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Antibias Efforts in United States Maternity Care: A Scoping Review of the Publicly Funded Health Equity Intervention Pipeline

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B.C. and M.A.S. equally contributed to the work.

S.B.G. had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

The authors declare that they have nothing to disclose. In the spirit of full transparency, we report that two of the coauthors (B.C. and M.A.S.) are principal investigators of projects that appear in the scoping review. We have taken multiple steps to minimize bias in our review and to ensure the description of their studies are similar in length and tone to the other described studies.

Abstract: Antibias training is increasingly identified as a strategy to reduce maternal health disparities. Evidence to guide this work is limited. We conducted a community-guided scoping review to characterize new antibias research. Four of 508 projects met our criteria: US-based, publicly funded, initiated from January 1, 2018 to June 30, 2022, and featuring an intervention to reduce bias or racism in maternal health care providers. Training was embedded in multicomponent interventions in 3 projects, limiting its evaluation as a stand-alone intervention. Major public funders have sponsored few projects to advance antibias training research in maternal health. More support is needed to develop a rigorous and scalable evidence base.

Key words: bias, racism, birth equity, interventions, community-based participatory research, scoping review

Background

In the United States, Black women and birthing people are 3 to 4 times more likely to die from a pregnancy-related cause than white women and birthing people, and they experience significantly higher rates of preeclampsia, preterm birth, and neonatal mortality.[1–3] Black women and birthing people's elevated risk for maternal mortality and severe maternal morbidity exists across the socioeconomic spectrum.[2,3] Women and birthing people from Indigenous and other historically marginalized groups are additionally burdened by disproportionate rates of maternal mortality and morbidity.[3] The need for interventions that advance racial and ethnic equity in maternal health is urgent.

Maternal health interventions have long focused on changing patient behaviors or knowledge.[4–7] In recent years, however, there has been increasing recognition of the roles racial bias, interpersonal racism, and structural racism play in the historic and current disparities in maternal health.[4,5,8,9] Generations of racist and classist policies have resulted in Black, Indigenous, and other women and birthing people of color having less access to safe neighborhoods, education, fair sentencing, health insurance, well-paying jobs, and high-quality prenatal and perinatal care, among other supports, than their white counterparts.[10,11] Within maternal health care settings, interpersonal racial bias and racism contribute to disrespectful care, poor communication, lack of utilization of life-saving interventions, suboptimal clinical outcomes, and even human rights violations such as coercion for procedures.[1,2,7,12]

Interventions to reduce racism and racial and ethnic biases are an integral part of numerous conceptual frameworks for improving the care of Black and Indigenous women and other birthing people of color (BIPOC),[13–17] and have been described as a key "lever to reduce disparities in labor and delivery."[2] The need for antibias/antiracism training has been endorsed not only by BIPOC community members but also by perinatal care providers who have witnessed racist stereotypes and discrimination leading to the mistreatment of Black patients.[10,18,19] Antibias training for health care providers—often targeting "implicit" or subconscious biases—is now mandated in some states (eg, California),[20] and recommended by the federal government,[21] professional societies,[22] and birth equity leaders.[23]

Regulators and hospital leaders need an evidence base to select and implement effective antibias training.[20,22] Though many studies have found implicit bias training to have limited effects, the literature suggests it can be optimized through features like engaging counter-stereotypical exemplars, improving clinicians' communication skills, incorporating cognitive reframing techniques, and implementing ongoing and patient-informed programs.[2,22] Piloting interventions with these types of components in maternal health care is necessary to develop evidence-based guidelines. However, a recent international systematic review on interventions to reduce stigma and discrimination in sexual and reproductive

health care settings[24] identified only 1 evaluated intervention designed to reduce bias among United States-based maternal health care providers.[25]

In light of the increase in public and governmental support for antibias and antiracism interventions,[4,20,21] we sought to investigate whether recent national public-funding reflects this heightened priority. Our inquiry aligns with documented community interest in interventions designed to protect patients from biased care and with recent findings that provider factors are key drivers of preventable maternal mortality.[1,19,26] Though the integration of antibias training into medical school curricula[27,28] is a positive development, this inquiry focuses on interventions in the current maternity health care workforce.[2] It additionally focuses on public grantmakers as they have substantial resources to support large, rigorous, and scalable research on health and health care interventions, and they publicly document their grant-making in searchable databases.

