162,000 African American male children might have been spared debilitating neurological injury if the CDC scientists had told the truth when the increased risk was first known to them in 2001.
4. Black children with autism are more likely to have severe autism.
5. African Americans may have increased susceptibility to neurological disorders such as autism.
6. African Americans may be more susceptible to vaccine injuries.
7. The Tuskegee Experiment shows CDC’s continued blatant disregard for the health of Black sharecroppers.
8. CDC experiments on low-income black and Hispanic infants without informing the parents.¹⁹

On May 5, 2017, *Time Magazine* reported Minnesota was in the midst of its largest measles outbreak in 30 years, with 41 confirmed cases and 11 hospitalizations.¹⁰ Doug Shultz, spokesman for the Minnesota Department of Health, told *The New York Times* that “anti-vaccine activists had targeted members of the Somali community in Minnesota.”²⁰ US-born children of Somali descent previously had the highest rates of MMR vaccination in Minnesota.²¹ However, in 2008, Somali-American parents noticed more of their children were being enrolled in school programs for children with autism spectrum. According to a University of Minnesota study, however, the rate of autism in Somali versus White children in Minneapolis was 1 in 32 versus 1 in 36, respectively; statistically insignificant.²² Despite this finding, rates of childhood vaccination plummeted from 92% to 42% between 2004 and 2014. Additionally, Wakefield made at least 3 private appearances to Somali parents of autistic children between 2010 and 2011.²¹ Sharif Abdirahman, Muslim leader at the Dar al Hijrah mosque in the Cedar-Riverside neighborhood of Minneapolis, stated, “I think the impact [of Wakefield] was very, very, very severe because he linked MMR and autism and, because of that, the Somali community feared the MMR.”²³ Also during the 2017 Minnesota measles outbreak, anti-vaccination leader Mark Blaxill met with a group of 90 Minnesotans—mostly Somali parents—and presented information on measles, autism rates, and the MMR vaccine and how parents could opt out of vaccinations, providing forms and access to a notary public.²⁴

In a 2019 *ABC News* report, Harriet Washington, author of “Medical Apartheid” and activist whose work focuses on the mistreatment of African Americans by certain medical professionals throughout history, recalled her unexpected phone call from Kennedy in 2014.⁶ She remembered discussing his claim that African-American boys were being used in secret vaccine experiments and the parallel he drew to the Tuskegee experiment. When asked for proof, she said “he became very angry and started shouting at [her],” claiming she “was somehow being disloyal to African Americans.”⁶

Anti-vaccination targets are not unique to the BAA community. In New York, unvaccinated and under-vaccinated Orthodox Jews—particularly children—were targeted by anti-vaccination groups such as Parents Educating and Advocating for Children’s Health, which provided misinformation about vaccine safety while citing rabbis as authorities.²⁵ This tight-knit under-vaccinated community that went to school, worshiped, lived, and traveled together, was especially susceptible to a measles outbreak, just like the Somali community in Minnesota, the Amish in Ohio, and the Russian-language immigrants in Washington.²⁵

Google Trends Search

Trends showed a recent increase in the following search queries: “should I vaccinate my baby,” “are vaccines dangerous,” “what is in vaccines,” and “are vaccines safe?”

DISCUSSION

Childhood Immunization Disparity in the UW Health System

UW Health is a Wisconsin leader in childhood immunization coverage. Between January 2015 and June 2019, the Wisconsin Collaborative for Healthcare Quality reported UW Health CIR increased from 85.58% to 87.78%, compared with statewide averages of 78.32% and 81.91%, respectively.²⁶ However, there are significant racial and ethnic disparities. The 2019 WHDR revealed a statewide disparity between BAAs and Whites, with CIR of 70.54% and 82.74%, respectively. At the time of the report, the immunization rate of BAA children at UW Health was 74.04%. In December 2019, it dropped to 68.29%. Importantly, continual declines in CIR were observed only in the BAA community. Vaccination rates in the White community remained relatively constant, while rates in the Asian community increased between 2015 and 2019. The American Indian/Alaska Native and Native Hawaiian/Pacific Islander groups were excluded due to their small sample size (n = 13 and n = 11, respectively).

This glaring disparity prompted a root cause analysis of possible factors contributing to the low vaccination rate in BAA children. We identified 5 overarching categories: people, beliefs, practicalities, education, and media. Because of the sudden drop in CIR between 2016 and 2017 and the continual drop thereafter, we explored factors that may have contributed between 2015 and 2020 and were particularly interested in the possible media contribution.

Anti-vaccination Leaders Exploit Fears of Minority Communities

Anti-vaccination leaders continue to target minority groups, such as the BAA community, and promote medical mistrust, using anecdotes and historical injustices as their standard of proof. When Kennedy reached out to Harriet Washington in 2014, he expected an easy target as she had a history of critiquing racism in the medical establishment. However, after calling him to a higher burden of proof, he retorted with an emotional appeal: she was being disloyal to her race. Despite this “setback,” he continued to pursue partnerships with Black community leaders. In 2015, he found an entry via Nation of Islam leader Farrakhan. After the release of *Vaxxed*, the duo partnered with Wakefield and Bigtree.

This group strategically marketed misinformation in BAA communities, specifically in Compton, Atlanta, Chicago, and Minnesota. They publicized their events using Nation of Islam press releases or newspapers and radio broadcasts with a predominantly BAA audience. During town halls, they employed emotional appeals, first asking if attendees had been “victims of vaccines” and then likening the increase in autism in the Black community to Tuskegee and the Holocaust. After inciting the audience, they screened *Vaxxed* and focused on the claim that Black boys were more likely to become autistic after the MMR vaccine.

Anti-vaccination leaders may have believed they were acting in the best interest of the Black community. However, the Minnesota measles outbreak suggests otherwise. The Somali community

initially had one of the highest vaccination rates in the state. However, after repeated visits from Wakefield and misinformation about the MMR vaccine and autism, vaccine coverage plummeted to 42% in children under age 2. This stark drop in herd immunity made the Somali community an easy target in the 2017 measles outbreak, with 81% of total cases. During the outbreak, Blaxill convened with a group of mostly Somali parents and continued to offer information on how to avoid vaccinations, curtailing efforts of physicians and public health leaders, and worsening the outbreak.²⁴

Tuskegee and Years of Medical Distrust

To prevent further outbreaks in Black communities that already face the burden of systemic racism and inadequate access to health care, health systems and professionals must be intentional in their quest for understanding and address the fears anti-vaccination leaders inflame. The last widow receiving benefits from the Tuskegee Health Benefit Program died in 2009. Thus, we cannot expect an easy answer when confronting generations of trauma and distrust of the health care system.

Combatting the Negative Media Campaign and Building Trust

Antivaccination leaders have highlighted the importance of strategic partnerships with community leaders and trust-building through active involvement with the community. To alleviate health disparities, health systems must follow a similar model.

The Black Barbershop Outreach Program (BBOP) is a national organization with the aim of decreasing the cardiovascular disease and diabetic burden in the BAA male population. Through these previously established networks of trust, they have reached over 10,000 men nationwide and contend that community-partnered principles are necessary when seeking solutions for health disparities.²⁷

Health care-beauty salon partnerships can be mobilized to reach, educate, and reinforce public health interventions aimed at BAA women.²⁸ Linnan et al contend the cosmetologist-customer relationship is a unique blend of loyalty, trust, support, and comfort.²⁸ Madigan et al find clients regard their stylist as trusted advisors,²⁹ and health is a typical topic of conversation during visits that range from 45 minutes to 5 hours.²⁸ Thus, beauty salons present captive audiences of mostly female clientele and offer safe, resourceful, and culturally appropriate ways to exchange information between the medical and BAA community.²⁸

Health care organizations must show their dedication to building trust and diminishing disparities within the BAA community by allocating funding to their community and public health departments. These departments in turn should create committees of key stakeholders, including community leaders and organizations (such as churches and beauty and barber shops),^{27,28,30,31} physicians, and public health experts. Such partnerships are effective ways to improve health outcomes. Willis et al demonstrate the efficacy of such partnerships in their study exploring interventions to

reduce CIR disparities in predominantly BAA, low socioeconomic children in Milwaukee.³² Through their community-based participatory research approach, they demonstrate increases in CIR from 45% baseline to 82% in children age 19 to 35 months. Thus, the cocreational model with key stakeholders is essential for building trust, planning culturally competent health care interventions, and improving health outcomes in underserved communities.

Decreasing the Childhood Immunization Rate Disparity in the Black Patient Population

The Google Trends search indicated a recent rise in vaccine-related queries, specifically, “should I vaccinate my baby,” “are vaccines dangerous,” “what is in vaccines,” and “are vaccines safe?” Increased vaccine hesitancy increases risk for misinformation. To prevent this, health care providers must find strategic ways to correctly and adequately inform Black parents about the necessity of childhood vaccinations.

The Gundersen Health System provides a model for prenatal visits that can be adapted to improve childhood vaccination rates in the BAA community. On its website, there is an appointment planner and checklist for expecting mothers. During months 4, 5, and 6, the checklist includes signing up for prenatal classes. As access to care is an identified barrier in the BAA patient population, the transition to virtual classes may address issues of transportation and childcare barriers in prenatal education. Additionally, Wisconsin has the highest Black infant mortality rate in the country and high rates of prematurity.³⁴ Fifteen percent of Black babies are born prematurely versus 8.6% of White babies, and 60.3% of BAA mothers have adequate prenatal care rates, compared to 83.4% of White mothers.³⁴ Thus, prenatal classes are critical for the Wisconsin BAA population.

Prior to classes, expecting mothers should be asked to complete a questionnaire of items they wish to cover during prenatal classes. This questionnaire also should include a survey on vaccination beliefs, using the 8 core queries listed previously as a model. After completing the survey, high-risk parents should be enrolled in a free, live virtual class on vaccine safety,³⁵ in addition to their itemized prenatal classes. Moderate and low-risk parents should be given a prerecorded video on vaccine safety but have the option to opt-in to a live session. Mothers also should be given the option to have a virtual class with a racially concordant physician, as this has been shown to increase perceived trust in the patient-physician relationship.³⁶ All sessions should provide a historical context for vaccinations and address the 8 core queries. Live sessions should also include an additional question-and-answer session.

Community partnerships with beauty salons and churches present additional opportunities to engage BAA women. The BBOP model uses trained hairstylists to deliver health promotion messages, including diabetes, hypertension, and chronic kidney disease prevention and management.²⁷ Similarly, health care systems should partner with and train cosmetologists to provide prenatal

and vaccine-related information to expecting mothers, incorporating highlights from virtual prenatal classes and addressing the 8 core queries. Church partnerships could be used to expand on this model by providing prenatal classes with trained community leaders during the week. These classes would cover all elements of virtual classes and provide a vaccine hesitancy class, answering the queries in a culturally sensitive manner. Church partnerships also may build trust between the medical community and older generations who have stronger ties to experiences like Tuskegee. This multigenerational, multifaceted approach is a step towards uprooting years of distrust between the medical and BAA community and improving childhood immunization rates.

Future Directions

In the initial phase of this quality improvement approach to address immunization disparities in the BAA community, we did a root cause analysis, conducted a detailed review of one of the possible factors driving the CIR disparity in the BAA community, and propose an innovative virtual approach to engage the BAA community. COVID-19 presents a unique opportunity to address practicalities, such as logistical barriers and clinic hours, by providing patient education via telehealth. In future phases, we will explore strategic ways to market this approach through community partnerships and secure buy-in from key stakeholders in the BAA community and health care system to implement interventions and test their efficacy. Additionally, future focus groups will assess current immunization attitudes in the BAA community, including the impact of anti-vaccination exposure on social media and its influence on parent attitudes and decisions about childhood immunizations.

Limitations

Although we present factors in the media paralleling the time of the CIR decline at UW Health, this is not enough to state they were drivers of the CIR disparity. Thus, we present our findings as possible drivers of the disparity. Additionally, our 8 core queries were based on findings from Google Trends and the 2005 focus group study by Shui et al.⁴ Current factors influencing African American mothers' concerns about vaccine safety may differ from those reported in their study. Hence, the queries should be used as initial guiding questions on vaccine beliefs.

CONCLUSION

It is more critical than ever to understand the fears parents have about vaccines as this may inform transgenerational immunization approaches during the current COVID-19 pandemic. Although the BAA population has been disproportionately affected by COVID-19, surveys suggest they are the least likely to receive the vaccine.³⁷ Thus, understanding drivers is vital in protecting the BAA community at large.

Fears may stem from years of systemic racism and the failure of

the medical system to listen to and build trust with the community. More recently, misinformation from anti-vaccination groups has increased mistrust in the Black community. Moving forward, health systems must assess their own CIR for racial/ethnic disparities and further dissect the people, beliefs, practicalities, education, and media that drive this disparity. From there, they must develop 5-year strategic plans to improve the CIR in the Black community to the Healthiest Wisconsin 2020 standard of 90%. Here, we have presented 8 core queries in the BAA community that are consistent with both literature and Google search queries. Combined with the Gundersen Health System model, the queries are a step in combatting misinformation and ensuring our pediatric population is protected in the fight against racism and for health equity.

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REFERENCES

1. Improving vaccination demand and addressing hesitancy. Essential Programme on Immunization. World Health Organization. Updated June 17, 2020. Accessed July 28, 2020. <https://www.who.int/teams/immunization-vaccines-and-biologicals/essential-programme-on-immunization/demand/>
2. Center for Disease Control and Prevention. Measles (Rubeola). Updated June 9, 2020. Accessed July 28, 2020. <https://www.cdc.gov/measles/cases-outbreaks.html>
3. Wisconsin Collaborative for Healthcare Quality and the University of Wisconsin Health Innovation Program. 2019 Wisconsin Health Disparities Report. Published 2019. Accessed July 28, 2020. <https://www.wchq.org/disparities.php>
4. Shui I, Kennedy A, Wooten K, Schwartz B, Gust D. Factors influencing African-American mothers' concerns about immunization safety: a summary of focus group findings. *J Natl Med Assoc.* 2005;97(5):657-666.
5. Ventola CL. Immunization in the United States: recommendations, barriers, and measures to improve compliance: part 1: childhood vaccinations. *P T.* 2016;41(7):426-436.
6. Schumaker E. Anti-vaccine leaders targeting minority becomes growing concern at NYC forum. *ABC News.* November 10, 2019. Accessed January 31, 2020. <https://abcnews.go.com/Health/rfk-jrs-york-city-vaccine-forum-highlights-concerns/story?id=66158336>
7. Elkin LE, Pullon SRH, Stubbe MH. 'Should I vaccinate my child?' comparing the displayed stances of vaccine information retrieved from Google, Facebook and YouTube. *Vaccine.* 2020;38(13):2771-2778. doi:10.1016/j.vaccine.2020.02.041
8. Martinez M. California vaccine bill that bans personal, religious exemptions advances. *CNN Health.* June 25, 2015. Accessed July 28, 2020. <https://www.cnn.com/2015/06/25/health/california-vaccine-bill/index.html>
9. McGreevy P. Nation of Islam opposes California vaccine mandate bill. *Los Angeles Times.* June 22, 2015. Accessed June 18, 2020. <https://www.latimes.com/local/political/la-me-pc-nation-of-islam-california-vaccine-mandate-bill-20150622-story.html>
10. Playing the race card on vaccines. *The Sacramento Bee.* June 24, 2015. Accessed June 21, 2020. <https://www.sacbee.com/opinion/editorials/article25368613.html>
11. Robert F. Kennedy Jr. and Minister Louis Farrakhan uniting to demand truth and transparency from alleged fraud by CDC. *Send2Press Newswire.* October 20, 2015. Accessed June 18, 2020. <https://www.send2press.com/wire/robert-f-kennedy-jr-and-minister-louis-farrakhan-uniting-to-demand-truth-and-transparency-from-alleged-fraud-committed-by-cdc-2015-1020-02/>

12. Muhammad ET. Demanding CDC transparency and protesting unsafe vaccines. *The Final Call*. May 5, 2016. Accessed June 18, 2020. https://www.finalcall.com/artman/publish/National_News_2/article_103085.shtml
13. The Crusader Newspaper. About the Crusader. Accessed July 28, 2020. <https://chicagocrusader.com/about/>
14. Did the CDC cover-up a vaccine/autism connection? *Chicago Crusader*. April 29, 2016. Accessed June 18, 2020. <https://chicagocrusader.com/cdc-cover-vaccineautism-connection/>
15. Grgodjaian M. Vaxxed: Smoking gun on autism in Black boys, others. *Compton Herald*. May 14, 2016. Accessed February 16, 2021. <https://arlenehowardpr.com/proven-results/smoking-gun/>
16. Kesel A. Vaxxed; Del Bigtree has Q&A with Compton and the Nation of Islam. *We Are Change*. May, 20 2016. Accessed July, 28, 2020. <https://news4achange.com/vaxxed-qa-compton/>
17. Minister Farrakhan full interview at The Breakfast Club Power 105.1. Breakfast Club Power 105.1 FM. May 24, 2016. Accessed July 12, 2020. <https://www.youtube.com/watch?v=-xe7G4VnZE>
18. Safe vaccines now! Friday protest and town hall meeting highlight links between autism, tainted vaccines and children. Media advisory. Nation of Islam. October 12, 2016. Accessed July 28, 2020. <https://www.noi.org/cdc-protest-autism-vaccines/>
19. Children's Health Defense. Mandates African American facts. Accessed ???. <https://childrenshealthdefense.org/wp-content/uploads/Mandates-African-American-Facts.pdf>
20. Jenkins A. Minnesota is experiencing its largest outbreak of measles in nearly 30 years. *TIME Health Newsletter*. May 5, 2017. Accessed June 19, 2020. <https://time.com/4769385/minnesota-measles-outbreak-vaccine/>
21. Sun LH. Anti-vaccine activists spark a state's worst measles outbreak in decades. *The Washington Post*. May 5, 2017. Accessed June 19, 2020. https://www.washingtonpost.com/national/health-science/anti-vaccine-activists-spark-a-states-worst-measles-outbreak-in-decades/2017/05/04/a1fac952-2f39-11e7-9dec-764dc781686f_story.html
22. Benson L. Study: Mpls. Somali, white children equally susceptible to autism. *MPR News*. December 16, 2013. Accessed June 20, 2020. <https://www.mprnews.org/story/2013/12/16/study-mpls-somali-white-children-equally-susceptible-to-autism>
23. Buncombe A. How a Muslim community overcame disinformation linking vaccines to autism. *Independent*. May 6, 2018. Accessed June 19, 2020. <https://www.independent.co.uk/news/world/americas/andrew-wakefield-anti-vaxxer-measles-outbreak-minneapolis-muslim-anti-vaccine-a8331866.html>
24. Alder E. Speaker says vaccines and autism may be linked, a view denied by public health officials. *Star Tribune*. May 2, 2017. Accessed June 21, 2020?. <https://www.startribune.com/speaker-says-vaccines-and-autism-may-be-linked-a-view-denied-by-public-health-officials/420859653/>
25. Belluz J. New York's Orthodox Jewish community is battling measles outbreaks. Vaccine deniers are to blame. *Vox*. April 10, 2019. Accessed June 12, 2020. <https://www.vox.com/science-and-health/2018/11/9/18068036/measles-new-york-orthodox-jewish-community-vaccines>
26. Wisconsin Collaborative for Healthcare Quality. Measure results: childhood immunization status. Accessed July 28, 2020. <https://reports.wchq.org/measure-results/215>
27. Releford BJ, Frencher SK Jr, Yancey AK. Health promotion in barbershops: balancing outreach and research in African American communities. *Ethn Dis*. 2010;20(2):185-188.
28. Linnan LA, Ferguson YO. Beauty salons: a promising health promotion setting for reaching and promoting health among African American women. *Health Educ Behav*. 2007;34(3):517-530. doi:10.1177/1090198106295531
29. Madigan ME, Smith-Wheelock L, Krein SL. Healthy hair starts with a healthy body: hair stylists as lay health advisors to prevent chronic kidney disease. *Prev Chronic Dis*. 2007;4(3):A64.
30. Palmer K, Rivers P, Melton F, et al. Protocol for a systematic review of health promotion interventions for African Americans delivered in US barbershops and hair salons. *BMJ Open*. 2020;10(4):e035940. doi:10.1136/bmjopen-2019-035940
31. Linnan LA, D'Angelo H, Harrington CB. A literature synthesis of health promotion research in salons and barbershops. *Am J Prev Med*. 2014;47(1):77-85. doi:10.1016/j.amepre.2014.02.007
32. Willis E, Sabnis S, Hamilton C, et al. Improving immunization rates through community-based participatory research: community health improvement for Milwaukee's Children Program. *Prog Community Health Partnersh*. 2016;10(1):19-30. doi:10.1353/cpr.2016.0009
33. Victor RG, Ravenell JE, Freeman A, et al. Effectiveness of a barber-based intervention for improving hypertension control in black men: the BARBER-1 study: a cluster randomized trial. *Arch Intern Med*. 2011;171(4):342-350. doi:10.1001/archinternmed.2010.390
34. Annual Wisconsin Birth and Infant Mortality Report 2017. Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services; 2019. Accessed July 3, 2020. <https://www.dhs.wisconsin.gov/publications/p01161-19.pdf>
35. Children's Hospital of Philadelphia. Vaccine Education Center. Accessed January 7, 2021. <https://www.chop.edu/centers-programs/vaccine-education-center>
36. Capers Q IV, Sharalaya Z. Racial disparities in cardiovascular care: a review of culprits and potential solutions. *J Racial Ethn Health Disparities*. 2014;1(3):171-180. doi:10.1007/s40615-014-0021-7
37. Szilagyi PG, Thomas K, Shah MD, et al. National trends in the US public's likelihood of getting a COVID-19 vaccine-April 1 to December 8, 2020. *JAMA*. 2020;325(4):396-398. doi:10.1001/jama.2020.26419

Listening to Black Women: The Critical Step to Eliminating Wisconsin's Black Birth Disparities

Lisa Peyton-Caire, MEd; Alia Stevenson, MS

Black women's health is in a state of emergency in Wisconsin. The efforts of Black women-led movements have brought growing attention to the harsh realities of our nation's deepest and most persistent health disparities, among them, the startling differences in birth outcomes between Black women and White women. Nowhere is this issue more pressing and relevant than in the state of Wisconsin, which carries the unfortunate designation as first in the nation for Black infant mortality,¹ and where Black women are 5 times more likely than their White peers to die in childbirth or of pregnancy-related complications.² Presently, babies born to Black mothers in Wisconsin are 3 times more likely than White babies to be born prematurely, placing them at increased risk of significant health and developmental challenges and of dying within the first year of life. This alarming public health crisis is mirrored in Dane County, the seat of the state's capital, where Black babies are 2 times more likely than White babies to be born too soon and too small and to die before their 1st birthday.³

Wisconsin's poor birth outcomes for Black

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mothers and their babies unfold alongside a troubling record of stubborn health disparities across the state. Though African Americans comprise roughly 6% of the total population,

The lives of Black mothers and babies depend on our ability to get this right, and the next decade is our crucial window of opportunity to chart a powerful new course.

they are overrepresented in all major categories of disease and illness, including hypertension, heart disease, diabetes, cancer, stroke, obesity, and reproductive disorders. Black women and men are more likely than their peers to live with and die from treatable and preventable illnesses and at younger ages and, despite greater access to health care in Wisconsin than in many other states, African Americans still experience the worst overall health outcomes than any other group. Alarming, recent data suggest that Wisconsin is the only state in the US where the life expectancy gap between Black and White women is widening.⁴ These and other preexisting health inequities have been compounded by the arrival of the COVID-19 pandemic and its disproportionate impact on Black communities.

What is definitively clear is that Black women's health in Wisconsin is in a state of emergency. The disturbing status of Black maternal

and child health warrants urgent and decisive action on the part of policymakers, health care systems, medical practitioners, and communities to find solutions that turn the tide sooner

than later. One such effort in Dane County, the Saving Our Babies initiative, is demonstrating promising progress by centering Black women's voices and leadership to shape long-term solutions.

Black Women Cite Racism as Root Cause of Racial Birth Disparities

For the past 3 years, the Foundation for Black Women's Wellness has partnered on the Saving Our Babies initiative, an unprecedented cross-sector collaboration initiated by the Dane County Health Council to improve Black mothers' birth outcomes. The project is an extension of the Council's work over the past 20 years to support and implement efforts that improve maternal and child health, and specifically to eliminate racial birth disparities. The Foundation was retained to design and carry out a community engagement process that centered Black women, men, and community

members as key informants to identify root causes and solutions to the lingering low birth-weight and infant mortality crisis.

In April 2019, after 9 months of listening and gathering input from 300 mostly Black female participants, we released the *Saving Our Babies Report*⁵ to share our findings and propose a focused set of community-informed recommendations and strategies. The report and its subsequent framework of actions represent a major departure from typical change efforts that are driven by systems rather than by community and that exclude community from the process of shaping and devising solutions. The prioritization of Black women's voices in this work is its defining feature and has illuminated the root causes of Black birth disparities from the perspective of those most affected.

We used a comprehensive, multilayered process to collect both quantitative and qualitative data to inform the *Saving Our Babies* report. Our tools included a participant survey, open-ended written questionnaire, and engagement session notes. The participant survey collected standard data on personal demographics, health history, health care experiences, family planning and pregnancy, perceptions of well-being, and social determinants of health indicators (ie, housing, food, and income security and health care coverage). The participant questionnaire captured qualitative data, including health care experiences, lifestyle and living experiences in Dane County, relationships, and social emotional support. A facilitated group discussion followed the survey and questionnaire and was supported by scribed session notes to add context and clarity to participant responses and comments.

What we heard from participants in this process was strikingly clear: racism is the greatest risk factor affecting their health and birth outcomes. Their stories pointed to 3 significant realities that shape their lived experiences and exert a perpetual state of stress that deeply affects their mental and physical health: (1) stressed Black family systems, (2) generational struggle for economic stability, and (3) systemic racism and its effect on every facet of daily life. Participants cited a pattern of racialized experiences and opportunity imbalance across education, employment,

Box. Quotes From Interviews With Black Women

"So I would say the barrier to my health and well-being at that time in my life was the medical system—the doctors—not listening or not recognizing or not acknowledging that my life was in danger despite the evidence to the contrary." – AS

"It took me to switch my doctors, and my [new] doctor did 1 exam and sent me to a specialist and figured out what was wrong with me. Being it took so long and I was in so much pain, I had to get a partial hysterectomy. That might have not happened if my doctor actually listened to me and listened to everything that I was telling him." – CW

"I also think there's this misconception that in Wisconsin the reason why the infant mortality and maternal mortality rates are high is because something about lack of health care. It's not about the lack of health care. We all have access to health care. It's just when we go to the health care providers, we're not listened to." – AK

health care, housing, and community life that relegates them and their families to a second-class status, leaving them susceptible to poor health outcomes and the legacy of disparity that persists in our region.

This broad analysis of the root causes of Dane County's poor Black birth outcomes is reframing the local narrative and systemic approach to addressing racial birth inequities and has spurred the engagement of sectors beyond health care, including local and state government, business, and philanthropy, to assume greater accountability for shaping conditions that support Black family stability and well-being.² Most importantly, the *Saving Our Babies* initiative has positioned Black women as critical partners in the work alongside systems to drive change.

Progress Accelerates When Black Women and Community Shape Solutions

The *Saving Our Babies* coalition continues to build momentum on implementing solutions shaped by the voices of Black women. Over the last year, partners have worked together to secure funding to support the creation of a care coordination system that will be implemented across each of Dane County's 5 major health systems and will screen and link patients (with an initial focus on Black mothers) to resources that address their social determinants of health needs.⁶ Investments have been committed to expand the pool of African American doulas, birth workers, and neighborhood-based com-

munity health workers as critical players in the health care ecosystem for Black mothers and families. In August 2020, partners celebrated the launch of the Black Maternal and Child Health Alliance, an independent body of birth equity advocates who will advance strategies that improve the reproductive, maternal, and newborn health of the county's Black population.⁷ In addition to these community investments, the *Saving Our Babies* report also recommends deep internal investments within health care systems and external efforts beyond health care that further favorable policies that advance economic security for Black women and families. Internal health system actions must include rooting out racial bias in health care delivery; expanding cultural competence among practitioners; building robust diversity, equity, and inclusion infrastructures; and expanding promising perinatal health initiatives. Furthermore, health systems must become active and vocal advocates in convening and driving cross-sector alliances that address the social determinants of health that lie at the root of racial health disparities.

Listen to and Believe Black Women –The Imperative That Will Turn the Tide

Building upon these and other promising developments, the Foundation for Black Women's Wellness recently embarked on a broader engagement effort to shape a statewide policy blueprint for Black women's health. Through a partnership with national digital story-capture

organization Local Voices Network (LVN), we are convening Black women to identify and shape policy imperatives that will drive health and birth equity in our state. The emerging themes gathered thus far magnify the findings of the *Saving Our Babies* report and illuminate an immediate change that would save the lives of countless Black mothers and babies in Wisconsin: listen to and believe Black women.

An emerging theme among the women we are interviewing is the common experience of being unheard or not believed by health care providers.⁸ This phenomenon can pose potentially life-threatening consequences to all patients, and particularly to Black mothers and babies. A study released in August 2020 suggests that newborn Black babies are 3 times more likely than White babies to die in the hospital when their doctors are White, pointing to gaps in trust, communication, and levels of care.⁹ Quotes by 3 recent interviewees corroborate a growing body of research suggesting implicit bias on behalf of many providers who dismiss, minimize, or overlook Black women's symptoms, pain, and knowledge of their own bodies.¹⁰ (See Box.)