Methods and Data

Under the guidance of a community advisory panel of 3 Black women and mothers (L.J., B.P., and J.H.), we conducted a rapid scoping review[29] of publicly funded grants. A rapid scoping review was appropriate for this task because we sought to characterize and map the types of research and interventions in this space, rather than evaluate the quality or effectiveness of them.[29,30] We nevertheless used processes to be "systematic, transparent, and replicable," described further below.[30,31]

We conducted the review in the Dimensions database (https://www.dimensions.ai), a comprehensive registry of federal (eg, National Institutes of Health [NIH], Agency for Healthcare Research and Quality [AHRQ]), public/private (eg, Patient-Centered Outcomes Research Institute [PCORI]), and large philanthropic (eg, Robert Wood Johnson Foundation [RWJF], Commonwealth Fund) grantees. In collaboration with a medical librarian coauthor (P.T.), we designed a search to be inclusive of all projects relevant to our inquiry. We conducted a broad and sensitive search and developed multiple synonyms for each key concept to retrieve all relevant projects. Search parameters included terms related to bias, racism, equity, and inequities; maternal health and health care; and interventions (eg, training and curricula; Table 1). We limited the search to start dates from January 1, 2018 to July 7, 2022, ~4.5 years.

Three coauthors worked iteratively to establish, operationalize, and refine the criteria for the review (B.C., F.M., and S.B.G.). The purpose of the review was to identify proposals that met all of the following criteria: motivated by and/or designed to advance maternal health equity; focused on (eg, designing, developing, implementing, and/or evaluating) a United States-based intervention designed to reduce racism, bias, and/or discrimination in health care clinicians and/or staff; and supported by a national publicly funded entity. See Supplemental Digital Content (https://pretermbirthca.ucsf.edu/file/12221) for full definitions.

To ensure our review database represented distinct studies, we identified and removed from the final count duplicate cases that had identical abstracts. For example, we considered multisite studies that had different site-specific grant numbers to be part of 1 funded project. K99 and R01 projects were counted as 1 funded project.

Two coauthors (A.W. and S.B.G.) implemented the refined screening criteria across 3 iterative rounds of review of different subsections of the database, identifying discrepancies of interpretation, discussing with coauthors, and further refining the criteria. Those 2 authors then independently coded the full database.

TABLE 1. Search Terms for Dimensions Database

Concepts Represented	Search Terms
Bias, racism, inequity/equity, and justice	v01: ("implicit bias" OR bias OR racism OR prejudice OR discrimination OR "culturally competent" OR "culturally sensitive" OR "cultural competence" OR racial OR ethnic OR inequity OR inequities OR inequitable OR disparities OR disparity OR inequality OR "health equity" OR "structural competency" OR "structural competence" OR "cultural humility" OR "reproductive justice" OR "reproductive equity" OR "birth equity" OR "birth justice" OR "respectful care" OR antiracism) v02: All version 1 content and added "antiracism"
Maternal health	v01: AND ("maternity" OR "maternal" OR pregnant OR pregnancy OR obstetric OR obstetrics OR prenatal OR "prenatal" OR antenatal OR "antenatal" OR perinatal OR "perinatal" OR postpartum OR "postpartum" OR "OB/GYN") v02: AND ("maternity care" OR "maternal care" OR "maternal health care" OR "maternal health" OR pregnant OR pregnancy OR obstetric OR obstetrics OR prenatal OR "prenatal" OR antenatal OR "antenatal" OR perinatal OR "perinatal" OR postpartum OR "postpartum" OR "OB/GYN" OR "obstetrician" OR "midwives" OR "midwife" OR "midwifery" OR "maternal-fetal medicine" OR "labor nurs*" OR "labor and delivery" OR "intrapartum" OR "intrapartum" OR childbirth)
Intervention	AND (reduce OR reducing OR reduction OR eradicate OR eradicates OR eradication OR program OR programs OR program OR programmes OR education OR educational OR intervention OR interventions OR intervene OR training OR train OR curriculum OR policy OR protocol)

Searches proceeded in 2 rounds. The version of the search terms is noted when applicable.

Round 1: Searched using v01 of parameters on May 18, 2022. n = 454. Coded those independently.