Health systems, providers, and medical schools charged with preparing our future physician workforce bear an urgent responsibility to examine their institutional culture and individual practices to uproot bias and discrimination in the delivery of care to Black women and their families. This will require a commitment to prioritizing and cultivating cultural competence among practitioners, enabling them to deeply listen to and effectively treat Black women toward optimal health and birth outcomes. Physicians, nurses, and other providers must personally pause and reflect to examine the quality and tone of their interactions with Black women patients and consciously improve their practice of listening, believing, and responding accordingly with the absolute best care. The deep, uncomfortable work of challenging one's own social conditioning and prejudices as practitioners is central to making health care safe and effective for Black women. Similarly, policymakers must listen to and acknowledge Black women and communities' real concerns around structural racism and inequality and respond by champion-

ing community-informed policies that disrupt deeply entrenched racial inequities.

Conclusion

The present state of Black maternal and child health in Wisconsin is one of the most significant and urgent public health challenges we face. Turning the tide rests on our willingness to center, listen to, and position Black women and their communities as leaders and cocreators of the urgent changes we need. This work must confront racism head-on as the most dangerous public health threat affecting Black women and their families and must consciously work to unravel the structural and systemic barriers and biases, within and beyond health care, that perpetuate the cycle of racial disparity in our state. Efforts that advance Black maternal and child health specifically will be most effective and sustainable when they are community-driven and bring together synergistic coalitions of Black women, systems, community, and tangible resources that spark innovative solutions that generate a new cycle of health and social equity in Wisconsin. The lives of Black mothers and babies depend on our ability to get this right, and the next decade is our crucial window of opportunity to chart a powerful new course.

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REFERENCES

1. Mathews TJ, Ely DM, Driscoll AK. State variations in infant mortality by race and Hispanic origin of mother, 2013–2015. *NCHS Data Brief*. 2018;(295):1-8.
2. Schellpfeffer M, Gillespie K, Rohan A, Blackwell S. A Review of Pregnancy-Related Maternal Mortality in Wisconsin, 2006–2010. *WMJ*. 2015;114(5):202–207.
3. Gibson C, Le Beau R. *Dane County Maternal and Child Health Data Book, April 2019*. Public Health Madison and Dane County; 2019. Accessed November 1, 2020. <https://www.publichealthmdc.com/documents/MCH%20DATA%20BOOK%20FINAL3.pdf>
4. Harper S, MacLehose RF, Kaufman JS. Trends in the black-white life expectancy gap among US states, 1990–2009. *Health Aff (Millwood)*. 2014;33(8):1375–1382. doi:10.1377/hlthaff.2013.1273
5. *Saving Our Babies Low Birthweight Engagement Final Report: Advancing Black Maternal, Child and Family Well-Being in Dane County to Improve Birth Outcomes*. The Foundation for Black Women's Wellness and EQT By Design, LLC; 2019. Accessed November 1, 2020. [https://ffbwww.org/wp-content/uploads/2019/04/FFBWW-DCHC-](https://ffbwww.org/wp-content/uploads/2019/04/FFBWW-DCHC-Low-Birthweight-Report_April2019.pdf)

[Low-Birthweight-Report_April2019.pdf](https://ffbwww.org/wp-content/uploads/2019/04/FFBWW-DCHC-Low-Birthweight-Report_April2019.pdf)

6. ConnectRx Wisconsin: Grand Prize Winners. University of Wisconsin-Madison Institute for Research on Poverty. Posted November 25, 2019. Accessed November 1, 2020. <https://www.irp.wisc.edu/connect-rx/>
7. Dane County Health Council and partners announce Black Maternal and Child Health Alliance to lead local birth equity efforts. Press release. University of Wisconsin-Madison. September 18, 2020. Accessed November 1, 2020. <https://news.wisc.edu/dane-county-health-council-and-partners-announce-historic-launch-of-the-black-maternal-and-child-health-alliance-to-lead-local-birth-equity-efforts/>
8. The Foundation for Black Women's Wellness and Local Voices Network participant interviews, audio recordings, October 2020. Accessed November 1, 2020. <https://lvn.org/FFBWW>
9. Greenwood B, Hardeman RR, Huang L, Sojourner A. Physician–patient racial concordance and disparities in birthing mortality for newborns. *Proc Natl Acad Sci USA*. 2020;117(35):21194–21200. doi:10.1073/pnas.1913405117
10. Why are black women at such high risk of dying from pregnancy complications? American Heart Association News. February 20, 2019. Accessed November 1, 2020. <https://www.heart.org/en/news/2019/02/20/why-are-black-women-at-such-high-risk-of-dying-from-pregnancy-complications>

Thank you!

*to the artists who submitted
work for this special issue*

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Evaluation of Racial Disparities in Postoperative Outcomes Following Breast Reconstruction at a Single Institution in Wisconsin

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ABSTRACT

Introduction: Breast cancer is the most common cancer in women in Wisconsin. Evidence demonstrates that non-White racial minorities in the United States exhibit a higher mortality rate and more advanced or aggressive presentations of the disease than their White counterparts. Postmastectomy breast reconstruction remains essential to the treatment and recovery of these patients; however, racial disparities in the receipt of reconstruction are evident. This study evaluates the presence of racial disparities in postoperative outcomes of breast reconstruction at a single institution in Wisconsin.

Methods: An institutional review board-exempt retrospective study of postoperative outcomes was performed using a single institution's National Surgical Quality Improvement Program Registry to identify patients who underwent autologous or prosthesis-based breast reconstruction following mastectomy. Patient demographic, preoperative, operative, and postoperative variables were recorded. Postoperative outcomes in relation to self-reported race were evaluated using univariate analysis and propensity score matching.

Results: A total of 1,140 patients were included (1,092 White vs 48 non-White), with fewer non-White patients undergoing reconstruction. Patients of non-White race demonstrated a higher incidence of morbid obesity (4.4% White vs 12.5% non-White, $P=0.010$) and bleeding disorders (0.3% White vs 4.2% non-White, $P<0.001$). No association between self-reported race and postoperative complication was found.

Conclusion: This study did not reveal racial disparities in postoperative outcomes of breast reconstruction at a single institution in Wisconsin; however, non-White patients were less likely to undergo reconstruction. Further research into the underlying causes of unequal access to care, influence of insurance, effect of structural racism, and impact of physician- and patient-associated factors is warranted.

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INTRODUCTION

With an estimated 276,450 new diagnoses in the United States in 2020 alone, breast cancer is one of the most common forms of cancer in women, second only to select skin cancers.¹ Although the incidence of breast cancer is similar for non-Hispanic Black and White women, Black women have a 40% higher mortality rate than their White counterparts.^{1,2} Other non-White minority populations share this higher mortality risk, as well as an increased likelihood of more advanced or aggressive presentations of breast cancer at the time of diagnosis.¹⁻³ It is hypothesized that a lack of health insurance coverage in these populations serves as a barrier to preventive breast cancer screening, leading to disparities in early detection.^{1,4} Such differences in outcomes are only one of the many examples of racial and ethnic disparities in the clinical setting, which may be perpetuated by racial inequality as a product of governmental laws, the economic system, and societal norms defined as structural racism.⁵

Unfortunately, racial and ethnic disparities in health care delivery and outcomes witnessed at the national level are evident in Wisconsin as well. With an incidence rate of 130.6 per 100,000 from 2012 through 2016, Wisconsin surpasses the national average incidence rate for breast cancer in women of 125.2 per 100,000.¹ The state was reported to have performed worse than the national average in 22 of 27 measures of disparity for Black and Hispanic populations and earned a D in overall health disparities in the 2016 Health

of Wisconsin Report Card.⁶ Further, the Wisconsin Collaborative for Healthcare Quality found substantial disparities in breast cancer screening for American Indian or Alaska Natives and Asian or Pacific Islanders, as well as individuals who are enrolled in Medicaid or are uninsured.⁶ These poignant findings have driven recent reform, prompting an Executive Order by Wisconsin's Governor Tony Evers in 2019 to diminish disparities statewide by 2030.⁷

Further, breast reconstruction plays a critical role in the management and recovery of patients who have undergone mastectomy. Postmastectomy breast reconstruction has been shown to improve quality of life in patients, eliciting both physical and psychological benefits.^{4,8} In 2019, approximately 107,238 reconstructive breast procedures were performed in the US, accounting for a 36% increase in procedural volume since 2000.⁹ In part, the Women's Health and Cancer Rights Act of 1998 has contributed to this increase, mandating insurance coverage for reconstructive breast surgeries.¹⁰ Despite this increase, many women across the US are unaware of breast reconstruction options, especially in patient populations considered to be racial and ethnic minorities, highlighting a fundamental source of disparities.^{4,11} To aid in alleviating the inequalities presented by disparities in breast reconstruction, a directive to increase awareness of reconstructive options in patients of racial and ethnic minorities groups was implemented through the Breast Cancer Patient Education Act of 2015.¹² Nonetheless, it has been demonstrated that White women exhibit higher rates of reconstruction than minority women, as only 28% of reconstructive breast procedures performed in 2019 were for patients who identify as a racial or ethnic minority.^{4,8,9} This highlights attempts to alleviate the influence of structural racism; however, additional efforts need to be made to elicit notable effects on the reversal of structural racism within the health care system.

It is clear that racial and ethnic disparities exist in breast cancer screening, diagnosis, and access to breast reconstruction; however, much less is known about the role these disparities play in the outcomes of patients who undergo reconstructive breast surgery. To elucidate this, Blankensteijn et al¹³ investigated the impact of race on outcomes of breast reconstruction on a national level using patient data from the American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP). This study did not find an association between race and occurrence of postoperative complications; however, it is unclear whether these trends vary by state or county. Given the evident disparities in the overall outcomes of breast cancer patients in Wisconsin, investigation into the presence of disparities in reconstructive outcomes is warranted. Therefore, this study used patient data from the University of Wisconsin Hospital and Clinics Authority Adult NSQIP Registry to examine racial disparities in postoperative outcomes of reconstructive breast surgery in Wisconsin.

METHODS

Data Collection

This was an institutional review board-exempt retrospective study that utilized a single institution's (University of Wisconsin – Madison) Adult NSQIP Registry. The ACS-NSQIP is a source of nearly 200 prospectively documented demographic, preoperative, operative, and 30-day postoperative variables.¹⁴ Data are collected for randomly assigned surgical cases and recorded by dedicated statisticians in a HIPAA-compliant manner.

Patient data were collected for reconstructive breast surgery cases performed at our institution between July 2009 and June 2020. Data acquisition began mid-year in 2009 as this is when University of Wisconsin Hospital and Clinics Authority Adult NSQIP Registry began. Cases with the following primary current procedural terminology (CPT) codes corresponded to delayed autologous reconstruction: 19361, 19364, 19366, 19367, 19368, and 19369. Cases with the following primary CPT codes corresponded to delayed prosthesis-based reconstruction: 11970, 19325, 19340, 19342, 19357. Lastly, cases with the following primary CPT codes, along with a previously indicated CPT code listed as a secondary procedure, were appropriately scored as either immediate autologous reconstruction or immediate prosthesis-based reconstruction: 19120, 19125, 19301, 19302, 19303, 19304, 19305, 19306, and 19307.

Variables of Interest

Recorded variables included demographic, preoperative, operative, and postoperative variables. Demographic information included patient self-reported race (White, Black or African American, Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, and unknown), self-reported ethnicity (Hispanic and non-Hispanic), age, and sex. Preoperative variables included smoking status, body mass index, American Society of Anesthesiologists Class, diabetes mellitus, history of congestive heart failure, hypertension requiring medication, renal disease, chronic steroid use, bleeding disorder, history of chronic obstructive pulmonary disease, malnourishment, and presence of metastatic disease. Postoperative variables included readmission related to breast reconstruction, reoperation related to breast reconstruction, incidence of any complication, incidence of minor complication (urinary tract infection, superficial surgical site infection, pneumonia, and unplanned readmission), incidence of severe complication (sepsis, septic shock, myocardial infarction, cardiac arrest, deep wound infection, deep surgical site infection, organ/space surgical site infection, wound dehiscence, pulmonary embolism, deep venous thrombosis, progressive renal insufficiency, renal failure, stroke, transfusion, unplanned reintubation, failure to wean off ventilator, death, and unplanned reoperation), and death. Data manipulations and statistical analyses were conducted in R 3.6.0 (R Foundation, Vienna, Austria). An a priori power analysis determined a minimum number of 32 patients to detect

Table 1. Univariate Analysis (chi-square and Fisher exact test) of the Association Between Race and Preoperative Covariates

Covariate	Whole Cohort			Propensity Score Matched Groups		
	Self-Identified White Race (N=1,092) n (%)	Self-Identified Non-White Race (N=48) n (%)	P value	Self-Identified White Race (N=144) n (%)	Self-Identified Non-White Race (N=48) n (%)	P value
Surgery			0.870 ^a			1.000 ^a
Delayed autologous reconstruction	336 (30.8)	16 (33.3)		48 (33.3)	16 (33.3)	
Immediate autologous reconstruction	3 (0.3)	0 (0.0)		0 (0.0)	0 (0.0)	
Immediate prosthesis-based reconstruction	12 (1.1)	0 (0.0)		0 (0.0)	0 (0.0)	
Delayed prosthesis-based reconstruction	741 (67.9)	32 (66.7)		96 (66.7)	32 (66.7)	
Age > 60 years	185 (16.9)	4 (8.3)	0.117 ^a	7 (4.9)	4 (8.3)	0.370 ^a
Hispanic ethnicity	20 (1.8)	1 (2.1)	0.899 ^a	3 (2.1)	1 (2.1)	1.000 ^a
ASA Class > 2	0 (0.0)	0 (0.0)	NA	0 (0.0)	0 (0.0)	NA
Current tobacco use	82 (7.5)	6 (12.5)	0.205	11 (7.6)	6 (12.5)	0.305
Morbid obesity	48 (4.4)	6 (12.5)	0.010	21 (14.6)	6 (12.5)	0.719
Diabetes	40 (3.7)	1 (2.1)	0.565 ^a	8 (5.6)	1 (2.1)	0.324 ^a
History of congestive heart failure	0 (0.0)	0 (0.0)	NA	0 (0.0)	0 (0.0)	NA
Medicated hypertension	178 (16.3)	11 (22.9)	0.228	40 (27.8)	11 (22.9)	0.509
Renal disease	0 (0.0)	0 (0.0)	NA	0 (0.0)	0 (0.0)	NA
Chronic steroid use	19 (1.7)	2 (4.2)	0.221 ^a	5 (3.5)	2 (4.2)	0.824 ^a
Bleeding disorder	3 (0.3)	2 (4.2)	<0.001^a	1 (0.7)	2 (4.2)	0.093 ^a
History of COPD	3 (0.3)	0 (0.0)	0.716	0 (0.0)	0 (0.0)	NA
Malnourishment	1 (0.1)	0 (0.0)	0.834	0 (0.0)	0 (0.0)	NA
Metastatic disease	4 (0.4)	0 (0.0)	0.674	0 (0.0)	0 (0.0)	NA

Abbreviations: ASA, American Society of Anesthesiologists; COPD, chronic obstructive pulmonary disease.

Boldface indicates significance; ^aindicates use of Fisher exact test.

a large effect size. Given the small number of Black or African American, Asian, Native Hawaiian or Other Pacific Islander, and American Indian or Alaska Native patients, all comparative analyses were performed with groupings of White versus non-White patients.

Univariate Analysis

Significance was set at $\alpha = 0.05$ for all analyses. Descriptive statistics were conducted to characterize the patient cohort, and chi-square and Fisher exact tests were implemented to identify associations between patient self-reported race and preoperative variables (Table 1). Fisher exact tests were utilized in cases in which the variable of interest was observed in fewer than 5 patients, otherwise chi-square tests were used. Chi-square tests were again implemented to identify associations between patient self-reported race and the incidence of postoperative complications (Table 2).

Propensity Score Matching

Propensity score matching was applied to elucidate the independent association of non-White self-reported race on the incidence of various postoperative complications. The MatchIt package (R Foundation, Vienna, Austria)¹⁵ was utilized to develop a 3:1 greedy matching algorithm¹⁶ (3 patients of White self-reported race matched to each patient of non-White self-reported race) that

included all preoperative variables of interest. Exact matching was implemented for surgical procedures to control for any differences in postoperative complications that might be associated with different types of breast reconstruction. Chi-square and Fisher exact tests were conducted to verify that the propensity score matched groups were adequately balanced (Table 1). Finally, chi-square tests were performed to assess for associations between patient self-reported race and the incidence of postoperative outcome in the propensity score matched groups (Table 2).

RESULTS

Retrospective review identified 1,436 patients who underwent procedures with primary CPT codes corresponding to either breast reconstruction or mastectomy between July 2009 and June 2020. Following the exclusion of 212 patients who received mastectomy without reconstruction, 77 patients of unknown race, and 7 nonfemale patients, 1,140 patients met the inclusion criteria. The self-reported race of the cohort was as follows: 1,092 White patients, 29 Black or African American patients, 7 American Indian or Alaska Native patients, 10 Asian patients, and 2 Native Hawaiian or Other Pacific Islander patients. Following the creation of propensity score matched groups, 33 (17.2%) patients experienced any postoperative complication, 21 (10.9%) patients experienced a minor postoperative compli-

Postoperative Complication	Whole Cohort			Propensity Score Matched Groups		
	Self-Identified White Race (N=1,092) n (%)	Self-Identified Non-White Race (N=48) n (%)	P value	Self-Identified White Race (N=144) n (%)	Self-Identified Non-White Race (N=48) n (%)	P value
Any	146 (13.4)	9 (18.8)	0.287	24 (16.7)	9 (18.8)	0.740
Minor	93 (8.5)	5 (10.4)	0.646	16 (11.1)	5 (10.4)	0.894
Severe	113 (10.3)	7 (14.6)	0.349	17 (11.8)	7 (14.6)	0.614
Unplanned readmission related to breast reconstruction	55 (5.0)	3 (6.2)	0.708	10 (6.9)	3 (6.2)	0.868
Unplanned reoperation related to breast reconstruction	96 (8.8)	7 (14.6)	0.171	17 (11.8)	7 (14.6)	0.614

Propensity score matched groups were generated to determine the independent association of non-White race and the incidence of postoperative complications. Significance indicated by a *P* value ≤0.05.

cation, 24 (12.5%) patients experienced a severe postoperative complication, 13 (6.8%) patients experienced an unplanned readmission for reasons related to their breast reconstruction, and 24 (12.5%) patients experienced an unplanned reoperation for reasons related to their breast reconstruction. No patients in this cohort died within 30 days of surgery.

On univariate analysis (chi-square and Fisher exact tests), non-White race was associated with morbid obesity (4.4% of White race vs 12.5% of non-White race, *P*=0.010) and having a bleeding disorder (0.3% of White race vs 4.2% of non-White race, *P*<0.001) (Table 1). The cohort demonstrated no association between patient self-reported race and incidence of postoperative complication on univariate analysis (Table 2).

Following the generation of propensity score matched groups, there were 144 patients of White race and 48 patients of non-White race. Chi-square and Fisher exact tests verified that these groups were balanced with respect to preoperative covariates (Table 1). Upon assessment of the incidence of postoperative complications, the balanced cohort showed no association between patient self-reported race and incidence of postoperative complications.

DISCUSSION

The abundant, yet nonhomogeneous, evidence suggesting the existence of racial disparities in postmastectomy breast reconstruction at the national level prompted investigation into such disparities in postoperative outcomes of reconstructive breast surgery in Wisconsin. This study utilized a single institution's NSQIP Registry to identify 1,140 patients who underwent breast reconstruction following mastectomy from 2009 to 2020. Although patients of non-White race demonstrated a higher incidence of the preoperative covariates of morbid obesity and existence of a bleeding disorder, no association was found between patient race and incidence of postoperative complication on univariate analysis and propensity score matching. Our analysis aligns with those of Blankensteijn et al¹³ and Butler et al,¹⁷ which found no association between patient race and postoperative outcomes. However,

a single institution study by Mets et al³ found persistent racial and ethnic disparities in surgical outcomes in breast cancer, which may indicate significant variation in disparities based on geographic location. Notably, there were far fewer non-White patients who underwent breast reconstruction at our institution than White patients (4.2% vs 95.8%). Approximately 15% and 7% of the Dane County population is of non-Hispanic, non-White race and Hispanic ethnicity, respectively.¹⁸ Our results demonstrate that only 4.2% and 1.8% of patients who underwent breast reconstruction at our institution were of non-Hispanic, non-White race and Hispanic ethnicity, respectively. Overall, the lack of evident racial disparities may indicate the provision of equitable care for all patients once in our institution's system; however, the discrepancy in comparative patient demographics may elude to potential disparities in access to care in Dane County, Wisconsin and the surrounding areas.

Insurance coverage and socioeconomic status have been described as barriers in access to care; however, studies have demonstrated a persistence of disparities even after controlling for insurance status and income.^{4,13,19,20} Federal mandates, such as the Patient Protection and Affordable Care Act (ACA),²¹ have been implemented to expand the provision of health insurance to the public and facilitate access to care. Specific to Dane County, the enactment of the ACA reportedly allowed thousands of residents to gain health care coverage, and as of 2019, only 4.9% of individuals under age 65 remain uninsured,²² which is considerably lower than that of the state and national percentages of 6.9% and 10.9%, respectively.²³ Despite these efforts, studies demonstrate that patients with private insurance coverage are more than twice as likely to undergo breast reconstruction than those who are uninsured or enrolled in public insurance.⁴ Similarly, non-White minority patients comprise a higher proportion of patients with public or lack of insurance, which promotes a predisposed limitation in access to plastic surgeons and recommendations for reconstruction.^{4,19} This is reflective of the Dane County population, as Hispanics are disproportionately represented in the percentage of those uninsured.²²

Further, the impact of income and receipt of breast reconstruction have been documented. A survey by Rubin et al²⁴ found that 75% of Black women who underwent breast reconstruction following mastectomy had an annual income of over \$50,000. In those with an annual income of less than \$20,000, only 22% underwent reconstruction.²⁴ In addition, Black women in the study who underwent reconstruction reported that they might have elected to forgo the procedure if they had to pay out of pocket.²⁴ In Dane County, the median household income is approximately \$64,773, which is higher than state and national values; however, the median income for those of Black race is \$30,000.²² As a result, lower rates of reconstruction for non-White minority patients may be perpetuated by the high cost of procedures and consideration of lost days of work, causing a significant impact on financial stability. Such instance may be a product of residential segregation, which is deemed a fundamental component of structural racism as it shapes access to care and is accompanied by socioeconomic disadvantage, most often for those of Black race.⁵ Therefore, these findings may highlight the inability of insurance and income alone to eliminate racial and ethnic disparities in access to care; thus, evaluation of other contributing factors, such as structural racism, is imperative.

Numerous studies have proposed alternative confounding variables for the existence of disparities in rates of breast reconstruction, citing physician- and patient-associated factors. Studies suggest that non-White patients are less likely to receive breast reconstruction compared to their White counterparts, noting the existence of preexisting comorbidities and suboptimal health status as a source of concern expressed by some surgeons.^{3,13,20} However, the validity of this concern is challenged by evidence supporting equivalent postoperative outcomes for White and non-White patients, even with the presentation of a higher preoperative comorbidity profile by non-White patients.^{13,17} Although this may be the case, Tseng et al²⁵ found that African American women were less likely to accept a referral to a plastic surgeon and reconstruction, even when offered, highlighting the potential for rates of reconstruction to be confounded by personal preference. It has been reported that concern for the insertion of a foreign body in the form of an implant and systemic distrust of the medical field are exhibited by non-White patients,^{19,20,24} along with cultural differences in race-related emphasis placed on the breast as a measure of physical attraction.^{13,19,20,24} Despite this, Berlin et al⁸ found that Black women did experience better psychosocial and sexual well-being post reconstruction than their White counterparts, indicating the benefits of postmastectomy breast reconstruction remains evident in this population. Further, Black women were more likely to report dissatisfaction with the decision-making process, regardless of receipt of reconstruction;²⁰ thus, educating patient populations about postmastectomy reconstructive options is imperative. To achieve this in Wisconsin, the Cancer Health Disparities Initiative program at the University of Wisconsin Carbone Cancer

Center has worked to provide patient education and community outreach to underserved populations; however, continued efforts at the county, state, and national levels are critical to the narrowing of the disparities surrounding breast cancer treatment and reconstruction.

Limitations

Our study is not without limitations. This is a retrospective review of a single institution; thus, the analysis is most reflective of Dane County and the surrounding catchment area and may not be generalizable to the state of Wisconsin as a whole. It is estimated that approximately 86% of Wisconsin's African American population resides in the cities of Kenosha, Beloit, Racine, and Milwaukee; therefore, Dane County may not be indicative of the racial disparities in breast reconstruction outcomes for the state of Wisconsin. It is also important to note that the NSQIP Registry used to obtain patient information in this study only monitors patient outcomes 30 days post-operation. Thus, it is possible that these patients developed complications after the 30-day period, indicating that the health consequences of systemic racism are chronic and may be more insidious in onset. Further, given the objective nature of the NSQIP Registry, it is unknown if there are disparities in patient-reported satisfaction. The patient data obtained by our institution's NSQIP Registry are also limited by the lack of patients' insurance status. Insurance status is only newly available to the NSQIP database and was not available for our queried data set, and thus warrants further investigation in future studies. Finally, as a large portion of the patient population was excluded, the diminished cohort size may contribute to an under- or overestimation of racial disparities in Wisconsin. As this is a preliminary investigation of racial disparities in postoperative outcomes of breast reconstruction, our future studies aim to broaden the scope of research to include analyses to evaluate variables such as stage of cancer, insurance status, type of reconstruction, and surgical techniques.

CONCLUSION

This study aimed to identify potential racial disparities in postoperative outcomes of breast reconstruction at a single institution in Wisconsin. Our results did not indicate an association between race and incidence of postoperative complication at our institution, used as a representation of the state of Wisconsin. While these gross findings of equitable postoperative complication rates in patients undergoing reconstruction within our health care system are evident, further investigation into the cause for the lack of patients of non-White race undergoing reconstruction at our institution is warranted. Ultimately, additional research is necessary to fully understand the underlying causes of inequities in access to care, influence of insurance and income, effect of structural racism, and impact of physician- and patient-associated considerations.

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REFERENCES

1. American Cancer Society. Cancer facts & figures 2020. Published 2020. Accessed October 28, 2020. <https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/annual-cancer-facts-and-figures/2020/cancer-facts-and-figures-2020.pdf>
2. American Cancer Society. Cancer facts & figures for African Americans 2019-2021. Published 2019. Accessed October 28, 2020. <https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/cancer-facts-and-figures-for-african-americans/cancer-facts-and-figures-for-african-americans-2019-2021.pdf>
3. Mets EJ, Chouairi FK, Gabrick KS, Avraham T, Alperovich M. Persistent disparities in breast cancer surgical outcomes among Hispanic and African American patients. *Eur J Surg Oncol*. 2019;45(4):584-590. doi:10.1016/j.ejso.2019.01.016
4. Shippee TP, Kozhimannil KB, Rowan K, Virnig BA. Health insurance coverage and racial disparities in breast reconstruction after mastectomy. *Womens Health Issues*. 2014;24(3):e261-269. doi:10.1016/j.whi.2014.03.001
5. Bailey ZD, Feldman JM, Bassett MT. How structural racism works - racist policies as a root cause of U.S. racial health inequities. *N Engl J Med*. Published online December 16, 2020. doi:10.1056/NEJMms2025396
6. Wisconsin Collaborative for Healthcare Quality. *Wisconsin Health Disparities Report, 2019*. Published 2019. Accessed October 28, 2020. https://www.wchq.org/pdfs/Disparities_Report_2019_9-20_FINAL.pdf
7. Evers T. Executive Order 17. State of Wisconsin. Accessed October 28, 2020. https://evers.wi.gov/Pages/Newsroom/ExecutiveOrders/EO_017_Relating_to_creating_the_health_equity_council_-_Copy.pdf
8. Berlin NL, Momoh AO, Qi J, et al. Racial and ethnic variations in one-year clinical and patient-reported outcomes following breast reconstruction. *Am J Surg*. 2017;214(2):312-317. doi:10.1016/j.amjsurg.2017.02.009
9. American Society of Plastic Surgeons. *Plastic surgery statistics report, 2019*. Accessed October 28, 2020. <https://www.plasticsurgery.org/documents/News/Statistics/2019/plastic-surgery-statistics-full-report-2019.pdf>
10. US Department of Labor; US Department of Health and Human Services. The Women's Health and Cancer Rights Act. Accessed October 28, 2020. <https://www.dol.gov/sites/dolgov/files/ebsa/about-ebsa/our-activities/resource-center/publications/cagwhcra.pdf>
11. Panchal H, Matros E. Current trends in postmastectomy breast reconstruction. *Plast Reconstr Surg*. 2017;140(5S):7S-13S. doi:10.1097/PRS.00000000000003941
12. Breast Cancer Patient Education Act, HR 2540, 114th Cong (2015). Accessed October 28, 2020. <https://www.congress.gov/bill/114th-congress/house-bill/2540>
13. Blankensteijn LL, Sparenberg S, Crystal DT, Ibrahim AMS, Lee BT, Lin SJ. Racial disparities in outcomes of reconstructive breast surgery: an analysis of 51,362 patients from the ACS-NSQIP. *J Reconstr Microsurg*. 2020;36(8):592-599. doi:10.1055/s-0040-1713174
14. American College of Surgeons. About ACS NSQIP. Accessed December 14, 2020. <https://www.facs.org/quality-programs/acs-nsqip/about>
15. Ho DE, Imai K, King G, Stuart EA. MatchIt: nonparametric preprocessing for parametric causal inference. *J Stat Softw*. 2011;42(8):1-28. doi:10.18637/jss.v042.i08
16. Austin PC. A comparison of 12 algorithms for matching on the propensity score. *Stat Med*. 2014;33(6):1057-1069. doi:10.1002/sim.6004
17. Butler PD, Nelson JA, Fischer JP, et al. African-American women have equivalent outcomes following autologous free flap breast reconstruction despite greater preoperative risk factors. *Am J Surg*. 2015;209(4):589-596. doi:10.1016/j.amjsurg.2014.11.002
18. US Census Bureau. Dane County, Wisconsin. QuickFacts. Accessed October 28, 2020. <https://www.census.gov/quickfacts/danecountywisconsin>
19. Sergesketter AR, Thomas SM, Lane WO, et al. Decline in racial disparities in postmastectomy breast reconstruction: a surveillance, epidemiology, and end results analysis from 1998 to 2014. *Plast Reconstr Surg*. 2019;143(6):1560-1570. doi:10.1097/PRS.0000000000005611
20. Soni SE, Lee MC, Gwede CK. Disparities in use and access to postmastectomy breast reconstruction among African American women: a targeted review of the literature. *Cancer Control*. 2017;24(4):1073274817729053. doi:10.1177/1073274817729053
21. Patient Protection and Affordable Care Act, Pub L No. 111-148, 124 Stat 119 (2010). Accessed October 31, 2020. <https://www.congress.gov/111/plaws/publ148/PLAW-111publ148.pdf>
22. Healthy Dane Collaborative. *2019-2021 Dane County Community Health Needs Assessment*. Accessed October 27, 2020. https://www.uwhealth.org/files/uwhealth/docs/pdf6/UWHealth2019-2021CHNA_FINAL.pdf
23. Kaiser Family Foundation. *Health insurance coverage of nonelderly 0-64*. Accessed October 31, 2020. <https://www.kff.org/other/state-indicator/nonelderly-0-64/>
24. Rubin LR, Chavez J, Alderman A, Pusic AL. 'Use what God has given me': difference and disparity in breast reconstruction. *Psychol Health*. 2013;28(10):1099-1120. doi:10.1080/08870446.2013.782404
25. Tseng JF, Kronowitz SJ, Sun CC, et al. The effect of ethnicity on immediate reconstruction rates after mastectomy for breast cancer. *Cancer*. 2004;101(7):1514-1523. doi:10.1002/cncr.20529

Does Racial Disparity Exist Among Inpatient Admissions for Heart Attacks in Wisconsin?