Round 2: We refined our search, adding search terms (eg, "labor and delivery" and "intrapartum,") and removing very broad terms that alone were catching many unrelated grants (eg, "maternal").

The updated search using v02 parameters yielded 438 projects in July 7, 2022, which added 54 new projects to our review.

After identifying the grants that met all of our review criteria ("focal projects"), we conducted an additional assessment of the adequacy of our search: we assessed the top 5 grants that Dimensions identified as "similar" to each of the focal projects. This step yielded no new projects that met our criteria. To describe the focal projects, we used the full Dimensions entry, the funder's online entry, and additional information requested from the grantees, when possible.

FINDINGS

The database search yielded 508 funded projects, from which we removed 25 duplicates. Of the 483 unique projects, nearly one-quarter proposed an intervention intended to advance maternal health equity (Fig. 1). We identified 4 projects that met all of our criteria: each was focused on an intervention intended to reduce bias/racism in maternal health care providers, United States-based, and funded partly or wholly by a national public funder. The coders evidenced a high degree of agreement at each stage of independent coding, including full agreement about the 4 focal projects (Fig. 1, Table 2). No further adjudication was necessary.

Of the 4 focal projects, 2 (principal investigators Chambers, Johnson/Meghea) are funded by NIH's National Institute on Minority Health and Health Disparities (NIMHD). Two projects (Herring/McNeil,

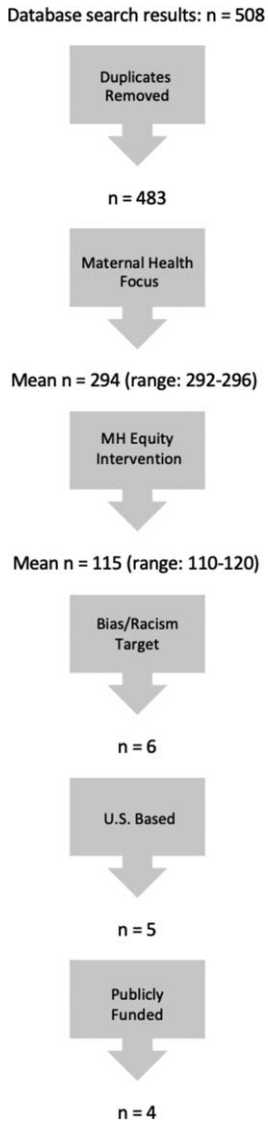

FIGURE 1. Flow diagram of grant-funded project selection and review. Figure is adapted from PRISMA. For intermediary steps in the review where independent coders did not experience full agreement, we present the mean and range of projects identified by the 2 coders.

Tang/Urrutia) are funded by PCORI, a large nonprofit, nongovernmental organization authorized by Congress in 2010 to fund patient-centered and comparative-effectiveness research. All 4 projects had a start date in 2020 or 2021 and named Black women and birthing people as the focal group to benefit from the proposed interventions.

The role of antibias/antiracism training varies across the focal projects. Three studies implement antibias/antiracism training as 1 part of multicomponent interventions. Herring/McNeil proposed a primary intervention of community support, with antiracism training implemented at all study sites and not experimentally analyzed. Johnson/Meghea and Tang/Urrutia include antibias training as part of a package of interventions that will be experimentally evaluated. A fourth study (Chambers), focuses wholly on refining, pilot testing, and experimentally evaluating the effects of "racial equity training" itself.

Overviews of Focal Studies

Chambers: "Community Racial Equity Training And Evaluation of Current and Future Health Care Clinicians (CREATE) Study," a mentored NIH career grant, proposes "racial equity training" for perinatal care clinicians with the goal of benefitting Black women receiving prenatal care. The training is the main focus of the project, which aims to refine and package the training for prenatal care settings; pilot test the effects of the training on clinicians; and explore the impact of the training on "disparities in adequate care in a subsample of Black and white women." The hour-long interactive online training will consist of 5 modules developed with guidance from a stakeholder board comprised of Black women and perinatal clinicians. Clinician outcomes to be assessed include prepost changes in implicit racial attitudes, awareness of the causes of racism and health disparities, and motivation to use queried approaches to provide respectful care to Black women. Electronic health record data from 12 months preintervention and 6 and 12 months postintervention will be analyzed to determine whether Black-white disparities in prenatal care attendance and