Charles A. Guscho, BS

ABSTRACT

Objective: Acute myocardial infarction (AMI), or heart attack, carries a high inpatient death risk. Few national studies suggest race affects the outcomes of inpatients with AMI. In Wisconsin, an assessment of racial disparity among admissions for AMI is lacking.

Methods: Using the Wisconsin State Inpatient Database from 2016, demographics and outcomes for AMI admissions were analyzed. The goal was to compare demographic and hospitalization characteristics between non-Hispanic White patients and Black, Indigenous, and People of Color (BIPOC).

Results: A total of 6,002 non-Hispanic Whites and 546 BIPOC cases were identified. BIPOC were younger than non-Hispanic White inpatients (median age, 59 years vs 68 years, respectively; $P < 0.001$). Median length of stay was shorter in non-Hispanic White versus BIPOC (2 days vs 3 days; $P = 0.021$), and mean total charges were higher for BIPOC than non-Hispanic Whites (\$74,716 vs \$65,384, respectively; $P = 0.002$). Using a risk-adjusted model, inpatient mortality was increased for patients over 55 years of age (odds ratio [OR] 2.166; 95% CI, 1-3; $P = 0.001$) and women (OR 1.319; 95% CI, 1-1.6; $P = 0.03$). Race (BIPOC vs non-Hispanic White) was not predictive of inpatient death on univariable analysis (OR 0.771; 95% CI, 0.4-1.2; $P = 0.283$).

Conclusion: It appears BIPOC have longer hospital stays and incur higher charges than non-Hispanic White patients, though race does not affect mortality risk. Among Wisconsin counties with higher proportions of AMI, these data may enable strategic recommendation of hospitalized patients or permit risk stratification to identify disparity and encourage equitable care.

BACKGROUND

To provide equitable health care, it is necessary to first identify disparity. For certain health conditions, the identification of disparity may drastically improve patient outcomes. Acute myocar-

dial infarction (AMI), or heart attack, is a disease with a high risk of death. Despite evidence-based protocols for the treatment of AMI, few studies suggest early intervention and outcomes fare worse for Black, Indigenous, and People of Color (BIPOC) than non-Hispanic White (NHW) patients.¹⁻³ However, it is unclear whether racial disparity exists at a state level. In Wisconsin, a contemporary statewide assessment of racial disparity in this setting is lacking.

According to the Healthcare Cost and Utilization Project (HCUP) State Inpatient Database (SID), Wisconsin inpatient systems recorded 602,279 admissions in 2016.⁴ AMI was among the most frequently admitted *International Code of Diseases, Tenth Edition* (ICD-10) codes, accounting for just over 1% of all hospitalizations. Given this volume, the SID is amenable to the study of a specific diagnosis to uncover racial disparity.

This investigation sought to: (1) assess the risk of inpatient mortality (or death) among NHW and BIPOC inpatients hospitalized in Wisconsin for AMI, and (2) to describe and compare patient demographics and hospitalization characteristics between NHW patients and BIPOC.

METHODS

Database

This retrospective study queried the Wisconsin HCUP SID for 2016. This database consists of inpatient admissions from 153 acute care, nonfederal community hospitals across Wisconsin.⁴ About 600,000 records of inpatient discharges are recorded from

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these hospitals annually, with up to another 28,000 coming from noncommunity hospitals, rehabilitation hospitals, and hospitals not included in the HCUP survey.⁵ Admissions for AMI were identified using ICD-10 code I21.⁶ Further divisions included I2101-2, I2109, I2111, I2119, I2121, I2129, I213, and I214.⁶ The inclusion criteria were cases that recorded race, and a total of 6,548 cases were identified. Minors (<18 years of age) and cases with missing race were excluded. Of the 6,548 cases, 91.7% (n=6,002) were NHW, 4.3% (n=284) were Black, 1.9% (n=125) were Hispanic, 1.2% (n=76) were Asian or Pacific Islander, and 0.9% (n=60) were Native American (1 unspecified or “other”). For analyses, this group was combined to include Black, Hispanic, Asian or Pacific Islander, Native American, and “other/unknown” race. While this is a heterogeneous group of non-White patients, this grouping system was used to make comparisons to national datasets, where similar classification systems have been described. Herein, this group is collectively referred to as BIPOC (Black, Indigenous, and People of Color)—a more person-centered term than “minority,” which has been used previously. Subgroup analyses were carried out between Black and NHW patients, and Hispanic and NHW patients. Given the small sample sizes of each individual BIPOC subgroup, however, these groups were combined to increase sample power. Of note, each group was not control-matched prior to statistical analyses.

Variables

Demographic variables such as age, sex, insurance payer, median household income (US dollars [USD]), and admitting ZIP code were recorded. Hospitalization variables included length of stay (days), total inpatient charges (USD), death, and disposition using UB-04 standard Centers for Medicare and Medicaid Services (CMS) coding.⁷ Total inpatient charges were cleaned data devoid of noncovered charges and professional fees. Each of the variables is described using the HCUP dictionary of variables.⁷

Statistical Analyses

Data were analyzed using descriptive statistics. Continuous variables of interest were represented as the mean or median with range, interquartile range (IQR), or standard deviation. Categorical variables were compared with chi-square or Fisher exact tests. A correlation matrix of race with potential confounding variables is provided (Appendix 1). Comparative analyses of parametric data were performed using a 2-tailed independent samples *t* test. A risk-adjusted binary regression model was used to predict inpatient death using odds ratios (OR). Only variables with significant univariate influence were included in the Tables and multivariate model. Statistical significance was set to $P<0.05$, and all analyses were conducted on SPSS version 26.0 (IBM, Armonk, NY, USA).

Ethical Approval

To protect the privacy of physicians, hospitals, and patients, the entire dataset was deidentified using patient key identifiers.

According to the US Department of Health and Human Services, the use of administrative state inpatient databases under the HCUP does not require institutional review board approval as it is a publicly available, deidentified dataset.⁸

RESULTS

Demographics and Outcomes

Demographics and hospital outcomes of each group are summarized in Tables 1 and 2. For both the NHW and BIPOC groups, the most common admitting diagnosis within AMI (n=6,548) was non-ST elevation myocardial infarction (NSTEMI, ICD-10 code: I214), accounting for 65% of heart attacks (n=4,277). For all AMI, 6,002 (92%) cases occurred in NHW and 546 (8%) occurred in BIPOC. The median age at admission for NHW inpatients with AMI was 68 years (range, 21-104 years) compared to the BIPOC group (59 years, range 25-104; $P<0.001$). For both the NHW and BIPOC group, the type of admission was most commonly an emergency as classified by the SID (54% and 75%, respectively), with the second most common admission type being urgent (42% and 23%, respectively; $P<0.001$). The inpatient mortality rate was 3.5% in the BIPOC group and 4.5% in the NHW group ($P=0.282$).

In the BIPOC group, the median length of inpatient stay was 3 days (range, 0-4 days) compared to NHW patients, who had a median hospital stay of 2 days (range, 0-94 days; $P=0.021$). Similarly, the mean (SD) total inpatient charges in USD in the BIPOC group was \$74,716 (\$87,286) compared to the NHW group, which had a mean total charge of \$65,384 (\$64,665; $P=0.002$). For the NHW group, the ZIP code with the highest rate of AMI was 54220 (Manitowoc County, n=74, 1.2%), while the ZIP code with the highest rate of AMI admissions for the BIPOC group was 53209 (Milwaukee County, n=225, 41.3%; $P<0.001$) (Appendix 2).

Risk Factors

Results from a risk-adjusted binary regression predicting inpatient death are summarized in Table 3. After controlling for confounding variables, there was a higher risk of inpatient mortality in patients over 55 years of age (OR 2.116; 95% CI, 1.3-3.3; $P=0.001$) and women (OR 1.319; 95% CI, 1.0-1.6; $P=0.030$). There was a lower mortality risk in private insurance carriers compared to Medicare/Medicaid beneficiaries (OR 0.438; 95% CI, 0.3-0.6; $P<0.001$), as well as in patients who presented from another health care facility compared to those who came from their home or non-health care facility (OR 0.699; 95% CI, 0.5-0.9; $P=0.019$). Race (BIPOC vs NHW) was not predictive of inpatient death on univariable analysis (OR 0.771; 95% CI, 0.4-1.2; $P=0.283$).

DISCUSSION

Despite advancements in cardiovascular care, disparities exist between BIPOC and NHW patients in the management of AMI.⁹

Table 1. Demographics for Wisconsin Heart Attacks in 2016

Variable	Non-Hispanic White (n=6002) Frequency (%)	BIPOC (n=546) Frequency (%)	P value ^a
Age (years) at admission ^b	68 (21–104)	59 (25–104)	<0.001 ^c
Age Group			<0.001 ^c
> 55 years	4856 (80.9)	326 (59.7)	
≤ 55 years	1146 (19.1)	220 (40.3)	
Sex			0.066
Male	3799 (63.3)	324 (59.3)	
Female	2202 (36.7)	222 (40.7)	
Admission type			<0.001 ^c
Emergency	3248 (54.1)	407 (74.5)	
Urgent	2509 (41.8)	123 (22.5)	
Trauma center	14 (0.2)	—	
Non-urgent	224 (3.7)	16 (2.9)	
Median household income			<0.001 ^c
First quartile	1357 (22.6)	319 (58.4)	
Second quartile	1812 (30.2)	97 (17.8)	
Third quartile	1538 (25.6)	62 (11.4)	
Fourth quartile	1256 (20.9)	64 (11.7)	
Missing	39 (0.6)	4 (0.7)	
Insurance status			<0.001 ^c
Medicare	3628 (60.4)	231 (42.3)	
Medicaid	325 (5.4)	133 (24.4)	
Private	1824 (30.4)	146 (26.7)	
Self-pay	129 (2.1)	28 (5.1)	
Other	96 (1.6)	8 (1.5)	
Point of origin for admission			<0.001 ^c
Non-health care facility	3282 (54.7)	403 (73.8)	
Health care facility transfer	2563 (42.7)	133 (24.4)	
Missing	157 (2.6)	10 (1.8)	

Abbreviations: BIPOC, Black, Indigenous, and People of Color.

^a Chi-square or *t* test.^b Median (range).^c Significant.**Table 2.** Hospital Outcomes for Wisconsin Heart Attacks in 2016

Variable	Non-Hispanic White (n=6002) Frequency (%)	BIPOC (n=546) Frequency (%)	P value ^a
Length of stay (days) ^b	3.87 (4.567)	4.36 (5.934)	0.021 ^c
Total charges (USD) ^b	65,384 (64,665)	74,716 (87,286)	0.002 ^c
Mortality (in-hospital death)			0.282
Yes	268 (4.5)	19 (3.5)	
No	5734 (95.5)	527 (96.5)	
Disposition			0.001 ^c
Home health	4286 (71.4)	415 (76.0)	
Skilled nursing facility	517 (8.6)	22 (4.0)	
Other (including death)	1179 (19.6)	106 (19.4)	
Missing	20 (0.3)	3 (0.5)	

Abbreviations: BIPOC, Black, Indigenous, and People of Color; USD, US dollars.

^a Chi-square or *t* test.^b Median (range).^c Significant.

It is suggested that eliminating racial disparity may prevent nearly 1 million annual hospitalizations.¹⁰ For states with high rates of admissions for AMI, the identification and elimination of disparity may have cost-savings implications, while also facilitating the provision of equitable care.

Few nationwide studies suggest Black and Hispanic inpatients are younger than NHW inpatients admitted for AMI.^{1,11–14} The current study found BIPOC inpatients in Wisconsin were younger, with a median age of 59 years compared to 68 years in NHW inpatients. This finding aligns with trends in the literature. When grouped by individual race, the age gap was not significantly different between Hispanic and NHW inpatients (57 years vs 68 years, respectively; *P* = 0.521), nor between Black and NHW inpatients (58 years vs 68 years, respectively; *P* = 0.061). Thus, the observed age gap appears to be a disparity that is also present at the national level and not specific to Wisconsin.

In a CMS study of over 2 million AMI hospitalizations, Black inpatients also were more likely than NHW inpatients to be women.¹⁴ In the current study, the rate of women admitted for AMI was similar between BIPOC and NHW inpatients (36.7% and 40.7%, respectively). However, when grouped by individual race, there was a larger proportion of Black women admitted for AMI (48.6%) than NHW women (36.7%), which again aligns with national trends (Table 4). Additionally, the proportion of Hispanic women admitted for AMI was lower than NHW women (30% vs 36%), though this gap has not been described at the national level.

In addition to other demographic data presented herein, the current study found a significant independent association between primary expected payer (insurance status) and race. Most NHW inpatients were enrolled in Medicare (60.4%), while only 5.4% were enrolled in Medicaid. In contrast, 42% of BIPOC inpatients had Medicare, while nearly 25% had Medicaid. Thus, BIPOC patients were more often insured by Medicaid, which some studies suggest may result in a compromised quality of inpatient care.^{2,15}

The proportion of patients from higher and lower income neighborhoods was similar between each group. However, the point of origin for admission—or where these patients were transferred from—was different. NHW inpatients had a higher rate of transfer from another health care entity than did BIPOC inpatients (37.4% vs 18.9%). Additionally, BIPOC inpatients more often presented from the community than did NHW inpatients (73.8% vs 54.7%). These findings suggest disparity may exist in the quality of care leading up to admission for AMI. Though the SID does not list the specific location of origin, it is presumed any non-health care facility refers to the general community. Possible explanations for this disparity include different comorbidities between groups, disparities in socioeconomic factors, insufficient preventive medicine, or lack of access to high-quality care among the BIPOC population. Furthermore, these findings also might

highlight insufficient preventive efforts and medication adherence among BIPOC patients, though these two issues may be influenced by the prevalence of risk factors, actual access to medications, and complex environmental and social factors. It appears these disparities are also systemic (nationwide) and not specific to Wisconsin.^{3,16,17}

The causes of racial and ethnic disparity in AMI are poorly understood. The mortality rates between NHW and BIPOC inpatients for AMI appear to differ at the national level. This statewide study, believed to be the first of its kind, found a lower mortality rate among BIPOC hospitalized for AMI (3.5%) compared to NHW inpatients (4.5%), though the difference was not statistically significant. Furthermore, the risk of inpatient mortality was not higher in the BIPOC group. Therefore, a consensus is not clear, and the rates may simply differ based on sample power. Interestingly, a lower mortality rate among BIPOC with AMI has been described previously, though the reason for this discrepancy is not known.^{18–21} It is possible that BIPOC have a predisposition to lower in-hospital mortality, especially if they are admitted at a younger median age with less comorbid disease. However, an early mortality advantage in BIPOC does not appear to persist following discharge, according to other data.¹⁹ To definitively confirm any changes in risk of mortality following discharge in Wisconsin, follow-up is needed at the state level. With respect to comorbid disease, an accurate representation is necessary to identify potential confounders for hospital outcomes. It would be necessary to detail every comorbidity along with the primary admitting diagnosis, though given the nature of data recording in the SID, such analysis was not feasible in this study. Unlike the primary ICD-10 admission code, which is recorded consistently, comorbidities are not readily identifiable within this dataset.

Another specific limitation of the SID is lack of data regarding follow-up and readmission, as well as treatment for AMI given during the hospitalization. These data would be necessary to assess survival rates of BIPOC versus NHW patients following discharge, as well as highlight discrepancy in specific treatment while still in the hospital. Nonetheless, this review is unique in that it identifies disparity on the state level and presents up-to-date information. As mentioned above, BIPOC inpatients were younger. However, they also incurred higher mean total inpatient charges compared to NHW inpatients for AMI, as well as longer hospital lengths of stay. BIPOC inpatients also presented more commonly as an emergency compared to NHW inpatients; this fact, as well as age, could explain the length of stay discrepancy and increased costs. When grouped by individual race, these findings remained true for both Black and Hispanic inpatients when compared to NHW inpatients. It is difficult to explain why BIPOC have longer hospital stays and incur higher charges than NHW, though this may be related to a younger median age and perhaps a more aggressive treatment in such patients.

Table 3. Risk of Inpatient Mortality for Heart Attacks in Wisconsin

Variable	Univariable		Multivariable	
	OR (95% CI)	P value	OR (95% CI)	P value
Age Group				
≤ 55 years	Ref	Ref	Ref	Ref
> 55 years	3.292 (2.1–5.1)	< 0.001	2.116 (1.3–3.3)	0.001 ^a
Point of origin				
Health care facility	Ref	Ref	Ref	Ref
Non-health care facility	0.620 (0.5–0.8)	< 0.001	0.699 (0.5–0.9)	0.019 ^a
Admission type				
Emergency	Ref	Ref	Ref	Ref
Other	0.669 (0.5–0.8)	0.002	0.766 (0.5–1.0)	0.073
Sex				
Male	Ref	Ref	Ref	Ref
Female	0.603 (0.4–0.7)	< 0.001	1.319 (1.0–1.7)	0.030 ^a
Insurance status				
Governmental	Ref	Ref	Ref	Ref
Private/self-pay	0.312 (0.2–0.4)	< 0.001	0.438 (0.3–0.6)	< 0.001 ^a
Race				
Non-Hispanic White	Ref	Ref	—	—
BIPOC	0.771 (0.5–1.2)	0.283	—	—
Individual race				
Non-Hispanic White	Ref	Ref	—	—
Black	0.7 (0.4–1.4)	0.301	—	—
Hispanic	0.173 (0.1–1.2)	0.081	—	—
Asian or Pacific Islander	1.8 (0.8–4.3)	0.158	—	—
Native American	1.126 (0.4–3.6)	0.842	—	—

Abbreviations: BIPOC, Black, Indigenous, and People of Color. OR, odds ratio; CI, confidence interval; Ref, referent variable.

^aSignificant on multivariable analysis only.

Table 4. Racial Subgroups for Wisconsin Heart Attacks in 2016

Demographic/ Outcome	Non-Hispanic White (n = 6002) Frequency (%)	Black (n = 284) Frequency (%)	Hispanic (n = 125) Frequency (%)	P value ^a
Age (years) at admission	68 (25–104)	57 (25–104)	58 (32–92)	< 0.001 ^c
Sex				< 0.001 ^c
Male	3799 (63.3)	146 (51.4)	87 (69.6)	
Female	2202 (36.7)	138 (48.6)	38 (30.4)	
LOS (days)	3.87 (4.567)	4.61 (6.09)	4.40 (7.37)	0.018 ^c
Total charges (USD)	65,384 (64,665)	72,567 (83,627)	83,912 (111,655)	0.002 ^c
Insurance status				< 0.001 ^c
Medicare	3628 (60.4)	127 (44.7)	44 (35.2)	
Medicaid	325 (5.4)	79 (27.8)	27 (21.6)	
Private	1824 (30.4)	64 (22.5)	38 (30.4)	
Self-pay	129 (2.1)	11 (3.9)	14 (11.2)	
Other	96 (1.6)	3 (1.1)	2 (1.6)	

Abbreviations: NHW, non-Hispanic White; LOS, length of stay; USD, US dollars.

^aChi-square test or 1-way ANOVA.

^bMedian (range).

^cSignificant.

^dMean (standard deviation).

However, it may also indicate a role for earlier intervention in BIPOC patients with certain risk factors, which may reduce the admission burden and lower costs through shorter hospital stays in this population.

It is important to identify ways that this study and its results might be extended directly to the community. This study found demographic disparity between NHW and BIPOC inpatients for AMI, as well as disparity in hospitalization charges and lengths of stay. However, there was not a higher risk of mortality in BIPOC overall, which means these differences did not cause more in-hospital deaths. However, mortality (or death) risk was higher in women and patients over 55 years of age, who historically have worse outcomes in AMI. These latter findings are certainly important, nonetheless.

The SID does not record the entirety of AMI admissions throughout any given year, though its volume is amenable to study of admission rates by county. For NHW inpatients, Manitowoc County (ZIP code 54220) had the highest rate of hospitalization for AMI (1.2%), followed by Sheboygan (53081, 1.2%) and La Crosse (54601, 1.1%) counties. For BIPOC inpatients, Milwaukee County (53206-9, 53212, 53216-8, 53223-5, 53204, 53208, 53210) had the highest hospitalization rate for AMI (41.3%), followed by Rock County (53511, 2.0%) (Appendix 2). While there is likely a larger population of BIPOC in Milwaukee than other counties, this independent association is significant. It is hopeful these findings might inspire future community-driven efforts within such regions or populations or give new evidence-based motivation to studies already in existence.

Presently, there are no “next steps” through which these findings will be disseminated to the community, though the implications might promote future goal-oriented research efforts. The results of this study highlight the importance of interventions outside of health care for reducing the financial, social, and individual costs associated with AMI. Interestingly, there are national trends that suggest some disparities are decreasing.⁹ However, there are still opportunities for change and improvement for the entire health care system, including providers and patients alike. This change may be difficult, but such interventions are necessary to initiate change at a statewide level. As mentioned, there are no next steps from this study currently, though interventions such as health policy changes at a statewide level, quality improvement programs at a local or county level, and perhaps even clinical and culturally targeted community interventions may offer hope that some of the observed discrepancies can be mitigated in Wisconsin. Culturally targeted community interventions may be particularly important to educate different patient groups on the risk factors of heart attacks and advise on how basic preventive measures can be employed to reduce the risk of hospitalizations. Such measures also can be taken in the clinic, an area ripe for patient education.

Limitations

There are inherent limitations to this study, most of which stem from using a large, collaborative dataset. While a few of these limitations are mentioned above, it is necessary to highlight the heterogeneous nature of this entire cohort with respect to different races, ages, ZIP codes, and insurance providers. Thus, error may exist with respect to confounding variables, especially as the 2 comparative groups were not control-matched. There also may exist variability in body mass index, comorbid disease such as diabetes, smoking, and drinking, as well as in provider entry habits to the SID. Though given the nature of the SID dataset, these variables were not available for inclusion.

A second limitation of this study is the generalizability of the results. Notably, the term “minority” has been used previously in national datasets; in this study, it was used similarly but referred to as BIPOC. However, different institutions may describe this group using different terminology or may include different races than the ones included in this study. Thus, the findings of the current study must be interpreted accordingly.

CONCLUSION

It appears BIPOC inpatients have longer hospital stays and incur higher charges compared to NHW inpatients, though race does not appear to influence the inpatient mortality risk. This study also recorded demographic differences that exist between racial and ethnic groups. Among Wisconsin counties with higher proportions of AMI, these data may enable strategic recommendations of hospitalized patients or permit hospital-specific risk stratification to identify disparity and encourage equitable care.

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REFERENCES

1. Sonel AF, Good CB, Mulgund J, et al. Racial variations in treatment and outcomes of black and white patients with high-risk non-ST-elevation acute coronary syndromes: insights from CRUSADE (Can Rapid Risk Stratification of Unstable Angina Patients Suppress Adverse Outcomes With Early Implementation of the ACC/AHA Guidelines?). *Circulation*. 2005;111(10):1225-1232. doi:10.1161/01.CIR.0000157732.03358.64
2. Ng DK, Brotman DJ, Lau B, Young JH. Insurance status, not race, is associated with mortality after an acute cardiovascular event in Maryland. *J Gen Intern Med*. 2012;27(10):1368-1376. doi:10.1007/s11606-012-2147-9
3. Ferguson JA, Tierney WM, Westmoreland GR, et al. Examination of racial differences in management of cardiovascular disease. *J Am Coll Cardiol*. 1997;30(7):1707-1713. doi:10.1016/s0735-1097(97)00365-3
4. Agency for Healthcare Research and Quality. HCUP central distributor SID: availability of data elements by year - 2016. Published May 2020. Accessed October 18, 2020. <https://www.hcup-us.ahrq.gov/db/state/siddist/siddistvarnote2016.jsp>
5. Agency for Healthcare Research and Quality. SID file composition - Wisconsin. Published August 2006. Accessed October 18, 2020. https://www.hcup-us.ahrq.gov/db/state/siddist/siddist_filecompwi.jsp
6. National Center for Health Statistics. International Classification of Diseases, Tenth

Revision, Clinical Modification (ICD-10-CM). Centers for Disease Control and Prevention. Published July 17, 2020. Accessed October 18, 2020. <https://www.cdc.gov/nchs/icd/icd10cm.htm>

7. Agency for Healthcare Research and Quality. SID database documentation. Published October 2020. Accessed October 18, 2020. <https://www.hcup-us.ahrq.gov/db/state/sidbdbdocumentation.jsp>

8. Agency for Healthcare Research Quality. HCUP-US overview. Published October 2019. Accessed October 18, 2020. <https://www.hcup-us.ahrq.gov/overview.jsp>

9. Lewey J, Choudhry NK. The current state of ethnic and racial disparities in cardiovascular care: lessons from the past and opportunities for the future. *Curr Cardiol Rep*. 2014;16(10):530. doi:10.1007/s11886-014-0530-3

10. Ferdinand KC, Rodriguez F, Nasser SA, et al. Cardiorenal metabolic syndrome and cardiometabolic risks in BIPOC populations. *Cardiorenal Med*. 2014;4(1):1-11. doi:10.1159/000357236

11. Barnhart JM, Fang J, Alderman MH. Differential use of coronary revascularization and hospital mortality following acute myocardial infarction. *Arch Intern Med*. 2003;163(4):461-466. doi:10.1001/archinte.163.4.461

12. Khambatta S, Seth M, Rosman HS, et al. The association between patient race, treatment, and outcomes of patients undergoing contemporary percutaneous coronary intervention: insights from the Blue Cross Blue Shield of Michigan Cardiovascular Consortium (BMC2). *Am Heart J*. 2013;165(6):893-901.e2. doi:10.1016/j.ahj.2013.02.030

13. DeVon HA, Burke LA, Nelson H, Zerwic JJ, Riley B. Disparities in patients presenting to the emergency department with potential acute coronary syndrome: it matters if you are Black or White. *Heart Lung*. 2014;43(4):270-277. doi:10.1016/j.hrtlng.2014.04.019

14. Trivedi AN, Nsa W, Hausmann LRM, et al. Quality and equity of care in U.S. hospitals. *N Engl J Med*. 2014;371(24):2298-2308. doi:10.1056/NEJMs1405003

15. Fowler-Brown A, Corbie-Smith G, Garrett J, Lurie N. Risk of cardiovascular events and death—does insurance matter? *J Gen Intern Med*. 2007;22(4):502-507. doi:10.1007/s11606-007-0127-2

16. Correa-de-Araujo R, Stevens B, Moy E, Nilasena D, Chesley F, McDermott K. Gender differences across racial and ethnic groups in the quality of care for acute myocardial infarction and heart failure associated with comorbidities. *Womens Health Issues*. 2006;16(2):44-55. doi:10.1016/j.whi.2005.04.003

17. Edmund Anstey D, Li S, Thomas L, Wang TY, Wiviott SD. Race and sex differences in management and outcomes of patients after ST-elevation and non-ST-elevation myocardial infarct: results from the NCDR. *Clin Cardiol*. 2016;39(10):585-595. doi:10.1002/clc.22570

18. Downing NS, Wang C, Gupta A, et al. Association of racial and socioeconomic disparities with outcomes among patients hospitalized with acute myocardial infarction, heart failure, and pneumonia: an analysis of within- and between-hospital variation. *JAMA Netw Open*. 2018;1(5):e182044. doi:10.1001/jamanetworkopen.2018.2044

19. Polsky D, Lave J, Klusaritz H, et al. Is lower 30-day mortality posthospital admission among blacks unique to the Veterans Affairs health care system? *Med Care*. 2007;45(11):1083-1089. doi:10.1097/MLR.0b013e3180ca960e

20. Polsky D, Jha AK, Lave J, et al. Short- and long-term mortality after an acute illness for elderly whites and blacks. *Health Serv Res*. 2008;43(4):1388-1402. doi:10.1111/j.1475-6773.2008.00837.x

21. Thomas KL, Hernandez AF, Dai D, et al. Association of race/ethnicity with clinical risk factors, quality of care, and acute outcomes in patients hospitalized with heart failure. *Am Heart J*. 2011;161(4):746-754. doi:10.1016/j.ahj.2011.01.012

The Interplay of Diversity, Equity, and Inclusion in Addressing Health Inequities

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ABSTRACT

Purpose: The terms diversity, equity, and inclusion have become part of a national conversation as we come to grips with longstanding societal negligence. The purpose of this study was to determine what these terms mean with respect to health care, and whether we are manifesting them in our medical practices.

Methods: Using the Centers for Disease Control and Prevention's Social Vulnerability Index and Google, we mapped the locations of physical therapy and primary care clinics within the 4 most diverse Wisconsin counties—Milwaukee, Racine, Kenosha, and Dane—which also had high Social Vulnerability Indexes, to assess health equity in these communities.

Results: Most physical therapy practices are located outside of vulnerable communities. While primary care is much more proficient at having a presence in these neighborhoods, there are still absences in some areas.

Conclusions: Our analysis suggests that physical therapy services in Wisconsin are often inaccessible to members of vulnerable communities: a matter of equity. Efforts to improve equity via patient access must entail interventions that address the other components of diversity, equity, and inclusion. We recommend that other health care professionals conduct similar analyses in order to determine whether we, as a health care community, are positioning ourselves to best service our patients.

INTRODUCTION

Evident inequities routinely experienced by Black, Indigenous, and People of Color (BIPOC) have prompted professional organizations spanning the medical gamut to engage in critical conversations, unpacking their complacency with and contributions to systems of inequity.¹⁻⁵ The importance of having these conversations in Wisconsin, home to some of the most racist cities in the United States and labeled the worst state in which to raise a Black

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child, cannot be overstated.⁶⁻⁷ Such talks are held under the label of diversity, equity, and inclusion (DEI). But despite this term's popularity, many medical clinicians do not fully understand all that DEI encompasses, nor the interplay of its 3 components; fewer still have contextualized DEI within their own practices.

Diversity, Equity, Inclusion

Briefly, a definition of our focus—DEI. *Diversity*, often viewed mistakenly as a racial dichotomy, is the understanding that everyone is different, unique. While race, gender, sexual orientation, age, religion, and disability are aspects of diversity, researchers at Johns Hopkins University highlight that aspects of one's identity that are often invisible to an outsider (eg, work experience, political beliefs, family dynamics, etc) are what truly make that

individual unique or diverse.⁸ *Equity*, in relation to health care, concerns the absence of health disparities or avoidable differences in health status among different groups of people.⁹ Unfortunately, sociopolitical and economic systems currently create inequitable conditions for different patient populations (eg, historical redlining practices limiting access to medical care).¹⁰ Finally, *inclusion* focuses on creating spaces in which diverse opinions and persons are not merely put on display or tokenized, but rather valued and given an equal voice.^{9,11}

Physical Therapy, Primary Care, and DEI

Within physical therapy (PT), we have noticed major areas of concern: an historical lack of diversity amongst students, faculty, and providers and limited representation of patients and clinicians of

Table. Social Vulnerability Index of Wisconsin's Most Diverse Counties from Most to Least Diverse

County	Social Vulnerability Index
Milwaukee	1.0 (highest possible ranking)
Racine	.8592
Kenosha	.9155
Dane	.4366
Sawyer	.8310
Brown	.7465
Forest	.9718
Rock	.9014

color in didactic content and on the walls in educational and clinical settings.¹¹⁻¹³ We know we need to work on increasing diversity within our profession to become more representative of the populations we serve. Additionally, we acknowledge that we need to create educational and clinical environments that are more inclusive of the students we teach and the patients we treat.^{1,11} But what about equity when it comes to access to PT?

Although much of our practice relies on physician referrals, physical therapists can legally offer direct access to patients with musculoskeletal, neuromuscular, cardiopulmonary, and integumentary pathologies.¹⁴ With an overburdened health care system and an inverse relationship between socioeconomic status and injury risk, this relatively new role could be utilized to address disparities in primary care access for vulnerable patients.¹⁵⁻¹⁶ We sought to analyze the geographic locations of PT clinics with respect to marginalized communities. A second analysis investigated the locations of primary care providers (PCPs), including family/general medicine, internal medicine, obstetrics/gynecology, and pediatric specialties, in the same manner.

METHODS

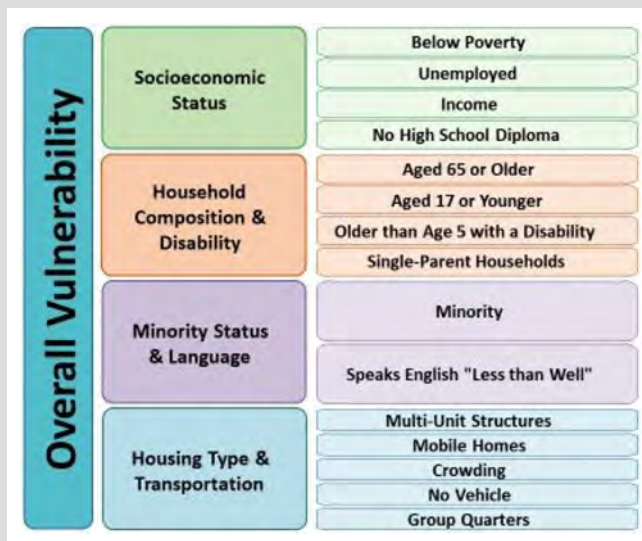
Using the Centers for Disease Control and Prevention's (CDC) Social Vulnerability Index (SVI) and Google, we mapped the locations of PT and PCP clinics within the 4 most diverse counties (which also had high SVIs) in Wisconsin.¹⁷ The SVI takes into account 15 variables that fall into 4 themes, as depicted in Figure 1.

Based on the components depicted above, the SVI provides rankings between 0 and 1, with a higher number indicating greater vulnerability to external stressors, such as natural disasters, economic collapse, or even a global health pandemic. Ratings for the most diverse counties in Wisconsin, based on the 2016 County Health Rankings,¹⁸ are depicted in the Table.

RESULTS

With the exception of Dane County, the most racially diverse counties—meaning those with the greatest representation of BIPOC—are also the most vulnerable (see Table). These results corroborate the Health Resources and Service Administration's (HRSA) 2019-2020 Health Equity Report.¹⁹

Figure 1. Social Vulnerability Index: 4 Themes That Take Into Account 15 Variables



Source: Centers for Disease Control and Prevention

Disconcertingly, when looking at the location of PT practices within the top 4 diverse counties, we discovered that PTs generally operate outside of the most vulnerable communities (Figures 2-5). We also found that PCPs were much more likely to have clinics within these communities.

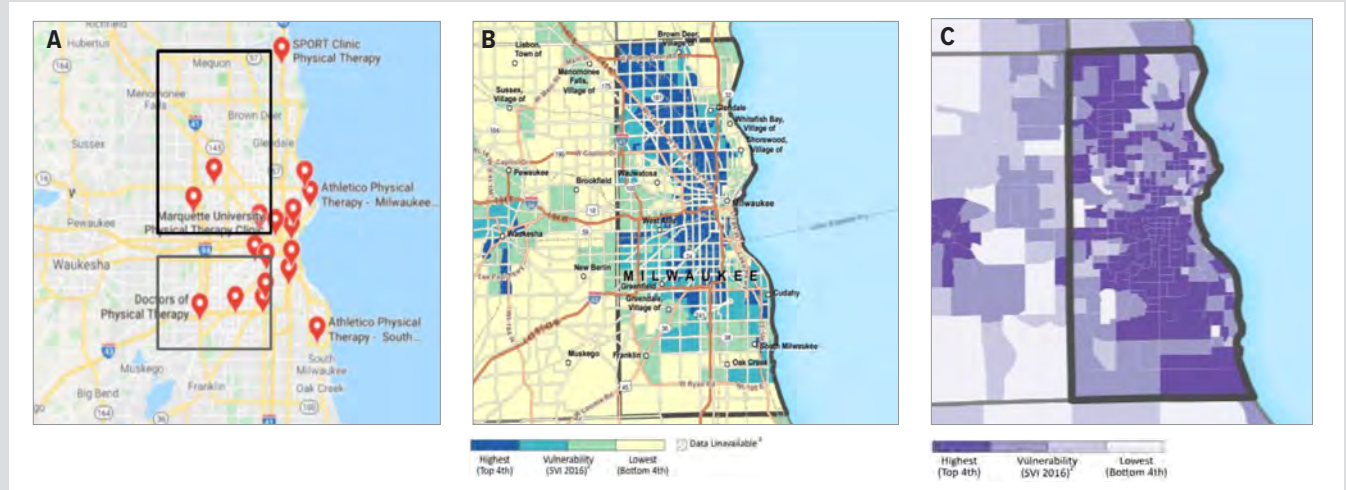
DISCUSSION

Equity

DEI is a framework for promoting best practices regarding racial, social, sexual, and gender diversity.¹¹ Our analysis suggests that PT services in Wisconsin are often inaccessible to members of vulnerable communities: a matter of equity. With our analysis of PCPs, we found that even when large numbers of physicians are present, quantity may not coincide with uniform dispersion. For example, a report from the Area Health Education Centers (AHEC) states that 20% of all PCPs in Wisconsin practice in Milwaukee County.²⁰ However, primary care shortages are noted in central city Milwaukee, where the majority of residents are of color. So although Milwaukee County is rich with PCPs, the maldistribution of clinics leads to variability in access and care patterns, resulting in vastly different health outcomes.²⁰ The same situation holds true for the central parts of Beloit and Kenosha, as well as many rural areas. Research suggests that this trend is not specific to Wisconsin.²¹ Furthermore, the AHEC report states that physicians who practice in primary care are likely to live in the areas they work, with 1 exception—the sub areas of Milwaukee.²⁰ We will address the implications of this next.

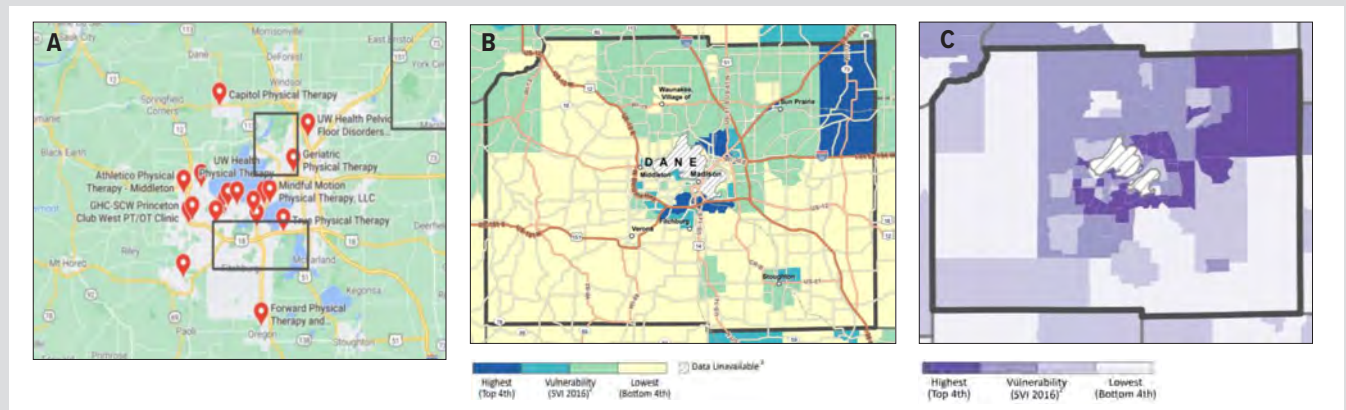
In viewing this predicament through the lens of DEI, efforts to improve equity also must entail interventions that address its other components: diversity and inclusion.¹¹

Figure 2. Milwaukee County Physical Therapy Clinic Locations Contrasted with the County Social Vulnerability Index (SVI)



(A) Distribution of physical therapy clinics in Milwaukee County relative to the most vulnerable communities; (B) County SVI, where darker colors represent a greater degree of vulnerability; (C) Vulnerability in Milwaukee County attributable to race, ethnicity, and language, with darker colors representing a greater degree of vulnerability.

Figure 3. Dane County Physical Therapy Clinic Locations Contrasted with the County Social Vulnerability Index (SVI)



(A) Distribution of physical therapy clinics in Dane County relative to the most vulnerable communities; (B) County SVI, where darker colors represent a greater degree of vulnerability; (C) Vulnerability in Dane County attributable to race, ethnicity, and language, with darker colors representing a greater degree of vulnerability.

Diversity

A diverse workforce helps address health care inequity. Physicians from underrepresented minorities are 3 times more likely to practice as PCPs in underserved areas compared to their majority counterparts.²¹ A PT workforce that is 84% White likely contributes to current business patterns.¹³ Additionally, diversity in the workforce may increase patient compliance.²² Recent research suggests that patients, specifically Black patients, are more likely to adhere to medical advice when their physician shares their racial identity.²² Providers who have similar backgrounds as their patients and who live in and understand the communities in which their patients live garner more trust because they comprehend barriers to access, such as insurance coverage, employment status, and the reasons behind medical mistrust.²³

Although all clinicians should understand the social determinants of health (neighborhood and built environment, social and

community context, education, economic stability, etc) and their implications on health and health behavior, a majority White provider base in a majority White state may be less-equipped to meet the needs of patients from diverse backgrounds than providers who share a similar racial/ethnic identity.^{11,24} As previously discussed, PCPs in the sub areas of Milwaukee tend to reside outside of the communities in which they work, potentially creating a disconnect between clinicians and their patients.^{20,22,23} Thus, referring back to the discussion of equity, the development of “brick and mortar” clinics does not ameliorate the plethora of barriers to actual access; lack of diversity amongst providers may contribute, as may inclusion.

Inclusion

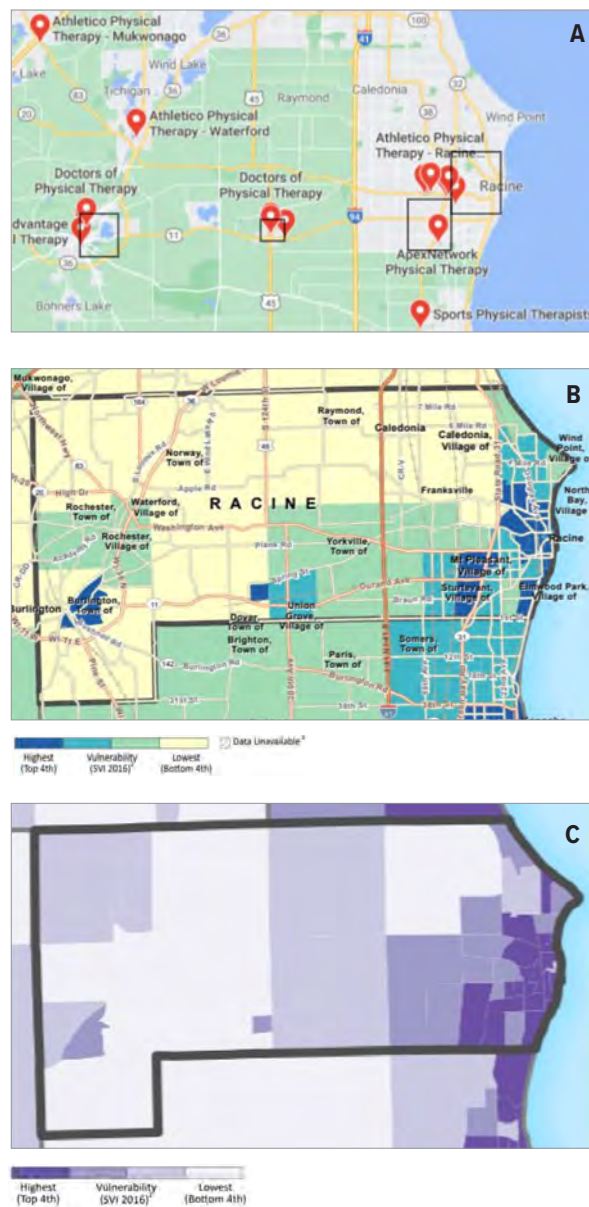
Inclusion has a significant impact on patient access and trust. It is crucial for patients to “see themselves” reflected in the health

Figure 4. Kenosha County Physical Therapy Clinic Locations Contrasted with the County Social Vulnerability Index (SVI)



(A) Distribution of physical therapy clinics in Kenosha County relative to the most vulnerable communities; (B) County SVI, where darker colors represent a greater degree of vulnerability; (C) Vulnerability in Kenosha County attributable to race, ethnicity, and language, with darker colors representing a greater degree of vulnerability.

Figure 5. Racine County Physical Therapy Clinic Locations Contrasted with the County Social Vulnerability Index (SVI)



(A) Distribution of physical therapy clinics in Racine County relative to the most vulnerable communities; (B) County SVI, where darker colors represent a greater degree of vulnerability; (C) Vulnerability in Racine County attributable to race, ethnicity, and language, with darker colors representing a greater degree of vulnerability.

care setting they are accessing. This “reflection” should include everything from providers who look like them, to illustrations on the walls, to promotional and educational materials.^{19,22,24} These feelings of inclusion increase patients’ desires to utilize health care services and follow medical advice.²²

Though not the focus of our analysis, we acknowledge that a lack of inclusion at educational institutions likely has a downstream effect, fostering noninclusive educational and clinical environments. Research in the PT field suggests that a diverse faculty increases the acceptance and retention of students of color, and similar calls to action have been issued within other medical com-

munities.^{1-5,12} Thus, inclusion and diversity may intertwine with the ultimate effect of increasing equity (access).¹¹

Limitations

Our analysis is not without flaws. We report on trends obtained through, at times, less-than-formal academic means (eg, using Google to map PT and PCP clinics). However, using Google to map clinic locations may reflect patient behaviors when search-

ing for local clinics. Additionally, we only investigated the top 4 diverse counties in Wisconsin. Similar analyses should be conducted in Sawyer, Brown, Forest, and Rock counties, which are also diverse and have high SVI values.

CONCLUSION

Our findings highlight the paucity of PT clinics in vulnerable Wisconsin areas. We stress that equity, in terms of access to PCPs, goes beyond the establishment of “brick and mortar” clinics.²¹ We note the importance of diversity: a more diverse workforce may address health inequity by increasing services provided and adherence to medical advice in racially diverse and vulnerable populations.²² PT and other health care professionals in Wisconsin boast disproportionately majority White provider bases and may increase their effectiveness in serving vulnerable communities by recruiting and retaining more diverse providers, which first requires increasing diversity in educational programs.^{13,22,24,25} Finally, it is important to focus on inclusion, both clinically and educationally, by creating environments that welcome and value diversity amongst students, employees, and patients.^{1,11}

Our analysis focuses on PT, with a side note on primary care practices. We recommend that other health care professionals conduct similar analyses in order to determine whether we, as a health care community, are positioning ourselves to best service our patients.

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REFERENCES

- Grubbs V. Diversity, equity, and inclusion that matter. *N Engl J Med*. 2020;383(4):e25. doi:10.1056/NEJMp2022639
- Deuel DH. Practicing what we preach: rethinking acceptance into DPT programs. American Physical Therapy Association. July 13, 2020. Accessed October 20, 2020. <https://www.apta.org/article/2020/07/13/rethinking-acceptance-into-dpt-programs>
- Bao A K, Bergner A L, Chan-Smutko G, Villiers J. Reflections on diversity, equity, and inclusion in genetic counseling education. *J Genet Couns*. 2020;29(2):315-323. doi:10.1002/jgc4.1242
- Moreno FA. Diversity, Equity, and Inclusion in Psychiatry. *Focus (Am Psychiatr Pub)*. 2020;18(1):1. doi:10.1176/appi.focus.18101
- Mmeje O, Price E A, Johnson T R, et al. Galvanizing for the future: a bottom-up departmental approach to diversity, equity, and inclusion. *Am J Obstet Gynecol*. 2020;223(5):715.e1-715.e7. doi:10.1016/j.ajog.2020.07.030
- Watson A. Report: Milwaukee, Racine rank as worst cities for African Americans to live. *Wisconsin Public Radio*. November 15, 2019. Accessed October 20, 2020. <https://www.wpr.org/report-milwaukee-racine-rank-worst-cities-african-americans-live>
- Ivey M. No state worse than Wisconsin for black children, says new national study. *The Cap Times*. April 1, 2014. Accessed October 24, 2020. https://madison.com/ct/news/local/writers/mike_ivey/no-state-worsethan-wisconsin-for-black-children-says-new-national-study/article_7ec1a1fc-b923-11e3-828c-0019bb2963f4.html
- Hawkins BW, Morris M, Nguyen T, Siegel J, Vardell E. Advancing the conversation: next steps for lesbian, gay, bisexual, trans, and queer (LGBTQ) health sciences librarianship. *J Med Libr Assoc*. 2017;105(4):316-327. doi:10.5195/jmla.2017.206
- Aysola J, Barg FK, Martinez AB, et al. Perceptions of factors associated with inclusive work and learning environments in health care organizations: a qualitative narrative analysis. *JAMA Netw Open*. 2018;1(4):e181003. doi:10.1001/jamanetworkopen.2018.1003
- Magnusson DM, Bullock DD, Milligan ML, Tillman RC. Better together in diversity, equity, and inclusion: transforming society through equitable policies. Oral presentation at: American Physical Therapy Association Combined Sections Meeting; February 13, 2020; Denver, CO.
- Patel RM, Rethorn Z, VanHoose L. Better together in diversity, equity, and inclusion: engaging diverse populations to improve rehabilitation outcomes. Oral presentation at: American Physical Therapy Association Combined Sections Meeting; February 13, 2020; Denver, CO.
- Dickson T, Zafereo J. Faculty and programmatic influences on the percentage of graduates of color from professional physical therapy programs in the United States. *Adv Health Sci Educ Theory Pract*. 2021;26(1):215-235. doi:10.1007/s10459-020-09980-z.
- American Physical Therapy Association. *APTA Physical Therapy Workforce Analysis*. American Physical Therapy Association; 2020. Accessed January 9, 2021. <https://www.apta.org/your-career/careers-in-physical-therapy/workforce-data/apta-physical-therapy-workforce-analysis>
- Vision, Mission, and Strategic Plan. American Physical Therapy Association. Accessed October 28, 2020. www.apta.org/vision2020. Published 2020.
- Yuma-Guerrero P, Orsi R, Ping-Tzu L, Catherine C. A systematic review of socioeconomic status measurement in 13 years of US injury research. *J Saf Res*. 2018;64: 55-72. doi:10.1016/j.jsr.2017.12.017
- Merritt Hawkins Team. *2017 Survey of Physician Appointment Wait Times*. Merritt Hawkins; 2017. Accessed January 9, 2021. <https://www.merrithawkins.com/news-and-insights/thought-leadership/survey/survey-of-physician-appointment-wait-times/>
- Centers for Disease Control and Prevention/Agency for Toxic Substances and Disease Registry/Geospatial Research, Analysis, and Services Program. CDC Social Vulnerability Index 2016, Database Wisconsin. Accessed October 20, 2020. http://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html
- County Health Ranking & Roadmaps. Wisconsin Rankings Data. 2016. Accessed October 21, 2020. <https://www.countyhealthrankings.org/app/wisconsin/2016/downloads>
- Office of Health Equity. Health Resources & Services Administration. Reviewed October 2020. Accessed October 21, 2020. <https://www.hrsa.gov/about/organization/bureaus/ohe/index.html>
- Wisconsin AHEC Health Workforce Data Brief. Primary Care Physicians: Distribution, Demographics, Hours of Work, Population to Provider Ratios. Wisconsin Area Health Education Centers. June 2015. Accessed October 22, 2020. <https://ahec.wisc.edu/wp-content/uploads/sites/99/2017/02/primary-care-physician-dist-pop-ratios.pdf>
- Goodfellow A, Ulloa JG, Dowling PT, et al. Predictors of primary care physician practice location in underserved urban and rural areas in the United States: a systematic literature review. *Acad. Med*. 2016;91(9):1313-1321. doi:10.1097/ACM.0000000000001203
- Alsan M, Owen G, Grant G. Does diversity matter for health? Experimental evidence from Oakland. *Am Econ Rev*. 2019;109(12): 4071-4111. doi:10.1257/aer.20181446
- Arnett M J, Thorpe R J, Gaskin D J, et al. Race, medical mistrust, and segregation in primary care as usual source of care: findings from the exploring health disparities in integrated communities study. *J Urban Health*. 2016;93(3):456-467. doi:10.1007/s11524-016-0054-9
- Gutierrez KJ. The performance of “antiracism” curricula. *N Engl J*. 2020;383(11): e75. doi:10.1056/NEJMp2025046
- Castillo-Page L. *Diversity in the Physician Workforce Facts & Figures 2010*. Association of American Medical Colleges; 2010. Accessed October 22, 2020. <https://www.aamc.org/system/files/reports/1/factsandfigures2010.pdf>

Lead Poisoning and Racism in the Time of COVID-19

Do Dang, BS; Morgan Lively, DO; Alonzo Jalan, MD

It has been 5 years since Flint, Michigan made national headlines for the dangerous levels of lead in its drinking water thanks to Dr Mona Hanna-Attisha's tireless advocacy.¹ Despite the attention brought to lead poisoning, this issue continues to plague children in the primary care setting throughout Wisconsin. An overwhelming amount of research confirms what we already knew—there is no amount of lead in the body that is safe.² Yet, the Environmental Protection Agency currently allows up to 15 parts per billion (ppb) of lead in our drinking water,² far exceeding the American Academy of Pediatrics' recommendation of 1 ppb.³ Children under the age of 6 years are vulnerable to the effects of lead, negatively altering their development and resulting in life-changing neurologic, cognitive, and behavioral problems.⁴ Wisconsin falls short in protecting our children. A 2019 report by the Environment America Research and Policy Center and US Public Interest Research Group Education Fund gave the state of Wisconsin an "F" for its failure

to provide lead-free drinking water in schools, endangering children's health.⁵

Lead poisoning is especially a problem in Milwaukee, Wisconsin, notorious for being one

Hispanic/Latinx communities as fewer lead screening tests were performed, fewer follow-up visits for patients with elevated blood lead levels were conducted, and people spent more

Lead poisoning is especially a problem
in Milwaukee, notorious for being one of the most
racially segregated cities in the US.

of the most racially segregated cities in the US.⁶ There are approximately 70,000 residential lead pipes located throughout Milwaukee, including the north and south sides, that deliver unsafe drinking water to Black and Hispanic/Latinx communities, respectively.⁷ In addition, many of these homes were built before 1978, when lead paint was used.⁸ This history of housing segregation spans decades, driven by redlining, White flight, and lack of investment in low-income areas, which locked communities of color into certain neighborhoods.^{9,10} These racist policies have had pervasive effects to this day. Lead poisoning, among other health issues, disproportionately affects Black and Hispanic/Latinx children relative to their White peers, further contributing to disparities such as the academic achievement gaps demonstrated yearly in the Nation's Report Card.^{11,12}

The COVID-19 pandemic highlights these racial inequities, worsening Milwaukee's lead poisoning crisis. The pandemic increased the risk of lead poisoning among Black and

time at home.⁴ Because of their ZIP codes, these children are consistently exposed to lead dust and water. These children are often from low-income families and rely on BadgerCare and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) for recommended lead screening, which requires a blood draw at ages 12, 18, and 24 months.¹³ However, WIC and clinic offices have temporarily transitioned to telemedicine or limited office visits, which has been associated with a 34% reduction in lead screening per early Centers for Disease Control and Prevention estimates.¹⁴

One year after the World Health Organization declared COVID-19 a pandemic, we are now looking forward to vaccinations for all; however, we must continue to address the immediate threats to children's health: lead pipes and older homes. Until we address these issues at the source, we are doing a gross disservice to our fellow Wisconsinites, particularly our Black communities. Providing lead-free water and

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homes is our chance to demonstrate that Black Lives Matter by reducing racial disparities. In Milwaukee, it was not until 2017 that decisive action was finally started towards replacing lead pipes. As of 2020, approximately only 2,000 pipes have been replaced, significantly behind the Milwaukee Water Works' goal.¹⁵ This is not enough. Lead poisoning is a health problem that can affect generations of Black and Hispanic/Latinx communities due to the lack of upward housing mobility opportunities, which bars these families from escaping these hazardous conditions and perpetuates inter-generational inequity.