TABLE 2. Overview of Projects That Satisfied All Review Criteria ("Focal Projects")

Principal Investigator and Organization at Time of Award	Grant Number	Project Title	Funder	Year Awarded	Grant Website	Antibias/Antiracism Intervention	Role of Antibias/Antiracism Intervention With Regard to key Study Foci and Outcomes
Chambers, Brittany, University of California San Francisco	K01MD015785	Community Racial Equity Training And Evaluation of Current and Future Health Care Clinicians (CREATE) Study	NIMHD, NIH	2021	https://reporter.nih.gov/project-details/10302028	Interactive online racial equity training in prenatal care setting. Training modules will total 60 minutes and address: "(1) overview of racism in the [United States]; (2) Black women's experiences; (3) racism in health care settings; (4) clinicians' perspectives and outcomes; and (5) action plan and reflection."*	Training is the central focus of the study. The study is designed to: refine an interactive, online racial equity training for prenatal clinicians based on input from clinicians and Black women; pilot test its effects on clinician outcomes such as their implicit racial attitudes; and "explore the impact of the [training] in reducing disparities in adequate care in a sub-sample of Black and white women." Prenatal care initiation and attendance at 12 mo before the intervention, 6 mo postintervention, and 12 mo postintervention will be compared in this subsample.*
Herring, Sharon and McNeil, Saleemah, Temple University	NA	The path to optimal Black maternal heart health: comparing 2 CVD risk reduction interventions	PCORI	2021	https://www.pcori.org/research-results/2021/path-optimal-Black-maternal-heart-health-comparing-two-CVD-risk-reduction-interventions	Provider training to reduce pregnant patients' experience of racism or mistreatment	Training is used in both intervention approaches evaluated, which are designed to improve Black maternal heart health. Both approaches feature provider antiracism training and patient-facing supports (eg, educational texts); 1 approach additionally features supports "for Black women by Black women" (community doula care, mental health services,

TABLE 2. (Continued)

Principal Investigator and Organization at Time of Award	Grant Number	Project Title	Funder	Year Awarded	Grant Website	Antibias/Antiracism Intervention	Role of Antibias/Antiracism Intervention With Regard to key Study Foci and Outcomes
							lactation consultation). The primary outcome is change in maternal postpartum blood pressure. Secondary outcomes include experiences of respectful maternity care and other patient-level outcomes.
Johnson, Jennifer and Meghea, Cristian Ioan, Michigan State University	R01MD016003	Meeting women where they are: multilevel intervention addressing racial disparities in maternal morbidity and mortality	NIMHD, NIH	2020	https://reporter.nih.gov/project-details/10173318	Day-long experiential trainings to "address provider and health system implicit and explicit bias and corresponding structures and practices." Experienced community partners will lead trainings, which will include "didactics, reflection, discussion, windshield tours, and brainstorming ways to tailor participants' practices and settings to better meet the needs of perinatal African American women."†	Training is embedded in a multicomponent intervention. It is the "provider/practice level" component of a 5-year, multilevel intervention that will be assessed experimentally for its effect on county-level maternal health disparities. The study's internal fidelity assessments of the antibias training will assess changes in participants' knowledge (eg, about how race and racism impacts health) and actions that participants expect to take or have taken to reduce focal maternal health disparities in their clinical setting.†
Tang, Jennifer	NA	Reducing Racial Disparities in	PCORI	2021	https://www.pcori.org/research-	"Interactive racial equity training" to help	Training is embedded in a multicomponent intervention. It

and Urrutia, Rachel, University of North Carolina at Chapel Hill	Maternal Care through Data-Based Accountability and Doula Support		results/2021/reducing-racial-disparities-maternal-care-through-data-based-accountability-and-doula-support	prenatal clinic staff and providers to recognize implicit biases and "understand how racism affects pregnancy care for patients of color." It will involve an initial informational session, followed by 8 quarterly "booster sessions." The 2-year training will be developed with key stakeholders and be based on an established antiracism framework.‡	is 1 of 3 components in a provider/clinic-focused intervention that will be experimentally evaluated in 40 prenatal care practices against and/or in combination with a community-level doula intervention. Primary outcome assessed is low birth weight; secondary outcomes include decreases in discrimination during prenatal care. Changes in training participants' self-reported knowledge about health equity-related topics (eg, clinic-based health outcomes, the effects of facility protocols and power dynamics) will be assessed after each training session.‡

Project descriptions include content from public sources and, where noted, from information provided by project principal investigators (eg, specific aims pages).