We need to take a hard look at why Milwaukee is behind in securing safe drinking water. The root of the issue is longstanding systemic inequity as affluent regions of Wisconsin have had timely replacement of their lead pipes. Prior to 2018, the state counted on residents in these areas to pay for the private side of the lead lateral replacements, an option that low-income Milwaukee residents could not afford.^{16,17} Because of this unfortunate reality, the city historically depended more on state and federal funding for lead poisoning relief. According to the City of Milwaukee 2020 Budget in Brief, "While state general purpose tax collections have grown significantly, the shared revenue payment to Milwaukee has decreased."¹⁸ With the current funding, it will take roughly 70 years to replace all lead pipes in the city. This is an unacceptable amount of time.¹⁵ There is some hope via the Wisconsin Department of Natural Resources' Private Lead Service Line Replacement Program, which provides funding for lead pipe replacement; but with the current devastation of COVID-19, this is still too little.¹⁹ As the state revenue and the city budget take a hit, we are left to reassess funds on an annual basis.²⁰

Just as Dr Mona Hanna-Attisha stood up for Flint, Michigan, physicians who are on the front lines of primary care must continue advocating for government-funded lead paint abatement and lead pipe replacement. The problem of lead poisoning is man-made—exacerbated by inequity—and preventable with enough state and federal funding. Advocacy in recent years has resulted in the creation of several councils, coalitions, and policy changes. However, more

must be done to reverse the decades of lead poisoning on our fellow Wisconsinites and to prevent lead poisoning in the decades to come. Milwaukee declared racism a public health crisis in 2019: it is time we address these issues now with great urgency by increasing funding to end lead poisoning.²¹

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REFERENCES

- Hanna-Attisha M, Kuehn BM. Pediatrician sees long road ahead for Flint after lead poisoning crisis. *JAMA*. 2016;315(10):967-969. doi:10.1001/jama.2016.1034
- US Environmental Protection Agency. Basic information about lead in drinking water. Updated December 9, 2020. Accessed March 13, 2020. <https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water>
- Council on Environmental Health, American Academy of Pediatrics. Prevention of Childhood Lead Toxicity. Policy Statement. *Pediatrics*. 2016;138(1): e20161493. doi:10.1542/peds.2016-1493
- Courtney JG, Chuke SO, Dyke K, et al. Decreases in young children who received blood lead level testing during COVID-19 – 34 jurisdictions, January-May 2020. *MMWR Morb Mortal Wkly Rept*. 2021;70(5):155-161. doi: <http://dx.doi.org/10.15585/mmwr.mm7005a2>
- Rumpler J, Dietz E. Get the Lead Out. Environment Wisconsin. Accessed October 29, 2020. <https://wisconsinenvironment.org/feature/ame/get-lead-out-0>.
- Lynch EE, Meier HCS. The intersectional effect of poverty, home ownership, and racial/ethnic composition on mean childhood blood lead levels in Milwaukee County neighborhoods. *PLoS One*. 2020;15(6):e0234995. doi:10.1371/journal.pone.0234995.
- Bence S. What does Milwaukee's lead service line replacement mandate mean? *WUWM*. March 7, 2019. Accessed March 13, 2021. <https://www.wuwm.com/post/what-does-milwaukee-s-lead-service-line-replacement-mandate-mean#stream/0>
- Milwaukee Health Department. Know the Sources of Lead. Accessed March 13, 2021. <https://city.milwaukee.gov/Health/Services-and-Programs/HomeEnvironmentalHealth/Know-the-Sources-of-Lead>
- Foltman L, Jones M. How redlining continues to shape racial segregation in Milwaukee. *WisCONTEXT*. February 28, 2019. Accessed October 29, 2020. <https://www.wiscontext.org/how-redlining-continues-shape-racial-segregation-milwaukee>
- Knight B. Lead poisoning reveals environmental racism in the US. *DW.com*. July 5, 2020. Accessed December 28, 2020. <https://www.dw.com/en/lead-poisoning-reveals-environmental-racism-in-the-us/a-5335395>
- State Profiles: Wisconsin. The Nation's Report Card. Accessed October 29, 2020. https://www.nationsreportcard.gov/profiles/stateprofile/overview/WI?cti=PgTab_GapComparisons
- Kremer R. Wisconsin has widest achievement gap on nation's report card. *Wisconsin Public Radio*. October 30, 2019. Accessed October 29, 2020. <https://www.wpr.org/wisconsin-has-widest-achievement-gap-nations-report-card>.
- Childhood Lead Poisoning Guidelines for Clinicians. Milwaukee Health Department. Updated May 13, 2010. Accessed October 30, 2020. <https://city.milwaukee.gov/Health/Services-and-Programs/HomeEnvironmentalHealth/Medical-Guidelines-Lead-Poisoning>
- COVID-19: Impacts on DHS Programs. Wisconsin Department of Health Services. October 19, 2020. Revised November 18, 2020. Accessed October 29, 2020. <https://www.dhs.wisconsin.gov/covid-19/impacts.htm>.
- Martinez M. Milwaukee significantly behind in project to replace 1,100 lead pipes by end of year. *Great Lakes Now*. August 12, 2020. Accessed October 29, 2020. <https://www.greatlakesnow.org/2020/08/milwaukee-significantly-behind-lead-pipes-by-end-of-year/>
- Bence S. Wauwatosa: one of many Wisconsin communities grappling with lead in water. *WUWM*. April 23, 2018. Accessed October 29, 2020. <https://www.wuwm.com/post/wauwatosa-one-many-wisconsin-communities-grappling-lead-water>.
- Neltner T. Wisconsin law removes crucial barrier to lead pipe replacement. EDF Health; Environmental Defense Fund. February 22, 2018. Accessed October 29, 2020. <http://blogs.edf.org/health/2018/02/22/wisconsin-law-lead-pipe-replacement/>.
- 2020 Budget in Brief. City of Milwaukee. Accessed October 29, 2020. <https://city.milwaukee.gov/ImageLibrary/Groups/daaBudgetOffice/2020-Budget/2020BudgetinBrief.pdf>
- Private Lead Service Line Replacement Program. Wisconsin Department of Natural Resources. Accessed October 29, 2020. <https://dnr.wisconsin.gov/aid/documents/EIF/privateLSReplacementFundingProgram.html>
- Updates on Milwaukee's lead water pipe replacement project. The Morning Show. *Wisconsin Public Radio*. September 10, 2020. Accessed October 29, 2020. <https://www.wpr.org/shows/updates-milwaukee-s-lead-water-pipe-replacement-project>.
- Dirr A. Milwaukee County executive signs resolution declaring racism a public health crisis. *Milwaukee Journal Sentinel*. May 20, 2020. Accessed October 30, 2020. <https://www.jsonline.com/story/news/local/milwaukee/2019/05/20/abele-signs-resolution-declaring-racism-public-health-crisis/3741809002/>.

Microaggressions: Underrepresented Minority Physical Therapist Student Experiences While on Clinical Internships

Lisa Steinkamp, PT, PhD, MBA

ABSTRACT

Purpose: The purpose of this study was to determine whether underrepresented minority (URM) students in the University of Wisconsin-Madison (UW-Madison) Doctor of Physical Therapy (DPT) Program had experienced derogatory behavior while on clinical internships.

Methods: Six URM students were surveyed while on clinical internships to ascertain whether they had encountered discrimination, racism, or microaggressions.

Results: Four of the 6 URM students reported experiencing microaggressions while on their clinical internships.

Conclusion: Education and training in the recognition and management of incidents involving derogatory behavior are imperative to foster safe and inclusive clinical environments.

INTRODUCTION

Health care professions, particularly physical therapy, have been historically homogenous. The diversity breakdown of the physical therapy workforce is starkly different from that of its patients. Whereas US Census data indicates that Whites of non-Hispanic origin make up 60.1% of the United States population, they comprise 88.5% of the American Physical Therapy Association (APTA) membership and nearly 80% of the reported physical therapy industry (Table 1).¹⁻³

This 1-dimensional White workforce is a deterrent to providing the highest quality care to each patient who seeks physical therapy. A diverse workforce is essential to meet the cultural and societal needs of an increasingly diverse patient population. All patients desire access to clinics that reflect their neighborhoods and want to

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feel understood by their providers through the delivery of culturally competent care. “Helping a patient become healthier,” says Morehouse School of Medicine Dean Dr. Valerie Montgomery Rice, “partly depends on a patient’s trust in a doctor, a positive doctor-patient relationship, and an understanding of the patient’s environment. And many times, that occurs through a cultural lens. If you can relate to something about that person’s story—or have some indication of what their experience has been—then the recommendations you make as a provider (are) going to make a difference.”⁴

The most practical way to increase diversity in the workforce is through the admission of URM students into educational programs. Table 2 illustrates the low percentage of diverse applicants to physical therapy programs and, more disappointing, the disproportionate percent of URM students who apply but are not admitted to programs.⁵ The UW-Madison DPT Program has struggled with recruitment of diverse applicants; however, due to increased outreach efforts and a more holistic admissions review process, the program is starting to see an increase in URM numbers. As a result, the DPT Program has been focusing on providing a safe, equitable, and inclusive learning environment where all students, faculty, and staff can thrive.

Program strategies to foster inclusivity have included mandatory faculty participation in cultural awareness and responsiveness education and training that is tied to annual reviews; student, faculty, and staff completion of implicit bias tests and required participation in the Intercultural Diversity Inventory, a continuous intercultural competence development tool that can be used to gauge both progress as an individual and as a program; and access to ongoing resources to guide inclusive teaching and cross-cultural communication. Efforts are underway to create a framework for

Table 1. Diversity in the United States and in the Physical Therapy Profession

Source	White (not of Hispanic Origin)	Hispanic or Latino	Black or African American	Asian	American Indian or Native Alaskan	Native Hawaiian or Other Pacific Islander
US Census (2019) ¹	60.1%	18.5%	13.4%	5.9%	1.3%	0.2%
APTA Membership Data (2016) ²	88.5%	2.5%	1.5%	5.4%	0.4%	0.2%
WebPT Industry Data (2018) ³	79.4%	4.0%	2.2%	5.7%	0.7%	0.4%

Abbreviation: American Physical Therapy Association

Table 2. Percent of Total Applications to Physical Therapist Centralized Application Service Member Programs 2011-2012 by Race/Ethnicity Designations

	Total Applicants 2011-2012	Accepted Applicants 2011-2012
White (not of Hispanic Origin)	66.44	71.58
Hispanic or Latino	5.28	4.31
Black or African American	5.21	3.2
Asian	8.27	6.9
American Indian or Native Alaskan	0.97	0.68
Native Hawaiian or Other Pacific Islander	1.12	0.68
Declined to state	12.7	12.65

culturally responsive pedagogy and instructional practices. Faculty are focusing on threading diversity, equity, and inclusion throughout the curriculum via content as well as educational materials. Students explore their own cultural awareness and delve into the history of health and health care inequities and the resulting disparities, the social determinants of health, and the existence of rehabilitation deserts. Students then have an opportunity to practice what they learn by partnering with community organizations on a project and through participation in a plethora of activities such as pro bono clinics.

Community engagement and outreach also are conducted through the program's DPT Student Organization (DPTSO) and Advancing Diversity and Excellence in Physical Therapy (ADEPT) group, respectively. If there is one thing that faculty and staff have learned on this journey, it is the importance of listening to and learning from students. As a result, many faculty and staff have joined students in DPTSO and ADEPT activities.

The DPT Program has tried to ensure that its physical space reflects its student body and that all major holidays and celebrations are acknowledged. In addition, the program furnishes a public statement affirming its commitment to diversity. Finally, there must be a vehicle through which students can report traumatic events; in the program's case, this resource has been devised by the UW School of Medicine and Public Health. Again, the significance of listening to and supporting URM students cannot be overstated.

But what happens when inclusivity is not carried over into the clinical environment? Students are taught to value patient-cen-

tered care, demonstrate professionalism, and to use effective communication skills, but what is the protocol when they experience discrimination, racism, or microaggressions from patients or staff during their clinical internships? Medical staff and students customarily have believed that they must tolerate patient biases in the interest of quality care provision. These patient behaviors can range from refusal of treat-

ment to derogatory and demeaning comments, usually based on the provider's race, ethnicity, religion, sex, or gender identity.⁶⁻⁸

The impact of these encounters can lead to decreased confidence, discomfort, and tension, especially when the clinical care team does not know how to address the discriminatory behaviors. Ackerman-Barger and Jacobs assert that "microaggressions have been shown to have a dose-response relationship with depression and anxiety."⁹ The authors go on to explain that chronic stress due to daily experiences of discrimination and microaggressions can be associated with cardiovascular disease, obesity, and diabetes. On top of mental and physical health, they can take a toll on intellectual function. This cognitive load has a counter-productive effect in retaining diverse students. Microaggressions also can take an emotional toll on providers that can result in exhaustion, self-doubt, and cynicism, in addition to withdrawal from their clinical roles. Bystanders can experience moral distress and apprehension about what to do in these situations. Reasons for not speaking up can include lack of skills, uncertainty about support from others and the institution, and doubt about the outcome if they were to come forward.¹⁰

In the past, these incidents have tended to be ignored and concealed due to discomfort of confronting the patient or staff member. Ackerman-Barger and Jacobs give an example of a URM nursing student who says that she reminds herself to keep her head down and mouth shut to avoid drawing attention to herself.⁹ A URM physician reflects, "Sometimes a patient or family behaves or reacts in an unexpected or outrageous way, which is surprising, shocking, or even confusing. I often find myself stunned, feet weighted, mouth paralyzed. My mind whirls to make sense of the unexpected departure from the customary script. If I am in a room with other professionals, I look for their reactions to guide me. When no one reacts, I wonder, 'Is it all in my head? Did I really hear that racial slur or that sexist comment? Did I exaggerate it? Am I being too sensitive?'"¹⁰

Fortunately, in the last year, civil unrest has brought these injustices to the forefront. Providers are speaking up and institutions are creating policies and trainings that continue to support patient autonomy, while protecting and respecting staff and students.¹¹⁻¹⁴ UW Health Policy Number: 1.2.22 Patient, Family, and Visitor Discriminatory Requests of Behavior is one such policy, with a stated purpose of ensuring safe, timely, culturally competent, and

quality patient care while protecting staff from bias, discrimination, and disrespect.¹⁴

Volume 95, December 2020, of *The Journal of the Association of American Medical Colleges* is dedicated to “Addressing Harmful Bias and Eliminating Discrimination in Health Professions Learning Environments.” Its 27 papers call for urgent action to eliminate health care disparities and advance health equity along with a more diverse workforce by mitigating harmful bias and discrimination in our health professions learning environments and clinical care sites.¹⁵ Themes include culture change, listening to learners, and creating bias-free assessment and evaluation, from admissions to clinical training programs. As Warsame and Hayes conclude, there is a difference between patient preference and patient needs.¹³

The purpose of this pilot study was to determine whether any of the UW-Madison DPT Program’s 6 first-year URM students had experienced derogatory or discriminatory behavior while on their 4-week internship.

METHODS

This study was part of a larger investigation that focused on how URM students in the UW-Madison DPT Program learned about the physical therapy profession; the barriers and facilitators they experienced from the time of interest to their matriculation through the program; and any suggestions they had to increase recruitment of URM students. Since this survey went out at the time of the George Floyd incident, and we had first-year students on an internship at that time, we decided to add a question about whether these students had experienced discrimination, racism, or microaggressions during their clinical rotations and, if so, how these situations were handled. This study was reviewed by the UW-Madison Institutional Review Board and was granted an exception.

An email was sent to all 120 students (3 classes of 40) in the DPT Program asking for participants who self-identified upon admission as underrepresented. URM students who responded were then sent the Qualtrics survey. The definition of underrepresented was adopted from the Physical Therapy Centralized Admissions Service (PTCAS), with categories of Hispanic/Latino, American Indian or Alaskan Native, Black or African American, Native Hawaiian or Pacific Islander, or White. The participants were considered indirectly identifiable and a waiver of signed consent was included so they could opt out of being directly quoted without use of their name if desired. Data was deidentified and stored in a secure online Box file (Box, Inc., Redwood City, California) to maintain confidentiality.

Out of 120 students surveyed, all 19 URM students from the 3 classes responded to the survey. Of those 19 students, all 6 students from the first-year class responded to the question related to current clinical experiences regarding discrimination, racism, and microaggressions. The following operational definitions for each of these terms were provided:

- **Discrimination:** the unjust or prejudicial treatment of different

categories of people or things, especially on the grounds of race, age, or sex.¹⁶

- **Racism:** Prejudice, discrimination, or antagonism directed against a person or people on the basis of their membership of a particular racial or ethnic group, typically one that is minority or marginalized.¹⁶
- **Microaggressions:** indirect, subtle, or unintentional discrimination against members of a marginalized group.¹⁶

RESULTS

Four of the 6 URM students surveyed stated they had experienced microaggressions on their current internships. One participant abstained from describing details; however, the other 3 students reported the following:

“Multiple times now, patients have made inappropriate comments about my ethnicity. I am no stranger to this and feel I have handled it well, either ignoring it or changing the subject. I was once asked if I am ‘going back to Mexico.’ I was taken aback by the remark, being a Midwest native who has never been to Mexico. Sadly, I continue to anticipate that I will receive these types of comments. I look forward to the day patients treat their providers with the same respect that we do to them.”

“I had a patient who repeatedly asked what race I was and refused to work with me. I also had a patient who stated that he was proud of me for pursuing a real career because most Black people don’t have real jobs.”

“I was treating an older White woman with an ankle sprain. She grabbed and rubbed my hair and said ‘Wow, your hair is just so fun.’ I was immediately taken aback. My clinical instructor (CI) and I talked about how what she did was inappropriate. I saw the same patient 2 more times, and she touched my hair both times and made a remark about how it felt. I felt very uncomfortable with this. My CI had stated that they would intervene if it happened again, but they did not. Looking back, I should have said something right away to stop this behavior; however, I did not know how my CI would respond to me doing so.”

All 3 of the aforementioned examples involved patients and students; however, these interactions can also involve clinical instructors, staff, coworkers, faculty, and/or peers.¹⁷ In addition, when the director of clinical education was reviewing student internship evaluations, she noted the following comment by a clinical instructor: “We have a patient that has expressed racist views/comments, and [the student] was able to stay neutral, not inciting these expressive views, nor upsetting the patient.”

DISCUSSION

Until this past year, the UW-Madison DPT Program was blame-worthy of not investigating the individual experiences of our URM

students. We were mortified to learn that 4 out of 6 students had encountered microaggressions on their current internships. As we began to explore why these incidents had not been brought up in the past, we learned about “racial battle fatigue,” which is explained as follows. “People of Color experience daily battles of attempting to deflect racism, stereotypes, and discrimination in predominantly White spaces and must always be on guard or weary of the next attack they may face. Both the anticipation and experiences of racial trauma contribute to Racial Battle Fatigue.”¹⁸ Through discussions with our URM students, we also learned that persons of color experience a “minority tax;” they tire of being the sole representative of their race and grow weary of educating others on what they go through on a daily basis. As students, power differentials, along with lack of experience in situations such as clinical internships, deter them from speaking up under normal circumstances, let alone when they are being denigrated by a patient or staff member.

Moving forward, we can assume that these situations *do* occur and that we need to learn how to step in when the person who is harmed does not feel comfortable doing so. But we must also take a proactive and not just a reactive approach to managing microaggressions. It is crucial to learn and practice what to do if one commits, receives, or witnesses these situations. Fortunately, policies, education, and trainings have now been devised that offer actionable steps to protect URM students.¹¹⁻¹⁴ Included in the UW Health policy and training are a Decision Tool Matrix to help guide the reader through appropriate responses given the circumstances and a Guidelines and Key Responses tool when the reader has committed, witnessed, or received a microaggression. Unfortunately, these guidelines were not in place at the time of our students’ internships in May 2020. We hope this is the beginning of a culture shift that protects and supports the victims of microaggressions in the moment they occur, while simultaneously attempting to educate the aggressor.

The primary strength of this study was initiating a much overdue conversation on the hardships our students of color endure on a daily basis. The primary weakness of this study was the small number of participants. However, our findings have kindled a larger-scale investigation involving focus groups with physical therapists, physical therapist assistants, and students. We are evaluating participant recognition of discrimination, racism, and microaggressions; their experiences as the target of or witness to these behaviors; the management of these encounters when they occurred; and education and training that they would find useful to address these situations moving forward.

CONCLUSION

The results of this pilot study can and should be applied to all other health professions programs. As medical practitioners, it is time for us to develop strategies that ensure safe, inclusive clinical environments. As situations involving derogatory behaviors occur,

it will be critical to not only zoom in to the individual incident but to also zoom out to the system and its policies that are enabling these behaviors to occur. Finally, I would like to conclude with a quote from an article entitled, “Why are there still so few Black CEOs in America?”

“[Dick] Parsons [senior adviser at asset management firm Providence Equity] says he’s old enough to ‘have been at this place before’ in the late 1960s and early 1970s. ‘You could have literally taken the headlines from those days and moved them forward 50 years to George Floyd and that reaction,’ he said. What he does not want to see are the same headlines a half-century from now. ‘What we have a tendency to do in business, in particular, is throw money at a problem. Money is important but it’s not going to solve this problem all alone. We have to look at how the structure of our economy works and make changes. That’s the next step. And that’s going to be hard,’ he said. ‘As a practical matter, it means taking from those who have privilege, privilege that they are sometimes not even aware of, and giving to those who have not had that privilege, who truly are on an unequal footing. That’s much tougher than just giving money.’”¹⁹

We need to be intentional in changing a culture that has existed as the status quo since the inception of our country. Racism is deeply embedded in every aspect of our society. Dismantling pervasive racism will take changing institutional, systemic, and cultural policies and practices that manifest and support racism. This will require speaking out—we must keep the conversations going as a lifelong practice. George Floyd was just another day in the life of a person of color and we have been down this road before, but maybe this time, we can keep charging forward and not become complacent once the initial unrest dies down. We owe it to those who have been unfairly disenfranchised! It is essential that we work together and push each other—it is the only way we can create a truly inclusive society characterized by mutual respect and equity.

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REFERENCES

1. United States Census Bureau. *Quick Facts: United States: Population Estimates, July 1, 2019*. Accessed October 19, 2020. <https://www.census.gov/quickfacts/fact/table/US/PST045219>
2. American Physical Therapy Association. Physical therapist demographic profile. Published January 1, 2020. Accessed October 19, 2020. <https://www.apta.org/your-career/careers-in-physical-therapy/workforce-data/physical-therapist-demographic-profile>
3. Evidence in Motion. Bridging the PT diversity gap. Published August 29, 2019. Accessed October 19, 2020. <https://evidenceinmotion.com/bridging-the-pt-diversity-gap/>
4. Hassanein N. America has an urgent need for Black doctors: ‘it’s hard to be

what you can't imagine'. *USA Today*. Published December 26, 2020. Updated December 27, 2020. Accessed December 26, 2020. <https://www.usatoday.com/story/news/health/2020/12/26/american-black-doctors-shortage-morehouse-school-medicine/3942988001/>

5. Nuciforo MA. Minority applicants to physical therapist education programs 2010-2012. *Phys Ther*. 2015;95(1):39-50. doi:10.2522/ptj.20130585

6. Jain SH. The racist patient. *Ann Intern Med*. 2013;158(8):632. doi:10.7326/0003-4819-158-8-201304160-00010

7. Frazier W. I'm not here to judge. *Fam Med*. 2019;51(1):55-56. doi:10.22454/FamMed.2019.605634

8. Paul-Emile K, Smith AK, Lo B, Fernández A. Dealing with racist patients. *N Engl J Med*. 2016;374(8):708-711. doi:10.1056/NEJMp1514939

9. Ackerman-Barger K, Jacobs NN. The Microaggressions Triangle Model: a humanistic approach to navigating microaggressions in health professions schools. *Acad Med*. 2020;95(12S Addressing Harmful Bias and Eliminating Discrimination in Health Professions Learning Environments):S28-S32. doi:10.1097/ACM.0000000000003692

10. Wheeler M, de Bourmont S, Paul-Emile K, et al. Physician and trainee experiences with patient bias. *JAMA Intern Med*. 2019;179(12):1678-1685. doi:10.1001/jamainternmed.2019.4122

11. Cowan AN. Inappropriate behavior by patients and their families-call it out. *JAMA Intern Med*. 2018;178(11):1441. doi: 10.1001/jamainternmed.2018.4348

12. Gillian-Daniel D, Petty E, Schmid M, Stahr A, Raymond N. Addressing biases in health care by promoting inclusive teaching practices among faculty in health professions education programs: learning to say the right words at the right time. *New Dir Teach Learn*. 2020;(162):123-133. 10.1002/tl.20397

13. Warsame R, Hayes R. Mayo Clinic's 5-step policy for responding to bias incidents. *AMA J Ethics*. 2019;21(6):E521-E529. doi: 10.1001/amajethics.2019.521

14. UW Health. UW Health Clinical Policy 1.2.22: *Patient, Family, and Visitor Discriminatory Requests or Behavior*. UW Health; July 2020.

15. Humphrey HJ, Levinson D, Nivet MA, Schoenbaum SC. Addressing harmful bias and eliminating discrimination in health professions learning environments: an urgent challenge. *Acad Med*. 2020;95(12S):S1-S4. doi:10.1097/ACM.0000000000003679

16. Oxford University Press. Lexico. Accessed October 19, 2020. <https://www.lexico.com/en/definition/>

17. Hall WJ, Chapman MV, Lee KM, et al. Implicit racial/ethnic bias among health care professionals and its influence on health care outcomes: a systematic review. *Am J Public Health*. 2015;105(12):e60-e76. doi:10.2105/AJPH.2015.302903

18. Racial Battle Fatigue handout. Adapted by OCEE from Morgan Goodman: "Racial battle fatigue what is it and what are the symptoms?"; JustJasmineBlog.com; & Vanderbilt University Counseling Center. Accessed March 14, 2021. <https://www.ttsdschools.org/site/handlers/filedownload.ashx?moduleinstanceid=16190&dataid=25559&FileName=Racial%20Battle%20Fatigue%20-%20Handout.pdf>

19. Guynn J, Schrotenboer B. Why are there still so few Black executives in America? *USA Today*. Published August 20, 2020. Updated February 4, 2021. Accessed August 20, 2020. <https://www.usatoday.com/in-depth/money/business/2020/08/20/racism-black-america-corporate-america-facebook-apple-netflix-nike-diversity/5557003002/>

Assessing Perspectives on Systemic Racism in an Academic Hospital Medical Group: The ARCH Project

Jesse Maupin, MD; Farah Kaiksow, MD, MPP; Jordan Kenik, MD; Ann Sheehy, MD, MS; David Sterken, MD

ABSTRACT

Background: Wisconsin residents experience significant racial inequities in health outcomes.

Objectives: The University of Wisconsin School of Medicine and Public Health Division of Hospital Medicine wanted to assess providers' perspectives on systemic racism and gauge their receptiveness to participating in anti-racism training, in conjunction with development and implementation of anti-racism curriculum.

Methods: Existing anti-racism curriculum was adapted to be delivered remotely. Division providers were asked to complete a 9-question survey at the beginning of the curriculum.

Results: At baseline, a majority of respondents believed that racial health disparities exist and should be discussed through employer-sponsored training. Respondents generally did not feel confident in their abilities to address racism.

Conclusions: Providers were supportive of anti-racism training in the workplace and feel it is congruent with the public health mission of hospital medicine physicians.

BACKGROUND

Structural racism exists in every part of American society, and Wisconsin's health care system is not exempt. Wisconsin has some of the worst health inequities in the country, including the highest infant mortality rate for Black babies and some of the largest life expectancy gaps between Black and White residents.^{1,2} Not all of the disparities can be attributed to health care system operations, though differences in how care is provided certainly contribute. According to the Institute of Medicine's 2003 report, "Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care," reducing bias, stereotyping, and discrimination at the

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patient-provider level should be a target for improving health equity.³

Some members of the Department of Medicine (DOM) at the University of Wisconsin School of Medicine and Public Health (UWSMPH) have received anti-discrimination training through voluntary participation in the Bias Reduction in Internal Medicine (BRIM) initiative. BRIM studies the implementation of a pro-diversity intervention in academic departments of medicine. Providers who chose to take part in BRIM participated in a 3-hour Breaking the Bias Habit workshop in February 2019, followed by 3 surveys intended to assess their perceptions of the DOM's diversity climate.⁴

The Division of Hospital Medicine at UWSMPH committed to addressing racial health inequities at the patient-provider level by developing and implementing the Anti-Racism Curriculum for Hospitalists (ARCH). In the early stages of ARCH, a division-wide survey was sent to identify the baseline beliefs, interest in participation, and needs of the group. The purpose of this brief report is to describe the survey responses and provide an introduction to ARCH.

METHODS

At the time of ARCH development, the division consisted of 54 physicians and 10 advanced practice providers (APPs). Of the 54 physicians, 63% were men and 37% were women. All 10 APPs were women. Of the 64 total providers, 83% were White; the remaining 17% represented South Asian, Latinx, and other ethnic backgrounds. In order to protect the privacy of the individuals in this latter group, we have chosen not to further break down this category. In terms of gender, our hospital medicine

workforce was generally reflective of the UW SMPH DOM physicians and APPs, who were 57% men and 95% women, respectively. Likewise, our division mirrored the reported racial/ethnic makeup of the department, which was 84% White. Demographic data for patients cared for by the hospital medicine division from July through December 2019 show that 90% of patients self-identified as White, 7% as Black, 2% as Asian, and 1% as American Indian/Alaskan Native. Of these patients, 3% identified as Hispanic/Latino.