*Personal communication with Chambers, August 25, 2022.

†Personal communication with Johnson, August 9, 2022.

‡Personal communication with Tang, August 8, 2022, August 15, 2022.

CREATE indicates Community Racial Equity Training And Evaluation of Current and Future Health Care Clinicians; NA, not applicable; NIH, National Institutes of Health; NIMHD, National Institute on Minority Health and Health Disparities; PCORI, Patient-Centered Outcomes Research Institute.

timing decreased for patients of clinicians who participated in the training.

Herring/McNeil: "The Path to Optimal Black Maternal Heart Health: Comparing 2 CVD [cardiovascular disease] Risk Reduction Interventions," a PCORI-funded grant co-led by a community stakeholder advisory board, proposes to deliver antiracism training to medical providers with the goal of reducing Black and African American patients' experiences of racism or mistreatment and promoting respectful maternity care. The overall aim of the study is to reduce Black maternal mortality by comparing two approaches that address multiple factors leading to heart disease among Black pregnant women: (1) an intervention package that includes provider antiracism training and patient-facing "nutrition and physical activity text messages and home blood pressure self-monitoring" versus (2) an intervention package with these features as well as supports "for Black women by Black women (community doula care, mental health services, and lactation consultation)." The antiracism training is used in both arms of the study. A change in blood pressure is the primary outcome. The study also investigates the implementation of the intervention and additional outcomes such as social isolation, depression, and patient experiences of respectful maternity care.

Johnson/Meghea: "Meeting women where they are: Multilevel intervention addressing racial disparities in maternal morbidity and mortality," a NIMHD-funded R-level grant, proposes a 5-year, multilevel intervention that was codeveloped with community partners. Its goal is to reduce the rate of maternal morbidity and mortality among Medicaid-insured African American women by intervening at the community, provider/practice, and system levels. Antibias training is the provider/practice level component, which will engage physicians, midwives, hospital administrators, and front desk staff. It is a day-long experiential training that incorporates discussion, reflection, and experiential activities to address bias "and corresponding structures and practices" and increase providers' capacity to "hear, respect and meet the needs of perinatal African American women." It will utilize training materials developed by the Centers for Disease Control and Prevention's (CDC) Racial and Ethnic Approaches to Community Health (REACH) project that was previously implemented in 1 of the study counties and which yielded changes to providers' self-reported understanding of racism and to select behaviors (eg, seeing patients who were late to appointments rather than rescheduling them). The study will experimentally evaluate whether counties that implement the multilevel intervention experience lower rates of severe maternal morbidity and mortality. However, the study's fidelity assessments of the antiracism training, specifically, will track changes in provider knowledge and self-reported equity-promoting actions.

Tang/Urrutia: "Reducing Racial Disparities in Maternal Care through Data-Based Accountability and Doula Support," a PCORI-funded grant co-led by a stakeholder advisory board, implements an "interactive racial equity training" as part of a package of provider and clinic-facing interventions. The training is designed to help prenatal clinic staff to recognize their implicit biases and "understand how racism affects pregnancy care for patients of color." The 2-year training, based on the People's Institute for Survival and Beyond (PISAB) Undoing Racism framework, entails an initial session and 8 quarterly booster sessions. Changes in participant knowledge will be assessed after each session. The training will be implemented alongside clinic-based "data accountability interventions" (eg, clinic-specific disparities dashboards). This set of provider and clinic-facing approaches will be experimentally evaluated alone, as well as in combination with, a community-level

doula support intervention for high-risk patients. Both intervention approaches are designed to decrease pregnancy complications for North Carolina prenatal care patients overall, and especially for Black patients, "by decreasing institutional racism and bias in health care and improving community-level social support during pregnancy." The primary outcome of the study is a decrease in low birth-weight deliveries. Decreases in patients' experiences with discrimination during prenatal care are the secondary outcome.