The Office of Diversity, Equity, and Inclusion (DEI) at UW Health had previously created a “microlearning” series of modules with the goal of increasing employee support for and involvement in DEI initiatives. This curriculum was designed to be delivered in group settings to promote discussions among colleagues but had not yet been adapted to a virtual format since the beginning of the COVID-19 pandemic. Topics covered by the curriculum include racial health inequities; lesbian, gay, bisexual, transgender, and queer or questioning (LGBTQ) health care; history of racism in American health care; intersectionality; and implicit bias.

This 30-module curriculum was adapted by a member of the division to create ARCH. It was modified to be delivered remotely in the wake of the COVID-19 pandemic. The division-specific structure includes delivery of 1 to 3 modules embedded within monthly emails over a 10- to 12-month period. Subjects covered include racial health outcome disparities, intersectionality, implicit bias, and history of racism in American health care. Modules include publicly available videos online and documents created by the UW Health office of DEI. Time is set aside at monthly division meetings for discussion of that month’s topics; discussion also occurs on an ongoing basis through a voluntary secure messaging platform, in which 44% of providers participate.

In order to obtain a baseline understanding of our providers’ knowledge about and perspectives on these issues, all providers were asked to complete a 9-question survey at the beginning of the curriculum. Questions were designed by all 5 members of the research team and are provided in the Results section. The survey remained open for 21 days. This project was deemed exempt as a quality improvement initiative by the University of Wisconsin Health Sciences Institutional Review Board.

Descriptive statistics were used to summarize yes/no or multiple-choice responses. Free-text responses were evaluated collaboratively by the entire study team using a conceptual content analysis approach.

Table 1. Responses to Yes/No/Maybe Survey Questions (N = 21)			
	Yes N (%)	No N (%)	Maybe N (%)
Do you think your employer should teach about issues of health inequities, racism, sexism, and homophobia?	18 (86%)	3 (14%)	NA
Have you received training on these issues in the past? If so, where/how did it occur? If yes, where did you receive this training and what was the general delivery format? Did you find it useful?	17 (81%)	4 (19%)	NA
Do you believe that there are disparities in health outcomes between different racial/ethnic groups that can be attributed to systemic discrimination? If applicable, please draw on personal observations or experiences.	17 (81%)	0	4 (19%)
As a hospitalist, do you think that knowing about and understanding the roots of racial/ethnic disparities would help/helps you perform your job? Why or why not?	14 (67%)	2 (10%)	5 (23%)
	Very	Slightly	Not
How confident are you in your ability to address issues of race, racism, and/or discrimination in your job when they occur (such as comments about patients, trainees, colleagues, etc)? Please elaborate on your degree of confidence addressing these issues at work.	0	15 (71%)	6 (29%)

RESULTS

Out of 58 providers (providers involved in the design of the survey were excluded), 21 responses were received, for a 36% response rate. Table 1 presents responses to 5-survey questions that had Yes/No/Maybe options. Table 2 provides a summary of free-text responses to relevant questions, along with representative quotes. The Figure is a visual depiction of the single survey question that had multiple answer choices. Some questions appear in more than 1 Table/Figure as they offered multiple response types.

A majority (81%) of respondents believed that racial health disparities exist and can be attributed, at least in part, to systemic discrimination. A similar number (86%) also felt it was appropriate and important for their employer to take an active stance on these issues by offering provider education. A smaller majority (67%) of respondents felt that understanding the roots of racial health disparities would make them better providers. Despite broad recognition of the critical nature of this issue, none of the respondents felt very confident in their abilities to address overt acts of racism in the workplace.

DISCUSSION

The results of this qualitative survey provide valuable insight into our division members’ attitudes regarding racial health inequities. Overall, our results suggest that providers in our division acknowledge the existence of racial inequities and systemic racism, as well as the need for employer-sponsored training in this area. Our group’s exposure to the BRIM initiative may partially explain its broad support for engaging in these interventions in the workplace. Unfortunately, and despite previous training through BRIM and other programs, our providers expressed a need for further

Table 2. Responses to Free-Text Survey Questions

Summary	Illustrative Quotations
Do you think your employer should teach about issues of health inequities, racism, sexism, and homophobia?	
<ul style="list-style-type: none"> Majority of respondents were receptive to this type of training in the workplace, and felt that these topics were directly relevant to the practice of medicine. Some expressed that this type of training should not be mandatory, and had concerns about how differing viewpoints would be received. 	<p>"I think that all of these issues apply to the practice of medicine...I also think that it is important for education to come directly from our employer because I think they need to be involved and that it sends an important message."</p> <p>"Yes, this should be taught as long as views other than the liberal Madison physician viewpoint are accepted in discussion."</p>
Have you received training on these issues in the past? If so, where/how did it occur? If yes, where did you receive this training and what was the general delivery format? Did you find it useful?	
<ul style="list-style-type: none"> Majority had received some form of training on these topics, mostly during medical school or by an employer. Several responses mirrored concerns about being forced to undergo trainings, and voiced that many of these experiences did not create durable changes in their behavior or worldview. 	<p>"BRIM training^a at UW was an effective training with group participation...I think training and education in this space must be made more mainstream such that it becomes an expectation and viewed as part of being a UW Health provider."</p> <p>"Yes, via click as you go online modules. These are usually mandatory...Of course that isn't useful in the least and merely breeds resentment at another requirement."</p>
Do you believe that there are disparities in health outcomes between different racial/ethnic groups that can be attributed to systemic discrimination? If applicable, please draw on personal observations or experiences.	
<ul style="list-style-type: none"> Majority felt that systemic racial discrimination played a significant role in observed inequities. Some expressed skepticism about the existence or impact of systemic racism on the health of individuals. Some conveyed ambivalence, citing too much complexity between socioeconomic status, race, and ethnicity to form an opinion. 	<p>"Believe? I believe in facts. The disparities are facts. I have long had a sense that people of color are treated differently here and everywhere, really."</p> <p>"It is impossible to answer this question as a blanket statement...Systematic discrimination (via implicit bias or explicit legal/social structures) may explain part of the difference in medical outcomes. However, it is over-simplistic, misleading, and highly dangerous to infer evidence of systemic racism from every observed difference in outcomes between different groups. Difference does not always equal discrimination."</p>
As a hospitalist, do you think that knowing about and understanding the roots of racial/ethnic disparities would help/helps you perform your job? Why or why not?	
<ul style="list-style-type: none"> Many respondents believed this knowledge to be critical to providing optimal care. Several other respondents questioned if this knowledge was relevant to the individual provider and expressed powerlessness at addressing systemic racism. 	<p>"I think understanding what people's social situation is outside of the walls of the hospital, allows us to better care for patients and understand unique challenges they face."</p> <p>"I would like to think that all of us consider our mission as healthcare providers to provide optimal care to everyone regardless of ethnicity. Thus, I don't think knowing about and understanding the roots of racial disparity will help me perform my job (I see this as something political leadership needs to be aware of and address) but we do have to be aware of barriers to patients receiving health care based on their ethnicity."</p>
How confident are you in your ability to address issues of race, racism, and/or discrimination in your job when they occur? Please elaborate on your degree of confidence addressing these issues at work.	
<ul style="list-style-type: none"> Respondents cited a lack of experience in calling out racism and uncertainty in how to do so. Many respondents described addressing racist comments as inherently delicate and requiring of a confrontational personality type. 	<p>"I am always worried about saying the wrong thing and making a situation worse."</p> <p>"I think the anger and content of the situations make it difficult to engage in adequate, well meaning, intentioned conversation."</p>
What actions, in your personal and/or professional life, have you taken to address discrimination, either locally or nationally? Are there any actions you would like to undertake but have not? What has kept you from taking those actions?	
<p>Actions taken (no. of respondents):^b</p> <ul style="list-style-type: none"> Personal education (5) Engaging with children/family (4) Speaking up for others experiencing discrimination (3) Showing/voicing support for social movements (2) Misc: voting, marches/social demonstrations, involvement in local organizations, involvement in local government, writing to Congress, volunteer medical care, providing medical opinions for public defenders representing incarcerated individuals, curricular planning (1 each) 	<p>"I have started uncomfortable conversations with family members who I know do not share the same ideas about racial disparities and police violence against black people. I am sometimes shocked by the lack of empathy and understanding by others. I have given money to specific charities that are helping others of color in our area."</p> <p>"What has kept me from tackling this huge issue? Time, time and time. There are other issues to address in society for which I'm better equipped!"</p> <p>In response to <i>What has kept you from taking those actions?</i>: "Sometimes endured overt discrimination in the interest of self-preservation and to avoid making the discriminatory behavior worse from someone higher up in the power hierarchy."</p>
What else would you like to see our organization do?	
<ul style="list-style-type: none"> A number of respondents wanted their employer to provide opportunities for community engagement, particularly to underserved groups. A few respondents wanted their employer to provide opportunities for more discussion of these issues within the organization and across health care professions. 	<p>"[S]upport putting our resources where impoverished people can access [them]."</p> <p>"If I could check the box in front of outreach to underserved communities 5 times I would do it. These are the people right in front of us who need us now."</p> <p>"Allow students, faculty, [and] visiting faculty the intellectual space to have nuanced discussions about complex social phenomena without the risk of ostracization."</p>
Is there any topic or issue in this area that you wish you knew more or would like to learn more about?	
<ul style="list-style-type: none"> Many respondents wanted to learn more about the history of discrimination and health disparities, especially within their own communities. 	<p>"I want to learn more about the history of racial and SES [socioeconomic] status discrimination within Dane [C]ounty."</p> <p>"[I]nvoke a panel of patients that can speak of their own experiences."</p> <p>"More articles/talks about health disparities, as well as issues related to women and minority providers."</p>

^aSee Discussion section for more information on Bias Reduction in Internal Medicine (BRIM).

^bThese phrases were abstracted from free-text responses.

help with how they can positively contribute to antidiscriminatory actions.

Some respondents voiced concern about being “forced to engage” in these training sessions and that any additional required tasks may breed resentment. This perspective should be considered when designing and delivering the curriculum but should not be a deterrent to moving forward with the program. Individuals who feel uncomfortable when presented with information on health inequities are arguably those who may benefit the most from receiving this information.

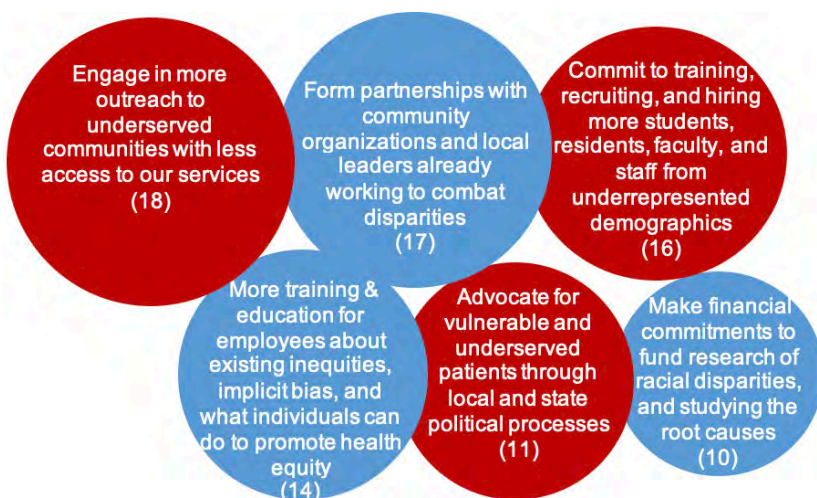
While the authors of this report feel that anti-racism training is necessary to combat systemic racism, we also recognize that it is not enough. If we focus all our energy on external displays of support for racial equity rather than on doing the necessary and uncomfortable work of identifying our own implicit biases and discriminatory institutional policies, we run the risk of paradoxically blinding ourselves to racism within our own institution, as was recently pointed out.⁵

The UWSMPH and UW Health recently have taken some concrete steps in this area. Following the lead of a number of other institutions across the country, our institution eliminated race-based adjustments in estimated glomerular filtration rate.⁶ In October 2020, the leaders of UW Health, UnityPoint-Meriter, and SSM Health penned an editorial stating, “Racism is a public health crisis” and announced new policies stating that discrimination from patients directed at employees will not be tolerated.^{7,8} In June 2020, the DOM launched a Diversity, Equity, and Inclusion committee, made up of providers, trainees, APPs, researchers, and administrative staff. This committee is currently finalizing its first round of recommendations, including specific suggestions in the areas of trainee and faculty recruitment, workplace environment, and underrepresented minority faculty development.

Within our own division, we acknowledge there is work to be done. The most obvious, though admittedly superficial, examples include the facts that we have only 1 provider from an underrepresented minority group and that the gender ratio is unbalanced. We hope that ARCH will encourage our providers to think more critically about racial inequities within our division, our institution, and our state, and to develop and support initiatives that improve equity at all levels. We gained important insight that our providers do not feel equipped to confront instances of discrimination when they occur in the workplace, and this has prompted us to modify ARCH to provide some training on potential strategies to use when overt discrimination

Figure. Responses (n) Selected From 6 Presented Responses

What actions do you think UW Health, the University of Wisconsin (UW) School of Medicine and Public Health, and UW Medical Foundation could or should take to address discrimination and eliminate racial disparities within the institution?



does occur. Finally, we hope that this program will become 1 piece of a broader and ongoing vision supported by UWSMPH and UW Health aimed at combating systemic racism in our health care system and our communities.

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REFERENCES

- Mathews T, Ely D, Driscoll A. State variations in infant mortality by race and Hispanic origin of mother, 2013–2015. NCHS Data Brief No. 295. January 2018. Accessed October 26, 2020. <https://www.cdc.gov/nchs/data/databriefs/db295.pdf>
- Wisconsin Department of Health Services, Division of Public Health, Office of Health Informatics. Wisconsin life expectancy report, 2010–2014. P-01551. August 2016. Accessed October 26, 2020. <https://www.dhs.wisconsin.gov/publications/p01551.pdf>
- Institute of Medicine (US) Committee on Understanding and Eliminating Racial and Ethnic Disparities in Health Care. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. Smedley BD, Stith AY, Nelson AR, editors. Washington (DC): National Academies Press (US); 2003. PMID: 25032386. doi:10.17226/12875
- BRIM Initiative. BRIM Initiative – Bias Reduction in Internal Medicine. Accessed October 28, 2020. <https://brim.medicine.wisc.edu/>
- Gutierrez KJ. The performance of “antiracism” curricula. *N Engl J Med*. 2020;383(11):e75. doi:10.1056/NEJMp2025046
- UW Health, SMPH remove race from kidney function estimation formula. UW Health News and Events. October 1, 2020. Accessed October 28, 2020. <https://www.med.wisc.edu/news-and-events/2020/october/race-removed-from-kidney-function-formula/>
- Madison hospitals implementing policies on patient discriminatory behavior. UW Health News and Events. October 15, 2020. Accessed October 28, 2020. <https://www.uwhealth.org/news/madison-hospitals-implementing-policies-on-patient-discriminatory-behavior/53554>
- Chappell R. Madison hospitals are committed to addressing racism and bigotry. *Madison365*. October 16, 2020. Accessed October 28, 2020. <https://madison365.com/madison-hospitals-are-committed-to-addressing-racism-and-bigotry/>

Implementing an Interprofessional Anti-Racism Training With Community Partners During a Pandemic: Outcomes and Recommended Strategies

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ABSTRACT

Background: Motivated by racial injustice and COVID-19 disparities, health care and medical education are accelerating efforts to address racism and eliminate health disparities.

Methods: In consultation with a community partner, an interprofessional physician-led team prioritized and completed an 8-hour anti-racism training adapted for online delivery during a pandemic.

Results: Sixty-four percent of enrollees (25/36) completed the survey, 98% rated the training as valuable, 92% would recommend it to a colleague, 88% reported it would improve their clinical care, and 68% thought their ability to create an inclusive environment increased.

Discussion: Virtual anti-racism training is a valuable learning experience. Tools for adapting trainings on high-risk or emotionally charged topics to a virtual format are offered by participants and session leaders.

BACKGROUND

The year 2020 marked the convergence of 2 visible and public causes of mortality for Black, Indigenous, and People of Color (BIPOC) populations in the United States: racism and COVID-19. These syndemic problems (synergistic afflictions contributing to excess burden in a population)¹ illuminate stark and well-established health disparities in our society,² motivating health care institutions and medical education programs to accelerate efforts to examine and implement solutions to reduce

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structural racism and implicit bias.³ Anti-racism efforts have become a priority at every level of our health care organizations, from individual to institutional. Health care team members crave increasing awareness and knowledge of racism's negative influence on patient care and efficacy.⁴ Medical educators and learners nationally recognize that knowledge and value gaps exist and point to the need to advance structural competency, health equity, and social responsibility in our medical education programs.^{5,6} There is strong demand to grow understanding,

produce sustained anti-racism efforts, and minimize missteps along the way.

Attempts to address racism within health care and medical education are gaining strength and recognition nationally, while local and state governments increasingly recognize racism's impact on the health of their constituents. In spring 2019, Milwaukee County, Wisconsin became one of the first municipalities to declare racism a public health crisis. The pandemic has since laid bare the public health crisis that Milwaukee County named. BIPOC populations represented disproportionate numbers of COVID-19 cases, hospitalizations, and deaths in the first months of the pandemic, a trend repeated across the United States. The well-being of Wisconsin, and of the nation, resides in addressing racism within our health care systems and educating our current and future clinicians to identify, act on, and resolve this public health crisis. Many professional society association websites and MedEdPORTAL offer educational resources. This paper reports the findings from an anti-racism educational intervention for students, residents, and family medicine faculty who are working on the front lines of the COVID-19 and racism syndemic.

METHODS

Since 2013, a select group of medical students completing their clinical training with a focus on urban and public health in Milwaukee have completed the local, community-based YWCA Unlearning Racism workshop as a face-to-face, 8-hour immersion course adapted for health care professionals.⁷ In late summer 2020, a multidisciplinary team of Milwaukee-based family medicine residents, faculty, pharmacists, and medical education team members partnered with the medical students and the YWCA to complete Unlearning Racism adapted for virtual environments. Two 4-hour virtual sessions separated by 1 week combined large- and small-group education and discussion and individual reflection time (Table 1). Attendance was required at both sessions for enrollment.

All available family medicine residents from postgraduate years 1 through 3 (PGY1-3) (N=20 determined by duty hours and clinical obligations) were enrolled as part of their scheduled, protected didactic time. Family medicine physician faculty (N=18), family medicine-affiliated faculty pharmacists (N=6), and medical education staff (N=8) were given the option to attend. The second-year medical students (N=16) were enrolled as part of their required course curriculum.

A brief (<3 minute) 7-item evaluation was developed. Using single best answer, Likert scales, and narrative response formats, the survey included interprofessional role, overall reaction to the training, and several items focused on behavior (ie, application and implementation) consistent with Kirkpatrick's evaluation model.⁸ Upon course completion, participants received an email link to the online survey and 2 reminder emails over the subsequent week. Due to curricular reporting requirements, medical students answered a single item on the session's efficacy and comments items for each half-day session as part of their required comprehensive course evaluation. Survey software (SVMK Inc, dba SurveyMonkey, San Mateo, California) provided descriptive statistics. Narrative responses were analyzed independently by 2 authors to identify themes, with any inconsistencies resolved through discussion consistent with standard qualitative methods.

Educational initiatives consistent with medical student/resident education accreditation requirements, like this project, have been determined by the sponsoring institution's Research Subject Protection Program not to constitute human subject research.

Table 1. Virtual Unlearning Racism⁷ 2-day Education Session Outline

Time (Min)	Topic	Virtual Engagement Strategy
Day 1		
60	Introductions, overview, ground rules, and ice breaker; review goals and objectives	<ul style="list-style-type: none"> • Large group share (participants videos on; all share during ice breaker)
75	Definitions and history of racism; history of racism in Milwaukee	<ul style="list-style-type: none"> • PowerPoint presentation (with questions in chat) • Listening pairs (random breakout) • Journaling (individual)
75	Race and racism in medicine and research; historical and current day mistrust	<ul style="list-style-type: none"> • PowerPoint presentation • Video clip • Small group discussion (random breakout) • Journaling
30	Group debrief: Process emotions and experience of day 1; content that inspired and/or continue to struggle with/process	<ul style="list-style-type: none"> • Large group share
Day 2		
120	Privilege, implicit bias and whiteness; the influence of white norms on care and outcomes	<ul style="list-style-type: none"> • Individual reflection • Small group discussion (by affinity group) • Large group discussion • Video clip
60	Case studies: patient experiences of implicit bias and structural racism illustrating value in reflection, dialogue and patient-centered care	<ul style="list-style-type: none"> • Journaling • Small group discussion (random breakout) • Large group discussion
30	Closing reflections: implications of learned material and impact for patient care and clinical practice	<ul style="list-style-type: none"> • Journaling • Large group discussion
30	Group debrief: Process emotions and experience of day 2; identify next steps	<ul style="list-style-type: none"> • Large group share

RESULTS

Overall, 52 individuals participated in the Unlearning Racism curriculum: 100% (20/20) of PGY1-3 residents, 50% (9/18) of family medicine physician faculty, 67% (4/6) of pharmacy faculty and students, 38% (3/8) of medical education staff, and 100% (16/16) medical students. The 7-item survey completion time averaged 2 minutes (per survey tool report) by 69% (25/36) of participants: 8 physician faculty, 15 residents, and 2 pharmacy or clinical education team members.

Overall, respondents were very positive about the 8-hour curriculum, with 96% finding Unlearning Racism valuable, 92% indicating they would recommend the session to a colleague, and 88% anticipating improvement in their clinical care (Table 2). For 68% of respondents, the session's effect on their ability to create an inclusive environment for learning and patients moderately or significantly increased. When examined by role, physician faculty consistently rated all items except 1 higher than residents, with residents typically having a higher standard deviation. The ability to create an inclusive environment for learning and patients was the only item on which residents and faculty ratings were equivalent. Pharmacist and clinical educator respondents were aggregated due to sample size and had the highest ratings of all groups.

In response to the item: "We want to create an inclusive envi-

Items and Rating Scales ^a	Overall % 2 Highest Scale Values	Overall Mean (SD)	Mean by Role (SD)				Kirkpatrick Level ^a
	(Strongly Agree + Agree)		Physician Faculty	Resident	Pharmacy/ Clinic Educator	Medical Student	
I found “Unlearning Racism” valuable ^a (1=strongly disagree to 5=strongly agree)	96%	4.5 (0.70)	4.9 (0.33)	4.2 (0.77)	5.0 (0.00)		1
“Unlearning Racism” will improve my clinical care (1=strongly disagree to 5=strongly agree)	88%	4.3 (0.65)	4.5 (0.70)	4.0 (0.59)	5.0 (0.00)		3
After attending the “Unlearning Racism” sessions, my ability to create an inclusive environment for our learners and patients has _____? (1=decreased; 2=remained constant; 3=slightly increased 4=moderately increased; 5=significantly increased)	68%	3.9 (0.91)	3.8 (0.66)	3.8 (1.0)	5.0 (0.00)		3
I would recommend “Unlearning Racism” to a colleague (1=no, definitely not to 4=yes, definitely)	92%	3.4 (0.75)	3.8 (0.43)	3.2 (0.86)	4.0 (0.00)		1
Overall session effectiveness							
Day 1 results	85%					4.5 (0.93)	1
Day 2 results (1=not effective to 5=exceptionally effective)	54%					3.9 (1.20)	

^a Kirkpatrick Level: 1=reaction, 2=learning, 3=behavior

ronment for patients and learners, please share your top ideas of how we continue to grow towards this goal,” 56% (14/25) of respondents provided at least 1 idea and 40% (10/25) provided additional ideas. Almost all respondents focused on the need to offer continuing learning opportunities on racism. Offerings could be in multiple formats (workshops, facilitated discussions, scripting sessions for common situations) and be inclusive and accessible to all roles (students, residents, clinic staff) and identities (eg, race/ethnicity; lesbian, gay, bisexual, transgender, and queer or questioning [LGBTQ], gender). Sessions should be led by individuals with expertise (eg, content, facilitation). The second major theme was self-awareness. Respondents emphasized the need for continuous learning, including recognizing personal biases and confronting white privilege with reflection on personal actions including language use. “Don’t be afraid to talk about race” and “get more comfortable with conflict” reflect expressed awareness and actions regarding racism. Additional ideas included making personal connections, setting up a patient advisory board, and assuring that the environment structure created space for continued learning.

The final survey item asked for general comments and thoughts. The responses indicated the virtual format was challenging for these potentially high-risk discussions. There were mixed reactions about being inclusive by role (eg, students with faculty) due to role boundaries relative to risk taking. To address these challenges, Table 3 provides a list of recommendations on hosting virtual anti-racism education derived from participants’ comments and the authors’ own experiences leading, facilitating, and participating in potentially high-risk virtual learning environments.

DISCUSSION

Our findings indicate that learning to address racism in health care is desired by interprofessional educators and trainees. Between 50% and 75% of those with optional participation prioritized enrolling in an 8-hour YWCA Unlearning Racism training during a pandemic. Whether required or optional, more than 90% of respondents found the training valuable and would recommend it to a colleague and recommend continuing education using multiple modalities. Tools to adapting the face-to-face training on emotionally charged topics (eg, take risks and be vulnerable) to a virtual format were offered by participants and session leaders (Table 3).

The project has several limitations. While it was diverse by roles, all participants were associated with 2 organizations and reflected a mix of required versus optional attendees. Despite the pandemic, the response rate (69%) and results may have been influenced by selection bias and/or framing effects. As responses were anonymous, follow-up to assess change at Kirkpatrick level 3 (behavior) is not feasible and may not be significant, as a single training’s effects on these implicit and nuanced behaviors is difficult to quantify;^{8,9} thus, we sought self-reported behavior changes. While data from prior in-person student trainings suggest no significant difference between virtual and in-person sessions, evaluation methods differed and were not directly comparable. Nonetheless, this training does provide a common language and understanding from which a group can start to affect the care of patients, as evidenced by 88% of participants indicating that the training would improve their clinical care.

The urgency of addressing racism in health care and society is clear. At a time when the clinical learning environment expe-

rienced unanticipated pandemic-related transformations, working with community partners can advance common education goals and meet accreditation requirements. Like clinical care, anti-racism education can transition effectively to a virtual format with attention to platform selection, facilitator training, and ongoing communication and actions to reinforce the safety of the learning environment. Next steps include continued partnerships with our organization and communities for continuing education⁹ (eg, partnerships with academic affairs to create structural fluency milestone evaluations and recurring equity and inclusion conversations in meetings and case conferences), with opportunities to share how prior training informed participants' clinical practice.

CONCLUSION

In a time of immense disruption to our daily personal and professional lives, health care providers and learners demonstrated a commitment to learn about anti-racism and implicit bias and desired to continue to engage in anti-racism and inclusivity efforts. Shared language, consistent vocabulary, and shared purpose are essential as we move forward toward health equity. Medical educators and trainees are ready to seize this moment.

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REFERENCES

1. Singer M, Clair S. Syndemics and public health: reconceptualizing disease in bio-social context. *Med Anthropol Q*. 2003;17(4):423–441. doi:10.1525/maq.2003.17.4.423.
2. Elliott VS, Kim I, Loomis K. Structural and Social Determinants of Health. In Skochelak S, ed. *Health Systems Science: Structural and Social Determinants of Health*. 2nd edition. E-book: Elsevier; 2021:191-219. Accessed October 15, 2020. https://bookmark.elsevierhealth.com/health-systems-science-structural-and-social-determinants-of-health/?utm_source=SFMC&utm_medium=email&utm_term=10142020&utm_content=20%e2%80%939310011+474017+Oct+ChangeMedEd+Monthly&utm_campaign=&utm_uid=&utm_effort=
3. It is undeniable: Racism is a public health crisis. Healthcare Anchor Network.

September 27, 2020. Accessed October 13, 2020 <https://healthcareanchor.network/2020/09/it-is-undeniable-racism-is-a-public-health-crisis/>

4. Vyas DA, Eisenstein LG, Jones DS. Hidden in plain sight — reconsidering the use of race correction in clinical algorithms. *N Engl J Med*. 2020;383(9):874-882. doi:10.1056/NEJMms2004740
5. Castillo EG, Isom J, DeBonis KL, Jordan A, Braslow JT, Rohrbaugh R. Reconsidering systems-based practice: advancing structural competency, health equity, and social responsibility in graduate medical education. *Acad Med*. 2020;95(12):1817-1822. doi:10.1097/ACM.0000000000003559.
6. Addressing and eliminating racism at the AAMC and beyond. Association of American Medical Colleges. Accessed December 8, 2020. <https://www.aamc.org/addressing-and-eliminating-racism-aamc-and-beyond>
7. Unlearning Racism: Tools for Action. YWCA Southeast Wisconsin. Accessed February 26, 2021. <https://www.ywcasew.org/blog/event/unlearning-racism-tools-for-action/>
8. Kirkpatrick J, Kirkpatrick W. An Introduction to the New World Kirkpatrick Model. Kirkpatrick Partners, LLC. Updated January 2019. Accessed October 13, 2020. <http://www.kirkpatrickpartners.com/Portals/0/Resources/White%20Papers/Introduction%20to%20the%20Kirkpatrick%20New%20World%20Model.pdf>.
9. Shim RS. Dismantling structural racism in academic medicine: a skeptical optimism. *Acad Med*. 2020;95(12):1793-1795. doi:10.1097/ACM.0000000000003726

Table 3. Barriers and Recommended Strategies for Hosting High-Risk Virtual Learning Sessions

Topic	Barriers/Challenges in Virtual Learning	Recommended Strategies
Who to invite	<ul style="list-style-type: none"> Isolated trainings without sustained efforts and action may have limited impact on long-term goal of culture/system change Diverse groups are powerful and offer breadth of experience and perspective; adds challenge to hear and see all ranks/roles/identities struggle with issue Hierarchical structures within medical training and health care teams, as well as differences between professions and medical specialties can constrain openness and risk-taking Mandatory participation can change group dynamics and engagement 	<ul style="list-style-type: none"> Set realistic session goals (eg, establish shared language) Seek a commitment that participants can actively attend all sessions Identify common learning segments that are optimal for inclusive interactions If needed, cap enrollment by the number of small group skilled facilitators (<8-10/small group) Incorporate facilitated breakouts: mix it up with breakouts that are inclusive and others assigned by role or identity to promote deeper dialogue/learning; include report outs to enhance learning Consider carefully the risks and benefits of optional vs mandated participation, prepare to be patient with degrees of “buy-in”
Select/optimize use of virtual platform features	<ul style="list-style-type: none"> “Zoom” fatigue limits learning Session leaders’ competence and confidence with virtual platform can make or break a session Face-to-face general session structure often can be transferred but must be adapted for virtual delivery 	<ul style="list-style-type: none"> Select a platform in which all participants video and names are visible (not just their signature image) Intentionally design session to optimize interactivity including change of pace activities and frequent breaks Pre-orient leaders to platform features (polls, chat boxes, white boards, breakouts with timers) and practice their use in advance
Continuously set expectations	<ul style="list-style-type: none"> Deep learning requires risk taking, welcoming challenges and making mistakes The limited nuanced non-verbal data in virtual environment can affect feelings of trust and willingness for risk taking 	<ul style="list-style-type: none"> Regularly reinforce “rules of engagement” and expectations for session (eg, discussions stay within the group, mistakes are expected and create opportunities for learning) Cameras should remain on Progressively structure levels of risk taking with flexibility for those at different levels Leaders’ actions must reinforce expectations (eg, “That is a common misconception and great we can bring that out... let’s discuss the evidence.”)

Race Matters: Addressing Racism as a Health Issue

Bryan Johnston, MD; Veneshia McKinney-Whitson, MD; Camille Garrison, MD

ABSTRACT

Background: Racial health disparities in Wisconsin are profound. Racism occurring within the health care field contributes to disparities. Anti-racist education was identified as a need at 2 family medicine residency programs in urban Milwaukee, Wisconsin.

Methods: A 3-hour program was developed and implemented 3 times over 3 years, engaging around 100 participants at 2 residency programs.

Results: Thirty-five post-program surveys were completed. Respondents indicated improvement in knowledge, attitude, and awareness of anti-racist health concepts.

Discussion: The program established a baseline from which to develop anti-racist health care providers. Presenters reflect on the importance of addressing racism as a health issue, getting to know the community served, supporting team members of Color to thrive, and for health care institutions to address racism in an intentional manner.

BACKGROUND

A resident physician asks a 9-year-old Black boy whether he is in a gang. “G-A-M-E?”, his mother asks. “G-A-N-G”, the resident replies. The mother takes her son’s hand, stands up, and walks out of the clinic. A White attending physician complains in the resident team room after examining a child readmitted for asthma exacerbation, “These people never pick up their meds.” A White attending physician tells residents that when barriers to care emerge, “Don’t work harder than your patients.” Another White attending physician remarks that he isn’t surprised to hear about a local school shooting because “more black kids go there now.” A White attending physician describes a resident’s pattern

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of racial insensitivity as “using the wrong word choice.” Yet another White attending physician declares repeatedly that discussion of race and racism is an inappropriate political issue. A Black staff member is told that their Black Lives Matter mask is “too political” to wear. A White attending physician stops attending anti-racism meetings after hearing the perspectives her Black colleagues share. A White resident announces “Keisha Fried Chicken and Watermelon Andy are back again” when assigned to see a Black couple worried the woman’s water may have broken. A White nurse rolls her eyes when relating a Black laboring moth-

er’s complaints that the epidural isn’t working.

Racism operates in myriad ways to erode health of patients and communities of color. Structural and institutional racism contribute to health disparities by distributing social resources that contribute to health along racial lines—in Wisconsin this includes the racial wealth gap, vulnerability to law enforcement/criminal justice system mediated violence and harm, and lack of access to healthy food, safe outdoor space, health insurance and health care resources, stable housing, quality education, and living wage employment opportunities. Overt interpersonal racism—interpersonal actions emerging from conscious bias towards a racial group—contributes to racial health disparities in manners both as blatant as disproportionate state-sanctioned violence or as subtle as some of the examples above. Implicit racial bias—unconscious bias towards a racial group—affects quality of health care provided. Suboptimal care may occur when providers associate their patients with characteristics such as being noncompliant, uncaring, stupid, lazy, wasteful, threatening, malingering, demanding, ungrateful, or underserving of their time. The prevalence of implicit racial and ethnic bias amongst health care providers is similar to that of

Table 1. Resident Post-Session Qualitative Feedback, Grouped by Theme and Subtheme

Subthemes	Learner Education Gains	Themes
<ul style="list-style-type: none"> • Redlining and its effect on patients and communities • Historical background of segregation and racism in Milwaukee • Institutionalized racism 		Historical context
<ul style="list-style-type: none"> • Limited access to food and quality health care directly impacts health outcomes • Maternal mortality and morbidity statistics • Infant mortality statistics • Racism and chronic stress lead to disease pathology 		Awareness of health disparities
<ul style="list-style-type: none"> • Addressing implicit bias is critical to provide quality care • Understanding the different forms of racism is necessary to recognize how implicit bias effects care 		Implicit bias
<ul style="list-style-type: none"> • The depth of systemic racism in our society penetrates the patients that we serve and care for 		Racism in our communities

the general population,¹ correlates with lower quality of care provided,¹ and undermines patient-provider interactions, treatment decisions, treatment adherence, and patient outcomes.² Implicit bias may also sap and disrupt efforts to make structural or systems-based progress towards health equity—or squash efforts before they begin.

These components of racism lead directly to Wisconsin's extreme racial health disparities—including the highest excess death rates in the nation for Black and Native American people at every stage in the life course and the highest Black infant mortality rates in the nation. The Wisconsin Public Health Association declared racism a public health crisis in 2018.³

We created a health care provider-focused anti-racism educational program with objectives to increase understanding of the impact of racism on health, to increase awareness of learner-implicit bias and demonstrate how this may influence patient care, and to stimulate longitudinal discussion and development towards addressing racism as a health issue. We share below the process undertaken to develop and hold this program, program outcomes, and reflections.

METHODS

Recognizing an unmet need, team members from 2 family residency programs in urban Milwaukee, Wisconsin began initiating dialogue around the effect of racism on health within their family medicine residency programs. These discussions revealed varied responses and wide ranges of awareness of the issues or readiness to participate in discussion and action. It was felt that providing foundational educational enrichment would help to establish a base from which to pursue these discussions and, ultimately, impact patient care.

A 3-hour Racism Theme Day was established, including a 2-hour interactive workshop and a 1-hour community panel discussion. Themes and activities included viewing Dr. Camara Jones' "Allegories of Racism" video,⁴ facilitators sharing personal

Table 2. Learner-Reported Intention for Personal Change, Grouped by Theme

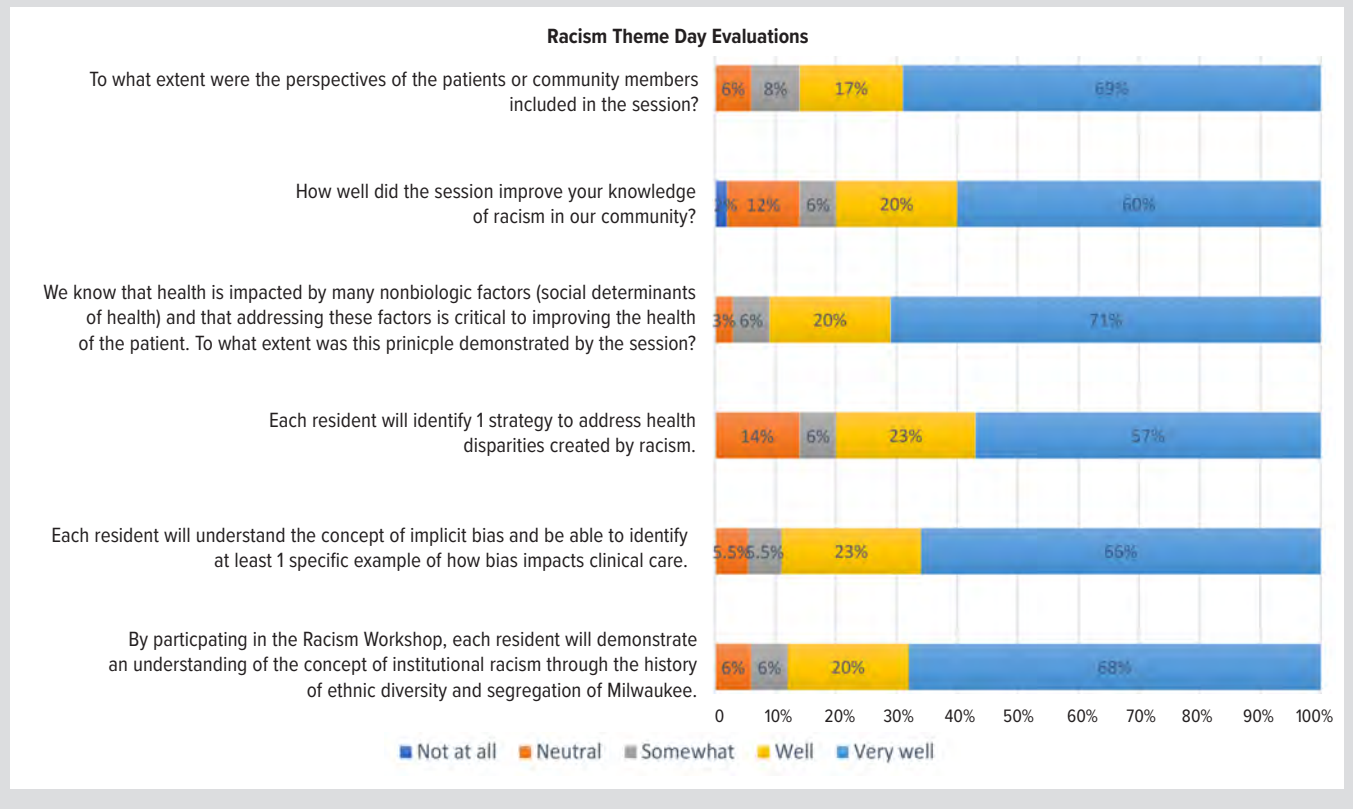
Comments	Learner Intentions for Change	Themes
<ul style="list-style-type: none"> • Help improve minority representation in medicine • Provide positive encouragement surrounding educational/careers goals during well child visits 		Support diversity and inclusion
<ul style="list-style-type: none"> • Get to know my patients on a cultural level • Make a connection with my patient despite our differences • Ask patients about their experiences in the world 		Provide effective cross-cultural care
<ul style="list-style-type: none"> • Address social determinants of health • Assess barriers to treatment • Ask about stress in all patients • Focus on serving my patients 		Intensify patient-centered approach to care
<ul style="list-style-type: none"> • Speak up when witnessing racism, explicit bias, or implicit bias • Recognize my unconscious or conscious bias 		Increase anti-racist interpersonal behavior
<ul style="list-style-type: none"> • Get involved in the community where I practice • Become more aware of what happens outside of my world • Work on opportunities to become community engaged 		Be a more community-engaged provider

experiences regarding race and racism, interactive identity exploration activities, and description of historical factors leading to modern-day segregation. This was followed by discussion of how these historical and current factors result in health disparities. Participants' knowledge of the extent of health disparities was explored, and facilitators welcomed discussion about how to become informed. The workshop portion concluded with evidence-based descriptions of how racism results in health disparities, a personal story of implicit bias and an interactive implicit bias activity, and calls to action for participants and residency programs to commit to anti-racism. A forum for community leaders from various sectors—including health care, education, and business—completed the session by sharing perspectives on the impact of racism in their respective areas. An anonymous, voluntary postsession evaluation was developed in similar format and manner to evaluations conducted for other components of the residency didactic curricula.

RESULTS

The workshop was presented 3 times to family medicine residents from 2018 to 2020, with 30 to 40 participants per session—approximately 100 total. Session evaluation was circulated at the conclusion of each workshop. A total of 35 participants completed the survey from 2018 to 2020, a response rate similar to other didactic evaluations at our programs. The survey included quantitative and qualitative prompts around meeting learning objectives, education gains, and effect on self and future practice. The Medical College of Wisconsin Institutional Review Board approved and oversaw this study. Results were compiled, analyzed by themes, and are displayed in Tables 1 and 2 and the Figure.

Figure. Resident Post-Session Quantitative Survey Responses



DISCUSSION

In our experience, developing providers capable of effective anti-racist care involves ingraining learners with a teachable set of knowledge, experience, and skills over the course of their training. This workshop helped establish a foundation for this development to occur. The generally positive feedback displayed indicates that learners are eager for this sort of engagement and find it both an acceptable and effective use of time. Learner-expressed intention for behavior and attitude change also were encouraging. Although behavior change and patient impact were outside the scope of the study, instructors have noted an increased frequency of clinical and didactic attention to the impact of racism on patient and community health within both residency programs. From these sessions and other experience engaging in anti-racist initiatives, the authors offer the following reflections.

We must commit to addressing racism in health care—as teaching programs, learners, individual providers, and health care systems. Critical to this effort is building awareness and commitment towards anti-racist interventions to better serve our patients and communities. Although isolated implicit bias training programs lack evidence of long-term impact, we believe that introducing learners to the concept of implicit bias—in the context of other clinical and structural components of racism—is important in priming learners along their development into anti-racist providers, as well as creating an anti-racist program culture.⁵

We must get to know the community we serve. Our patients are not just individuals occupying our office, they are part of a vibrant life in the community. Learning of and visiting community institutions and events, engaging with community leaders, patronizing community businesses, and developing community partnerships will provide more context and opportunity for connection.

We must support residents, faculty, and staff of color to thrive. Although increasing diversity amongst providers serving communities of color is associated with better patient outcomes⁶ and satisfaction,⁷ and supporting efforts to produce a more diverse health care workforce is critical to anti-racist efforts, we must remember that diversity is not simply a number or a recruiting priority. Diversity is also creating a system in which people of color feel understood and supported, have their voices heard, advance, and lead. We recognize the importance and critical value of voices of those presenting as Black, Indigenous, and People of Color (BIPOC) and others passionate about social justice and have created spaces to elevate, learn from, and follow those voices to improve our systems and care provided. We have found this process sometimes involves operating in a less hierarchical way than other aspects of medical education, as in this case our leaders also have much to learn.

We must keep in mind that what comes from the heart reaches the heart. These are sensitive topics of discussion where it can feel

much is at stake. In our experience, discussing racism with patients, learners, and colleagues is not only acceptable, it is a welcome relief. When racism is acknowledged, humanity is affirmed, and we move forward with confidence that a mutual reality is shared. Mistakes will be made. But when approaching these discussions with positive intentions, others recognize this and respond positively, helping one to grow and find a voice in this area.

We have undertaken this work at family medicine residency programs in Milwaukee—where the need is particularly urgent—but we call on our colleagues to commit to such efforts in clinical settings of all kinds. Racism causes systematic denial of duration and quality of life to people of color in this society. This is not an issue we can afford to sit on the sidelines for. Our patients' lives depend on it.

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REFERENCES

1. Hall WJ, Chapman MV, Lee KM, et al. Implicit racial/ethnic bias among health care professionals and its influence on health care outcomes: a systematic review. *Am J Public Health*. 2015;105(12):e60-76. doi:10.2105/AJPH.2015.302903
2. FitzGerald C, Hurst S. Implicit bias in healthcare professionals: a systematic review. *BMC Med Ethics*. 2017;18(1):19. doi:10.1186/s12910-017-0179-8
3. Wisconsin Public Health Association. 2018 Resolution: Racism is a public health crisis. Published May 2018. Accessed October 28, 2020. https://cdn.ymaws.com/www.wpha.org/resource/resmgr/2018_folder/WPHA_Racial_Equity_Resolutio.pdf
4. Jones, Camara. *Allegories On Race and Racism*. TEDxEmory. 2014. Accessed October 28, 2020. <https://www.youtube.com/watch?v=GNhcY6fTyBM>
5. Hagiwara N, Kron FW, Scerbo MW, Watson GS. A call for grounding implicit bias training in clinical and translational frameworks. *Lancet*. 2020;395(10234):1457-1460. doi:10.1016/S0140-6736(20)30846-1
6. Greenwood BN, Hardeman RR, Huang L, Sojourner A. Physician–patient racial concordance and disparities in birthing mortality for newborns. *Proc Natl Acad Sci U S A*. 2020;117(35):21194-21200. doi:10.1073/pnas.1913405117
7. Takeshita J, Wang S, Loren AW, et al. Association of racial/ethnic and gender concordance between patients and physicians with patient experience ratings. *JAMA Netw Open*. 2020;3(11):e2024583. doi:10.1001/jamanetworkopen.2020.24583

When We Become ‘We’

Beverly A. Hutcherson, BS; Saby Cordoba, MS; Noelle K. LoConte, MD; Jennifer Y. C. Edgoose, MD, MPH

We are four members of the Diversity and Inclusion Advocates (DIA) Program at the University of Wisconsin School of Medicine and Public Health (UWSMPH), a programmatic innovation of Brian Gittens, EdD, former Associate Dean of Human Resources, Equity and Inclusion. Launched in December 2017, this program trains faculty and administrative staff to encourage greater diversity in faculty hires and to serve as a resource for institutional climate issues. Although we have learned much about our institution’s structure, policies, and practices, we have found that personal and interpersonal issues of who we each are and the context of our relationships with others within and outside of our workplaces is where we have done the hardest work.

We invite you to join our journey of deep (sometimes provocative) self-reflection, seeing ourselves through the eyes of someone whose

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identity, culture, and experiences differ from ours. Over the years, the most poignant—and perhaps necessary—change has been grappling with how our own personal identities intersect

with privileges and societal positionality and learning to hear each other’s experiences in a landscape of normalized, invisible oppressive structures and practices within academic medicine. When daring to reveal our most private selves, move beyond the theoretical understanding of diversity, equity, and inclusion to learning in greater depth how these theoretical notions and data-driven narratives are experienced by our peers, we gained an understanding of the insidious ways in which power and oppression show up in our workspaces. We engaged in challenging conversations with each other and, thus, we find ourselves bound together in these precarious times. Here we’d like to share our reflections of who we are today.

The Brown Woman

I started my journey in Madison as the first and only one in my family to attend college. A Puerto Rican and Cuban woman from inner-city Chicago who is no stranger to racism, systemic oppression, and socioeconomic barriers (even if I could

not have named them so clearly back then), I immediately entered the “I-have-to-work-twice-as-hard” mode—a mode that demands more time, more sacrifice. Like others, I felt com-

pelled to make personal sacrifices for the sake of my professional goals; perhaps unlike others, those sacrifices left me feeling increasingly out of touch with my heritage and culture. I wanted to be invited to decision-making conversations in predominantly White spaces, but I also felt a profound sense of loneliness there. In my spare time, I sought out Latinx friends, Caribbean cuisine, and salsa dance floors. In my personal life, I bridged the divides of these differently colored and cultured spaces; but in my professional life, I struggled to know how to build bridges across pay gaps and over systemic barriers. The DIA Program offered me a sense of community and a space where I could advocate for how the personal and professional are interwoven, especially for historically disenfranchised communities. Yes, there are many bridges that need to be built within the workplace so that hourly workers in the break rooms can become decision-makers in the board rooms. These bridges matter to me, but you cannot use even the best, most beautiful bridge if you cannot find it. So

“Never forget that justice is what love looks like in public.”

—Cornel West

the most vital work I find myself doing right now is retracing my steps, clearing brambles, blocking wrong turns, posting signs, and paving pathways between communities of color and academic medical institutions.

The Yellow Woman

I call myself a “yellow” person, as it feels that is how I’m seen by others—someone with sallow skin and slanty eyes who has been called Japanese, Vietnamese, and even Nepalese. As an over-assimilated Korean American, I suspect that I’m a more palatable racial justice champion. After growing up poor in West Virginia with immigrant parents, I entered a women’s college and felt the inadequacy of my public schooling compared to my peers from exclusive boarding schools. I became a keen observer of the mannerisms, dress, and pedigrees of the super-elite. I probably walked by a professor named Peggy McIntosh, who coined the terms “male-” and “white-privilege” when I was a sophomore—concepts I understood from experience but had no words to express until many decades later. Today, I am a family doctor and educator trying to understand how to advocate for patients whose voices are often not heard. When asked to direct the DIA Program, I wondered how we could change the landscape by teaching a group of professionals from very different backgrounds and experiences. We persevered, moving from acquisition of knowledge to appreciation of structure, from teaching content to hearing narrative. While we each ventured into formal and informal complex conversations with varying degrees of success, we always came back together to debrief and learn how to navigate our systemically flawed institutions. A resilient cohort has emerged in this shared pursuit of anti-oppression learning and growing, both professionally and publicly, as well as personally and privately. Confronting the recent racial justice events, we come together again, not to fix things, but to find solace in our shared humanity and our responsibility not only to The Other, but for each other.

The White Woman

When I volunteered to be part a DIA, I thought I was joining to represent women and others from blue-collar communities. Shaped by multiple incidents of bias and discrimination like

so many women in academic medicine, being a feminist frames who I am. The most upsetting event was when a resident attempted to sexually assault me as a medical student. Subtle microaggressions over the years also have left marks in my confidence. I am, however, also White and, as such, have never had to deal with bias due to my race or ethnicity. I realized through the DIA training process and the personal work we are committed to doing between meetings that I am more interested in equity across the board and that being anti-racist is more important than being a feminist. As a White person who has benefited from the biased systems and institutions, I felt I had a role to play in no longer being complicit in their maintenance. I also have realized that the relationship-building that has been essential over the years of the DIA program has allowed me to better receive difficult conversations, empathize with colleagues, and develop a personal investment in the issues. This culminated in the civil rights movements of the summer of 2020 and a conviction that we needed to move—together—from implicit bias training to understanding how to be a part of dismantling institutional racism in academic medical institutions.

The Black Woman

My relationship with America is complicated as a descendant of Africans who were forced into chattel slavery for hundreds of years to freemen who had to fight for every civil liberty from voting to education—I am a proud African American. I feel indebted to my forbearers for their vision, indomitable will, and hope against seemingly insurmountable odds. I grew up reading about Black contributions to the world. I was endowed with a great pride in the African diaspora, raised on the beauty and brilliance of Black people while simultaneously understanding intricately designed, racialized global caste systems. I have never adopted any mindsets that would have me question my abilities, knowing the intellectual wealth from which my DNA is derived. While we are historically disenfranchised, our abilities remain intact. I am indebted to my parents for laying a foundation of information that counteracts the current narratives that plague academia about our struggles, achievement gaps, incarceration rates, and health disparities.

As my people marched for our lives to matter in 2020, I wrestled with my efforts to enlighten my colleagues in predominantly white spaces. I am torn as academics produce data on my community without fully acknowledging our shared history and how these historical infrastructures manifest into current functional systems of oppression.

When my supervisor decided to gather a group of committed people to journey together, in an effort to grow deeper in our understanding of how our academic medical institutions support the current oppressive practices and to develop strategies to diminish them, I hadn’t expected the camaraderie that we would build across differing backgrounds. We found common ground of mutual respect and a shared goal to mitigate bias and move towards eradicating systemic racism.

When We Became “We”

We have an inquiry for academia: When was it decided that success within academic medicine required us to check our humanity at the door? Anti-racism isn’t an intellectual exercise. It is disheartening that it required the lynching of George Floyd, Ahmaud Arbery, and Breonna Taylor in 2020 to awaken a certain segment of our society. Even as we craft this commentary, more hashtags have emerged, #walterwallace.

Despite being of different racial and ethnic backgrounds, through vulnerability, active listening, humility, personal accountability, self-awareness, and reflection, we established a foundation of trust. Developing trust was the critical nutrient that fueled our relationships. Originally, this program brought us together to focus on a shared mission to transform our workspace. Over time, however, we realized effectiveness required us to center our humanity, moving away from didactic practice and towards relationship-building. The resolution for the racism that plagues our institutions lies within our ability to connect with our colleagues and our communities personally, with authenticity. It is when we become a collective “we.”

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Lessons Native American Culture Can Teach Us About Resilience During Pandemics and Health Care Crises

Matthew Dellinger, MS, PhD; Amy E. Poupart

Like the rest of Wisconsin, the coronavirus disease 2019 (COVID-19) pandemic has upended Native American tribal programs, institutions, and activities that support their way of life, revenue, and health. A closer look at Native American (NA) tribal health disparities, but more crucially their cultural resiliencies, provides instructive perspective on the current crisis. The leading cause of death in Wisconsin Native American communities is heart disease, followed by malignant neoplasms and accidents.¹ These mortalities are disproportionately high in Native American populations relative to all other races.¹ 2018 data from the Centers for Disease Control and Prevention (CDC) on Wisconsin Native American mortality report the same trends and disparities: heart disease, malignant neoplasms, and accidents (Table 1).

Despite racial misclassification issues of Native American health data, these trends appear consistent with the rest of the developed world in which chronic disease is a driv-

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ing factor in mortality from COVID-19. As of March 11, 2021, there were 95 recorded Native American COVID-19 deaths in Wisconsin.²

Longer-term solutions must address the chronic health disparities that affect Native American populations and increase the risk of complication...

Native Americans account for 1.5% of all reported COVID-19 deaths in the state and, according to the 2019 census, they comprise 1% of the population.

Those COVID-19 deaths are likely confounded with chronic disease disparities. The leading comorbidities that increase risk of COVID-19 hospitalization and death are diabetes mellitus, chronic lung disease, and cardiovascular disease.³ Examination of the latest data from CDC's provisional death counts (Table 2) reveals notable overlap between the leading causes of death in Wisconsin Native Americans and these suspected comorbidities. Circulatory and heart disease stand out, with 87% of Wisconsin death certificates listing COVID-19 also listing some form of circulatory or heart disease as a contributing cause (Table 2). This is not a new phenomenon or something novel to the current crisis. These same comorbidities increase the risk of intensive care unit (ICU) admission, pulmonary co-infections, and ICU mortality with influenza patients as well.⁴

A Crisis of Capacity

The mismatch between health care workforce resources and aging, comorbid populations

in the United States was described as a crisis in the early 2000s.⁵ In 2006, the US Health Resources and Services Administration report projected a shortfall of 3,330 intensivist full-time equivalents by 2020, a gap larger than the entire projected supply.⁶ Federal programs at the Department of Health and Human Services (HHS) set aside support for hospital preparedness and infrastructure to deal with potential capacity shortfalls as seen in the current pandemic. In 2004, that budget was \$515 million; it was cut to \$392 million in 2009 and then \$255 million in 2015.^{7,8}

Meanwhile, the Bemidji (Minnesota, Michigan, and Wisconsin) Indian Health Service (IHS) area is chronically underfunded compared to other federal health care programs, including other IHS service areas.¹ The IHS is the primary federal health care provider and health advocate for Native American people. It is an agency within the HHS formed out of the government-to-government relationship between the US and the various Tribes, as described in Article I, Section 8 of the US Constitution.

As illustrated by the lack of consistent and adequate funding from the IHS, the Wisconsin Native American tribes have learned not to rely on federal spending as the foundation of their public health capacity. Thus, they are not in the habit of waiting for outside governments to act in a crisis. During the initial phases of the pandemic, tribal reservations acted quickly and independently at a local level to deploy mitigation efforts that met their specific needs. Multiple reservations shut their borders, large gatherings, and casinos in early Spring 2020. However, such measures were not sustainable. Longer-term solutions must address the chronic health disparities that affect Native American populations and increase the risk of complication from respiratory viruses.

Indigenous Ways of Knowing

Our Ojibwe friends remind us that the Tribes have known for generations how to stay healthy. Scientists often claim—through the publication process—what is already known traditionally. In 14 years of conducting National Institutes for Health-funded research with Wisconsin Native American Tribes, we have witnessed many instances of health resilience built into their culture. We described these themes at length in our various publications, ranging from culturally responsive biomedical education⁹ to community-engaged environmental risk assessment.^{10,11} Overall, our Native American friends, colleagues, and Elders teach that the key to promoting wellness everywhere is by democratizing health capacity. This can be accomplished through cultural vectors of community, education, and inclusivity. The main themes that address the health and wellness crisis in Wisconsin Native American populations are (1) helping my people, (2) honoring our elders, (3) self-determination, and (4) living in a good way.