Discussion

Using a rapid scoping review, we found 4 projects supported by United States public funding in recent years that designed, implemented, or evaluated an intervention aiming to reduce bias, racism, or discrimination in maternal health care workers. To our knowledge, this is the first review to characterize the newest generation of publicly funded antibias interventions in maternal health. It is crucial for funders, researchers, and advocates to understand this landscape and assess whether there is sufficient research in the pipeline to support the wave of legislative and institutional mandates calling for such interventions.[20] Echoing an international study on published strategies to reduce stigma and discrimination in sexual and reproductive health care, we found "limited interventional work" supported by major public funders.[24]

The reviewed projects use promising and innovative components, such as community-based participatory research and multicomponent, multilevel interventions. They are responsive to community-identified needs for interventions on non-patient targets. However, the fact that we identified only 4 antibias/antiracism projects supported by national public funding since 2018 affirms community concerns that there is little material support for intervening on bias and interpersonal racism in maternal health. This is the case even though scholars have identified numerous gaps in the evidence base—for example, how best to develop and implement implicit bias training, and where, how, and for whom antibias training improves patient outcomes.[20,22,32] As more legislation and institutions require provider-level interventions, the field will need more research to guide this work.

Three of the focal projects embedded antibias training in multicomponent interventions, which will help to show how interventions that simultaneously touch different levels of the health care system affect patient outcomes. Such multidimensional interventions are well-suited to complex problems like maternal health disparities.[2,4] The focal project designed to improve and evaluate antibias training itself is also important, as it will illuminate the role of antibias training as a stand-alone intervention. Such insights are crucial for understanding how new state-level antibias training requirements may or may not affect desired outcomes. The 4 focal projects represent promising examples of rigorous antibias/antiracism research, but more is needed. As states and health systems across the country seek to select and implement antibias training, research on the training by itself and as part of broader interventions will be needed across a wide variety of regions, communities, and health care contexts.[20,22]

Philanthropically funded and community-grounded work will be especially important to help bridge this knowledge gap. Reproductive justice scholars have critiqued philanthropy for failing to address root causes of inequities and supporting research that is neither grounded in nor relevant to historically marginalized communities, particularly Black women and birthing people.[33] Fortunately, there are clues that this tide is turning—revealing promising examples for public funders to consider. Some recent examples include

the work of Joia Crear-Perry, MD, and the National Birth Equity Collaborative, with the support of the RWJF and in collaboration with Black birth equity stakeholders, who helped develop a framework to guide antiracism training for maternity care providers.[34] Karen Scott, MD, MPH received funding from multiple philanthropies to codevelop a measure of obstetric racism with Black birthing people; the measure will be used to assess and improve intrapartum care.[35] Rachel Hardeman, PhD, MPH, and Diversity Science, an Oregon-based company that specializes in DEI training, received funding from the California Health Care Foundation to develop an online curriculum responsive to California's implicit bias training requirements for perinatal providers.[36,37] In recent years RWJF has funded multiple "Community Power-Building" grants to support birth justice work and antiracism efforts led by BIPOC communities. These examples—which constitute a subset of such privately funded efforts—highlight the variety and creativity of projects that could flourish with even more major funder support.

There are many reasons scholars and interventionists pursue philanthropic funding rather than federal funding, including faster timelines and a greater willingness to fund novel types of interventions and team structures. In light of federal and state support for clinician implicit bias training,[20,21] public funders have the opportunity to become more agile and to fund a wider range of interventions and coalitions than they have historically. At the same time, they should heed the counsel of birth equity advocates and community-based scholars to ensure that more rapid grant-making does not inadvertently reproduce or exacerbate inequities in funding.[38] Throughout all of this work, large national funders should support gatherings where community members, researchers, interventionists, providers, and policy-makers can learn from each other, share insights that may be relevant across settings, and identify needs to support the next generation of antibias interventions.