Helping My People

The Great Lakes Native American Research Center for Health (GLNARCH) has conducted hundreds of interviews with Native American interns, mentors, community members, and tribal representatives regarding motivations to engage with biomedical sciences. Since the GLNARCH mandate is to promote Native American participation in biomedical sciences, we must assess the incentives that would moti-

Table 1. Top 10 Leading Causes of Death in 2018 Reported as Age-adjusted Death Rates per 100,000 for Racial Classification: American Indian/Alaskan Native in Wisconsin vs All Other Races

Causes of Death	Deaths	Native American	All Other Races
Diseases of heart (I00-I09, I11, I13, I20-I51)	99	192.9	157.4
Malignant neoplasms (C00-C97)	93	178.9	151.3
Accidents (unintentional injuries) (V01-X59, Y85-Y86)	52	81.3	56.7
Diabetes mellitus (E10-E14)	31	59.6	20
Chronic liver disease and cirrhosis (K70, K73-K74)	30	45.1	9.8
Chronic lower respiratory diseases (J40-J47)	22	49.7	37.8
Cerebrovascular diseases (I60-I69)	17	Unreliable	33.3
Intentional self-harm (suicide) (*U03, X60-X84, Y87.0)	13	Unreliable	14.7
Nephritis, nephrotic syndrome and nephrosis (N00-N07, N17-N19, N25-N27)	12	Unreliable	12
Alzheimer disease (G30)	10	Unreliable	31.7
Septicemia (A40-A41)	10	Unreliable	7.7

Source: CDC WONDER. Accessed November 11, 2020. <https://wonder.cdc.gov/>

Table 2. Selected Conditions for Contributing to Deaths Where COVID-19 Was Listed on the Death Certificate in US and Wisconsin

Comorbidity Group	ICD-10 Codes	COVID-19 Deaths	% COVID-19 Deaths
US Obesity	E65-E68	8,238	4%
US Malignant neoplasms	C00-C97	10,245	5%
US Chronic lower respiratory diseases	J40-J48	19,143	9%
US Renal failure	N17-N19	19,690	9%
US Diabetes	E10-E14	35,699	16%
US Circulatory/heart diseases	I00-I15, I20-I45, I47-I49, 150-152, I70-I99	139,623	64%
US COVID-19	U071	217,337	100%
WI Malignant neoplasms	C00-C97	158	8%
WI Renal failure	N17-N19	157	8%
WI Obesity	E65-E68	195	10%
WI Chronic lower respiratory diseases	J40-J48	284	15%
WI Diabetes	E10-E14	473	25%
WI Circulatory/heart diseases	I00-I15, I20-I45, I47-I49, I50-I52, I70-I99	1,664	87%
WI COVID-19	U071	1,902	100%

Source: <https://wonder.cdc.gov/ucd-icd10.html>. Accessed November 11, 2020.

vate tribal/academic partnerships. One prominent motivation is “helping my people.”⁹ There is a strong cultural norm in Indian Country to honor their heritage by “moving forward in a good way.” Every meeting, presentation, poster session, and meal associated with GLNARCH and partners begins with acknowledgement of an ancient heritage that must be honored through an attitude of service to the local community. Native American students and trainees need opportunities to help their communities without being lured away to large, well-resourced institutions. Therefore, GLNARCH works to promote resource investment in the underfunded Bemidji service

area to build sustainable networks and best practices that can transcend fluctuations in resources.

Honoring Our Elders

In Native American tribes around the country, there is a cultural norm of waiting for elders to speak first for as long as they want. This norm teaches important lessons: patience, deference to wisdom, the value of knowledge acquired slowly over time, respect for the past, and humility. Deference to elders reminds us that knowledge without wisdom is hazardous and chaotic. Brian Bainbridge, CEO of Great Lakes Inter-Tribal Council (GLITC) explains:

“I have witnessed the resilience of our oldest of elders and how they have adapted but still knew enough to keep our traditional knowledge and ways to protect their family and community first and then themselves last. It’s important to know that the tribal leaders are still practicing in the same ways, not forgetting the past and looking towards to the future.”

A unique feature of COVID-19 is the disproportionate severity in older demographics.¹² A unique feature of modern life is the presence of large congregations of elderly communities in either assisted living homes or senior communities. This, combined with the demographic shift to older populations, creates the ideal conditions for a health crisis. By contrast, Native American families more often inhabit multigenerational homes. This can complicate the need to shield older generations from SARS-Cov2. Nevertheless, intergenerational interaction is codified in many Native American cultures, which provides many benefits. Youth on the reservation learn traditional methods of hunting, gathering, and crafts from elders who are not necessarily direct relatives. This sort of cultural mentorship strengthens intergenerational bonds and facilitates care for the elderly when they need it. For example, GLITC has a web page (<https://www.glitc.org/programs/elders/>) dedicated to Elder Services that describes a Foster Grandparent Program and a Senior Companion Program.

Self-Determination

The Laurentian Great Lakes Basin is the traditional territory of Indigenous nations, including the Anishinaabeg—the Three Fires Confederacy of Ojibwe, Odawa, and Potawatomi peoples. All research seeking to engage stakeholder communities in the Basin must consider this historical context. Biomedical research can navigate this context by partnering with onsite intertribal organizations. One such partner is the Chippewa Ottawa Resource Authority (CORA), which serves as an intertribal management body for the 1836 Treaty area in upper Michigan. That treaty is one of several that were negotiated with the US government. The Tribes struck a deal using their limited remaining negotiating power: the right to hunt, fish, and gather across their traditional territories in

exchange for relocation to reservations. This deal was struck with the 7th generation philosophy in mind, in which consequences to future generations are considered in decision-making. The explicit intent was to maintain their culture. It was their final effort to avoid cultural annihilation by codifying these activities in federal law.

Many outsiders don’t realize that the subsistence practices enshrined by the Anishinaabe treaties cannot be replaced by food rations. These traditions are a foundational institution of their socio-political existence. Hunting game, harvesting fish, and gathering ceremonial ingredients for medicines or crafts represent acts of self-determination that promote wellness. These acts require broad intact ecosystems; thus, environmental stewardship is integral to tribal identity. CORA is but one example of intertribal coordination to maintain natural resources that connect modern tribal culture to the past. Without that connection, the intent of the treaties and the benefits of the culture are likewise severed. The descendants of the treaty signatories literally view their health, identity, and political empowerment as intertwined with the environment. Non-Natives call it preventive medicine; our Native American colleagues call it “living in a good way.”

Minobimaadaziwin ‘Living in a Good Way’

Apart from demographic shift to old age, the morbidities that exacerbate respiratory virus disease burdens are either outright preventable or otherwise manageable through high-quality care and preventive measures. The Ojibwe have a saying: “minobimaadaziwin,” which translates roughly to “living in a good way.” Most Elders teach that health is wholistic. Living—and acting—in balance is very important to Tribal people. This applies to health, art, language, and more. They know that living according to their ancestral ways is the key to improving population health outcomes. Preventive initiatives decrease the need for health care capacity in areas where it is scarce.

Recent research in partnership with CORA has identified health-promoting behaviors connected to the treaty-protected subsistence activities by blending traditional Native American perspectives with biomedical science.^{10,11} Salient to the current disease crisis, we observed that strong research partnerships with CORA’s fisher-

ies program promotes the safe consumption of local (Great Lakes) fish species. As discussed above, fish consumption is an important part of “living in a good way.” Fish is also one of the few dietary sources rich in Vitamin D.¹³ Deficiency in this nutrient is common in modern adults and is linked to adverse outcomes, particularly cytokine storms, from respiratory viruses including COVID-19.^{14,15} This is but one example of how living in a good way can improve clinical outcomes at the population level.

Conclusion

Given the current community spread and prevalence of mild cases, COVID-19 may become endemic like other respiratory pandemics.¹⁶ If so, the virus will integrate with cold/flu season, which routinely burdens health care capacity. If a vaccine manages to eradicate SARS-Cov2, more viruses will come. A realistic, wholistic, and nuanced response is needed for under-resourced populations, such as Wisconsin Native American Tribes, to overcome inevitable fluctuations in the severity of respiratory virus seasons. The Elders teach that living in balance with community, tradition, and nature builds resilience in Native American populations. This demonstrates how to sustainably improve health despite adversity. The traditions described above—helping my people, honoring our elders, self-determination, and living in a good way—are still practiced. Through our GLNARCH collaborations in Wisconsin, we are now witnessing important initiatives to maintain and adapt these principles for future generations. The rest of the world would do well to follow their example.

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REFERENCES

1. Porter M, Cirillo A, Niemiec C, et al. *American Indian and Alaska Native Health in Michigan, Minnesota, and*

Wisconsin 2016. Great Lakes Inter-Tribal Epidemiology Center, Great Lakes Inter-Tribal Council, Inc; 2016. Accessed February 25, 2021. <https://www.glitc.org/2020/wp-content/uploads/2020/07/2016-Community-Health-Profile-Report-final-050117-web.pdf>

2. COVID-19: Wisconsin Deaths. Wisconsin Department of Health Services. Updated March 11, 2021. Accessed March 11, 2021. <https://www.dhs.wisconsin.gov/covid-19/deaths.htm#demographics>

3. CDC COVID-19 Response Team. Preliminary estimates of the prevalence of selected underlying health conditions among patients with Coronavirus disease 2019 - United States, February 12-March 28, 2020. *MMWR Morb Mortal Wkly Rep.* 2020;69(13):382-386. doi:10.15585/mmwr.mm6913e2

4. Beumer MC, Koch RM, van Beuningen D, et al. Influenza virus and factors that are associated with ICU admission, pulmonary co-infections and ICU mortality. *J Crit Care.* 2019;50:59-65. doi:10.1016/j.jccr.2018.11.013

5. Kelley MA, Angus D, Chalfin DB, et al. The critical care crisis in the United States: a report from the profession. *Chest.* 2004;125(4):1514-1517. doi:10.1378/chest.125.4.1514

6. Kahn JM, Rubenfeld GD. The myth of the workforce crisis. Why the United States does not need more intensivist physicians. *Am J Respir Crit Care Med.* 2015;191(2):128-134. doi:10.1164/rccm.201408-1477CP

7. Office of Budget (OC). *Public Health and Social Services Emergency Fund. Operating Plan for FY 2018.* Department of Health and Human Services; 2018. Accessed November 13, 2020. <https://www.hhs.gov/sites/default/files/fy-2018-PHSSEF-operating-plan.pdf>

8. Franco C. Billions for biodefense: federal agency biodefense funding, FY2008-FY2009. *Bio Secur Bioterror.* 2008;6(2):131-146. doi:10.1089/bsp.2008.0025

9. Dellinger MJ, Jackson B, Poupart A. In their own words: success stories from the Great Lakes Native American Center for Health. *Am Indian Alsk Native Ment Health Res.* 2016;23(3):68-86. doi:10.5820/aian.2303.2016.68

10. Dellinger MJ, Anguzua R, Pingatore N, Ripley M. Risk-benefit modeling to guide health research in collaboration with Great Lakes fish consuming Native American communities. *J Great Lakes Res.* 2020;46(6):102-1708. doi:10.1016/j.jglr.2020.08.003

11. Dellinger M, Lyons M, Clark R, Olson J, Pingatore N, Ripley M. Culturally adapted mobile technology improves environmental health literacy in Laurentian, Great Lakes Native Americans (Anishinaabeg). *J Great Lakes Res.* 2019;45(5):969-975. doi:10.1016/j.jglr.2019.07.003

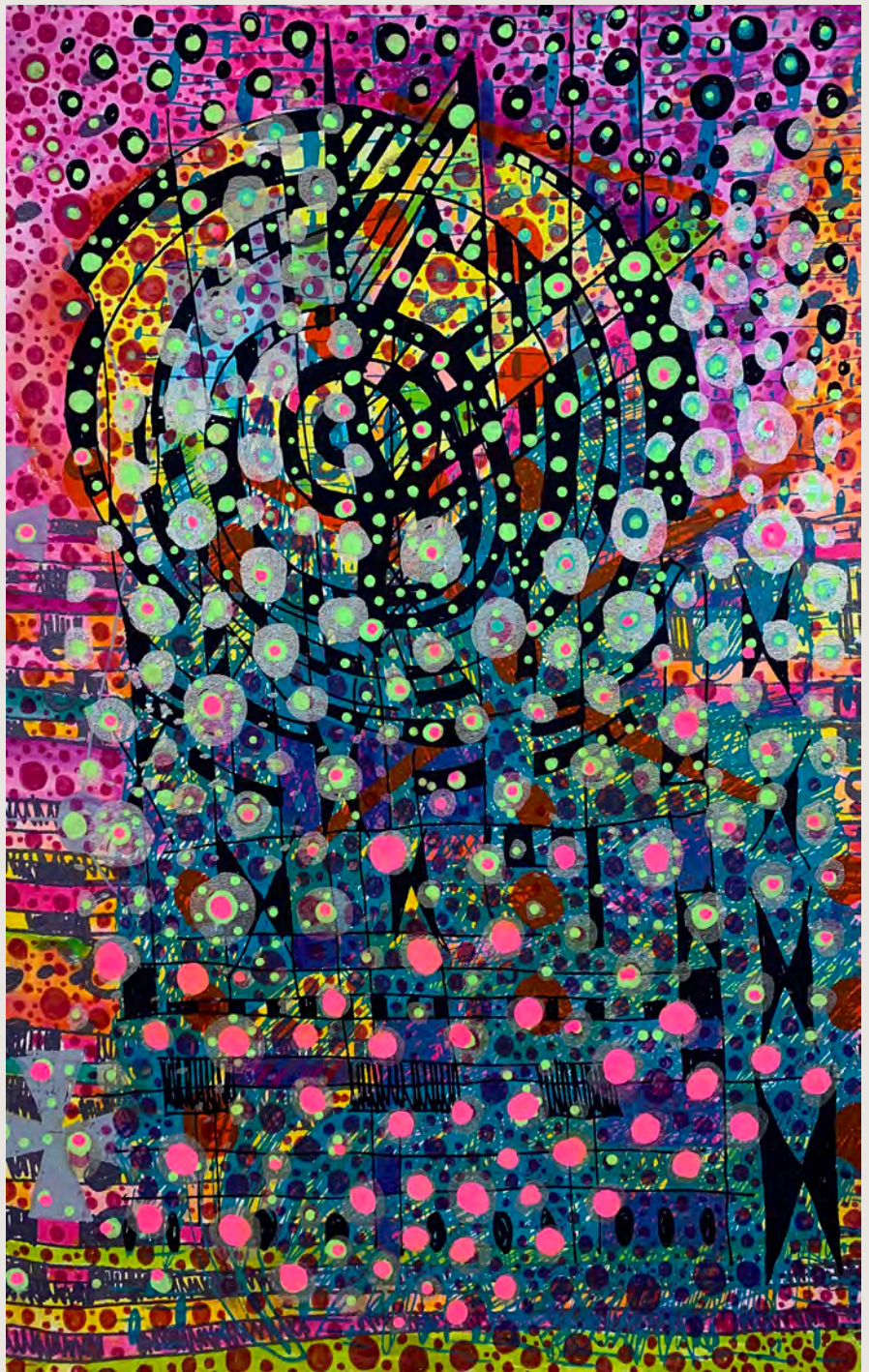
12. Petersen E, Koopmans M, Go U, et al. Comparing SARS-CoV-2 with SARS-CoV and influenza pandemics. *Lancet Infect Dis.* 2020;20(9):e238-e244. doi:10.1016/S1473-3099(20)30484-9

13. Kennel KA, Drake MT, Hurley DL. Vitamin D deficiency in adults: when to test and how to treat. *Mayo Clinic Proc.* 2010;85(8):752-757. doi:10.4065/mcp.2010.0138

14. Daneshkhah A, Agrawal V, Eshein A, Subramanian H, Roy HK, Backman V. The possible role of Vitamin D in suppressing cytokine storm and associated mortality in COVID-19 Patients. *medRxiv.* Preprint posted online May 18, 2020. doi:10.1101/2020.04.08.20058578

15. Castillo ME, Costa LME, Barrios JMV, et al. Effect of calcifediol treatment and best available therapy versus best available therapy on intensive care unit admission and mortality among patients hospitalized for COVID-19: A pilot randomized clinical study. *J Steroid Biochem Mol Biol.* 2020;203:105751. doi:10.1016/j.jsbmb.2020.105751

16. Shaman J, Galanti M. Will SARS-CoV-2 become endemic? *Science.* 2020;370(6516):527-529. doi:10.1126/science.abe5960



Those Who Tell the Truth Shall Die.
Those Who Tell the Truth Shall Live Forever.

John Hitchcock

John Hitchcock uses the print medium with its long history of commenting on social and political issues. His artworks are based on his childhood memories and stories of growing up in the Wichita Mountains of Oklahoma on Comanche Tribal lands next to the US field artillery military base Fort Sill. Many of the images are interpretations of stories told by his Kiowa/Comanche grandparents and abstract representations influenced by beadwork, land, and culture.

The Impact of Race and Racism on the Health of Patients in Wisconsin

Leonard Ezenagu, MD, FACOG

In many aspects of health care, White patients always seem to have a better outcome. As a medical student, I noticed that almost every time a disease condition was discussed, it would be stated that Black people have the worst outcome for virtually every condition, from prostate cancer to breast cancer, to diabetes, hypertension, and many more diseases. The current COVID-19 pandemic is killing more African Americans and other members of minority communities than White people as well.^{1,2}

As a physician practicing obstetrics and gynecology in Wisconsin, I am well aware of the disparities in health care affecting women and children from minority groups, particularly African American women. Approximately 700 women die each year in the United States from pregnancy or pregnancy-related complications, and American Indian/Alaska Native and Black women are 2 to 3 times more likely to die from complications of pregnancy than White women.³ The Wisconsin pregnancy-related maternal mortality is markedly higher in non-

Hispanic Black women compared to White women. Although many factors are cited as accounting for this disparity, the issue of race and racism is also a contributing factor.

patient and provider, cultural barriers, provider stereotyping, and lack of access to providers.⁵

To address this disparity without acknowledging that racism plays a major role is miss-

It is important for those of us in health care
to engage in periodic introspection to identify our own
biases and work hard to resolve them.

Racism touches many areas of health care and minorities of all ages. African American babies born in Wisconsin die before age 1 at a higher rate than any other state in the nation, according to a report from the Centers for Disease Control and Prevention (CDC).⁴ Wisconsin also has the nation's highest gap between White and Black babies with regard to racial disparities in infant mortality. According to the CDC's National Center for Health Statistics, the death rate for Black babies in Wisconsin is nearly 3 times higher than for White babies.⁵ Wisconsin had the highest mortality rate for infants born to non-Hispanic Black women in the US between 2013 and 2015 at 14.3 deaths per 1,000 babies compared to the national average of 11.1.⁴

Unfortunately, many studies have shown that racial disparities exist in health care,^{5,6} and they result from differences in geographical location, lack of access to adequate health coverage, communication barriers between

ing the point. It is of note that in May 2018, the Wisconsin Public Health Association passed a resolution declaring that racism is a public health crisis in Wisconsin.⁷ It was recommended that actionable measures be put in place to address this issue, including the following:

- Incorporate educational efforts to address, dismantle, and expand understanding of racism and how it affects individual and population health; provide tools to engage actively and authentically with communities of color.
- Advocate for relevant policies that improve health in communities of color and support local, state, and federal initiatives that advance social justice, while also encouraging individual advocacy to dismantle systemic racism.
- Work to build alliance and partnership with other appropriate organizations that are confronting racism and encourage partners

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and/or stakeholders to recognize as a public health crisis.

- Advocate adequate financial and human resources to accomplish all selected activities.

Conscious and unconscious biases harbored by health care providers, which are intertwined with racism, contribute immensely to the racial disparities in health care in Wisconsin, as well as other parts of our nation. For example, physicians have been observed to disregard or ignore complaints of pain by Black patients more frequently than for White patients.^{8,9} A study conducted in 2016 by researchers from the University of Virginia showed that White patients are more likely than Black patients to be prescribed strong pain medications for similar health conditions.⁸ Some people have held beliefs that there are biological differences between Black and White people. According to the study, these beliefs result in some people thinking that Black people feel less pain than White people, which will invariably lead to inadequate treatment recommendations for Black patients' pain. Glance et al conducted a study in 2007 on racial differences in the use of epidural analgesia for labor.¹⁰ They concluded that Black and Hispanic women in labor are less likely than non-Hispanic women to receive epidural analgesia. They also found that these differences remain after accounting for differences in insurance coverage, provider practice, and clinical characteristics.

It is important for those of us in health care to engage in periodic introspection to identify our own biases and work hard to resolve them. This will help us to provide more balanced and equitable care to our patients. In my current practice, as well as my previous practices in other states, I have observed that some Black patients don't have trust in the health care system, something that can be traced to past research conducted on Black people without appropriate consent and honesty. It is also important that health care providers be trained in cultural competency. I have observed situations where a physician will be quick to suggest ordering a urine drug screen on a patient based on her persona. No patient should be judged based on how she looks or how she dresses.

Notably, elevated socioeconomic status,

having a college education, good insurance coverage, and access to health care does not protect Black patients from experiencing inadequate care from their doctors. Serena Williams, a high profile athlete with access to quality health care, almost died of undiagnosed pulmonary embolism after giving birth to her daughter. Despite the fact that she has a history of thrombosis, she stated that no one at her hospital believed her when she was telling her nurse "between gasps" that she needed a CT scan and a blood thinner. Ms Williams was reported to have stated that her nurse thought the pain medication she received might have been confusing her. It is also possible that Ms Williams was not taken seriously, not only because she is Black, but also because she is a woman.

In Wisconsin, addressing social determinants of health with patients will help physicians provide more equitable care to all patients. The racial segregation patterns of many cities, including Milwaukee, seem to affect the type of care provided to patients from those communities.¹¹ Eviction disproportionately affects neighborhoods where the majority of the residents are people of color. Health care organizations, payers, and other interest groups in Wisconsin must be honest with themselves in answering the fundamental question: to what extent are our approaches rooted in a framework that addresses structural racism and equity?

Wisconsin must do better. We must continue to have open discussion on ways to find solutions to racial disparities in health care. It will require a team effort and everyone working together to solve this problem. With the current social climate in the United States, generated by recent deaths of young Black men in the hands of members of law enforcement, people from all walks of life in Wisconsin must continue to speak up, even when it is uncomfortable, in order to confront and eliminate racism. Many organizations in Wisconsin have redoubled their efforts in addressing and promoting equity, diversity, and inclusion. This is a welcomed approach, since it is through open and candid dialogue that we can move forward, have a better understanding of one another, and solve problems.

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REFERENCES

1. Williams DR, Cooper LA. COVID-19 and health equity—a new kind of “herd immunity.” *JAMA*. 2020; 323(24):2478-2480. doi:10.1001/jama.2020.8051
2. Yancy CW. COVID-19 and African Americans. *JAMA*. 2020;323(19):1891-1892. doi:10.1001/jama.2020.6548
3. Racial/Ethnic Disparities in Pregnancy-Related Deaths—United States, 2007-2016. Centers for Disease Control and Prevention. Updated February 4, 2020. Accessed October 30, 2020. <https://www.cdc.gov/reproductivehealth/maternal-mortality/disparities-pregnancy-related-deaths/Infographic-disparities-pregnancy-related-deaths-h.pdf>
4. Mathews TJ, Ely DM, Driscoll AK. State variations in infant mortality by race and Hispanic origin of mother, 2013-2015. Centers for Disease Control and Prevention. National Center for Health Statistics. NCHS Data Brief No. 295. January 2018. Accessed February 25, 2021. <https://www.cdc.gov/nchs/products/databriefs/db295.htm>
5. American College of Physicians. *Racial and Ethnic Disparities in Health Care, Updated 2010*. Policy Paper. American College of Physicians; 2010. Accessed January 10, 2021. https://www.acponline.org/system/files/documents/advocacy/current_policy_papers/assets/racial_disparities.pdf
6. Williams DR, Rucker TD. Understanding and addressing racial disparities in health care. *Health Care Financ Rev*. 2000;21(4):75-90.
7. Racism is a public health crisis. 2018 Resolution. Wisconsin Public Health Association Business Meeting. May 22, 2018. Accessed January 10, 2021. https://cdn.ymaws.com/www.wpha.org/resource/resmgr/2018_folder/WPHA_Racial_Equity_Resolution.pdf
8. Hoffman KM, Trawalter S, Axt JR, Oliver MN. Racial bias in pain assessment and treatment recommendations, and false beliefs about biological differences between blacks and whites. *Proc Natl Acad Sci USA*. 2016;113(16):4296-4301. doi:10.1073/pnas.1516047113
9. Sabin J.A. How we fail black patients in pain. Association of American Medical Colleges. January 6, 2020. Accessed January 10, 2021. <https://www.aamc.org/news-insights/how-we-fail-black-patients-pain>
10. Glance LG, Wissler R, Glantz C, Osler TM, Mukamel DB, Dick AW. Racial differences in the use of epidural analgesia for labor. *Anesthesiology*. 2007;106(1):19-25. doi:10.1097/0000542-200701000-00008
11. Foltman L, Jones M, Bourbeau C. How redlining continues to shape racial segregation in Milwaukee. University of Wisconsin Applied Population Laboratory. WisCONTEXT. February 28, 2019. Accessed January 10, 2021. <https://www.wiscontext.org/how-redlining-continues-shape-racial-segregation-milwaukee>

Together We Rise

Kjersti Knox, MD

Late on a mid-August night in 2016, I arrived home feeling tired but accomplished. Partnering with one of our residents, we had safely delivered a baby to a joyful mother, father, and extended family after inducing the mother for preeclampsia. I was met at home by the restful sounds of my own sleeping child. Despite the late hour, though, my husband was still up watching the news. “Something is happening in Sherman Park,” he told me. “The police shot and killed a Black man today.”

That night became known as the Sherman Park Uprising. Before the night was over, images of a burning bank and gas station were televised across the nation. Colleagues traveling across the country were later asked if they felt safe in our city. Thinking back to that time still makes my heart race and eyes water, not because of the smoke and flames, but because the wrong story was impressed upon the nation and much of our city that night.

The news missed the story of the hundreds

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of peaceful protesters marching and singing together—united in their shared anger and fear for the safety of their families, friends, and loved ones. The news missed the joyful story of the healthy Black mother and her partner, who made every prenatal visit, and their

supportive family, who lived blocks from the “uprising”—all present and ready to welcome a new life to their family. It missed that story’s frustrating coda—that despite being a healthy young woman in her twenties, this mom had developed preeclampsia, required induction, and become another woman in a long line of Black women in our community with “unexplainably” high blood pressures affecting her pregnancy. “Unexplainable,” yet linked to the unmeasurable stressors of racism over her lifetime quantified by health professionals as “allostatic load” in an attempt to measure the health effects of chronic, daily stress caused by structural racism and implicit bias.

The nation did not hear her story that night. Nor did the nation hear how the community rebuilt the burned bank building into a thriving community center, poignantly named the Sherman Phoenix—a beautiful and energizing community meeting hub housing Black-owned

businesses. Yet these are the stories we need to tell and that we need to hear.

What happens in my community happens in my clinic. Whether it is racism manifesting as preeclampsia or high COVID-19 rates amongst BIPOC (Black, Indigenous, and People of Color)

Together we can build a better, equitable health care system and society. In daring to hear the stories that surround us, together we can rise.

populations, I hear about racism daily without the word being spoken.

As a result, my practice demands advocacy at every socioecological level, from supporting individual patients and families to creating welcoming environments and inclusive clinic and hospital policies to supporting community-led initiatives and state and national policy changes that will improve the health of my patients and community. I love my job as a physician for many reasons, but top amongst them is the opportunity to walk with my community and lift up its stories. As the County Health Rankings remind us, if we focus only on the clinical, we will miss 80% of our patients’ health and 80% of opportunities to make a difference for an individual, a family, or our community.¹

As a family physician who teaches medical students and residents, I have the opportunity to mentor learners on their community health and advocacy projects and see our community

for its tremendous assets. There is immense power in teaching learners to see the assets, resilience, and strength that surround us and to listen for these stories. There is immense power in growing partnerships with our neighbors outside of the formal clinic and hospital walls. These partnerships at times require us to lead and at times require us to follow. The key is knowing the right time for each and understanding that, along the way, listening is always required.

History repeated itself many times in 2020 as more Black lives were lost at the

hands of police or vigilante gunfire and protests emerged around the country. We cannot afford to miss the story again. We must listen to the stories of the hundreds and thousands of peaceful protesters sharing their anger and fear for the safety of their families, friends, and loved ones in our communities. And we must listen for the hope they share for better. We must meet the challenge, embrace the discomfort, look to connect, and listen. Together we can build a better, equitable health care system and society. In daring to hear the stories that surround us, together we can rise.

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REFERENCE

1. County Health Rankings Model. County Health Rankings & Roadmaps. March 29, 2016. Accessed March 12, 2021. <https://www.countyhealthrankings.org/county-health-rankings-model>



Together We Are Strong

Elizabeth Petty, MD

Photograph (digital)

Dr Petty is a mother, wife, teacher, student, amateur artist and musician, and physician.



End of Democracy

Mark Weller

Artist Statement:

Columns from the US Capitol moved to the National Arboretum. These Corinthian columns sitting atop of a hill are out of place, and the perfect metaphor for our times. They were once our cherished symbols of the republic. Yet they are now discarded, "separate but equal" and in "the back of the bus." This allegory is endemic of the way minorities have been treated for years in our country, resulting in high infant mortalities, COVID-19, and disturbing levels of diabetes.



Black Inside Black

Mario Molins

Sculpture

Artist Statement:

My artistic work is focused on Nature, isn't the human being nature? It seems that some people forget that we all have our differences, but in essence we are seeds that germinate in the same way ... people who only believe in differences do not understand their own nature, how can they understand the nature of others? That is why this sculpture poetizes about the origin of every human being and seeks to make us reflect on our origin.



Premature Death

Lilada Gee

Artist Statement:

Black people—young and old—are dying too early and too often from racist medical practices, still!