Finally, it is important to note that individual-level antibias inventions are only 1 facet of changes needed to advance maternal health equity.[1,5,39–41] Our review surfaced numerous projects that sought to mitigate racism and its harms in other ways. One approach focused on structural racism and its effects, including proposals to integrate new resources into communities or replace harmful models of care. Recent publicly funded examples of such structural-level interventions include a study that evaluates a novel integrated-care model involving community doula support and safety bundles guided by "mothers of color" (Amutah-Onukagha R01MD016026); and a trial that initiates and evaluates a program of patient-centered community doula navigators, working interprofessionally with perinatal care teams, as an alternative to standard perinatal care (Simon R01MD016280). Another approach focused on attenuating the effects of interpersonal bias and racism on patients, rather than targeting provider-level bias itself. For example, an NIH-funded project proposed a standardized labor induction protocol as a way to "inhibit" the influence of perinatal provider bias in labor management (Hamm K23HD102523). These interventions reflect growing support for systemic change[4,18,21,39] and provide crucial tools to complement provider bias-reduction efforts. Similarly, high-quality measures of patients' maternity care experiences—particularly those co-developed by Black women and birthing people and other communities inequitably burdened by racist care[35,42,43] —will be critical to understanding where interventions are needed, whether they are effective, and for whom. All of these interventions and innovations will be needed to address the problem of maternal health disparities.

LIMITATIONS

This study has several limitations, such as its exclusive focus on large domestic publicly funded grants. As described above, there are innovative privately funded interventions that are doing important work in advancing maternal health equity, as well as promising projects funded by state and local entities, schools of medicine, and international sources. Future reviews of these projects would be an important contribution to public knowledge. We note that such reviews may be difficult to perform systematically as no existing database supports them. In addition, our focus on provider-level interventions centers on an important but insufficient tool in the collective work toward birth equity; substantial and durable improvements will require system-level change as well. Finally, as with any review, it is possible that relevant projects were not captured. Our broad search criteria and our use of 2 coders served to minimize this risk, but our review was nevertheless limited to the content that principal investigators presented in their public abstracts. Future reviews should be conducted to determine if more antibias/antiracism interventions enter the publicly funded pipeline to meet maternal health equity goals.

Conclusion

There are clear needs and opportunities for large national funding agencies to increase support for interventions that address the root causes of maternal health inequities, including systems of oppression, racism, and discrimination. Such support will speed the development of a rigorous evidence base for this work. Large funders should additionally support iterative national reviews of emergent research and convene multiple sectors—including policy-makers, payers, providers, community members, and patients—to align interventions and policies with new evidence while centering the needs of Black women, birthing people, and others harmed by bias and racism in the health care system.

References

1. Crear-Perry JA, Green CL, Cruz K. Respectful maternity care: shifting medical education and practice toward an anti-racist framework. *Health Aff Forefr*. April 16, 2021. doi:10.1377/forefront.20210413.303812
2. Hamm RF, Kumar NR, Riegel M, et al. Addressing disparities in care on labor and delivery. *Curr Obstet Gynecol Rep*. 2022;11:143–151.
3. Artiga S, Pham O, Orgera K, et al. Racial disparities in maternal and infant health: an overview. Kaiser Family Foundation; 2020. Available at: https://www.kff.org/report-section/racial-disparities-in-maternal-and-infant-health-an-overview-issue-brief/. Accessed August 17, 2022.
4. Crear-Perry J, Correa-de-Araujo R, Lewis Johnson T, et al. Social and structural determinants of health inequities in maternal health. *J Womens Health 2002*. 2021;30:230–235.
5. Green TL, Zapata JY, Brown HW, et al. Rethinking bias to achieve maternal health equity: changing organizations, not just individuals. *Obstet Gynecol*. 2021;137:935–940.
6. 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;33:108–115.
7. Aina AD, Asiodu IV, Castillo P, et al. Black maternal health research re-envisioned: best practices for the conduct of research with, for, and by Black mamas. *Harv Law Policy Rev*. 2019;14:393.
8. Davis DA. Obstetric racism: The racial politics of pregnancy, labor, and birthing. *Med Anthropol*. 2019;38:560–573.
9. Altman MR, Oseguera T, McLemore MR, et al. Information and power: women of color's experiences interacting with health care providers in pregnancy and birth. *Soc Sci Med*. 2019;238:112491.
10. Chambers BD, Arabia SE, Arega HA, et al. Exposures to structural racism and racial discrimination among pregnant and early post-partum Black women living in Oakland, California. *Stress Health*. 2020;36:213–219.
11. Bailey ZD, Feldman JM, Bassett MT. How structural racism works—racist policies as a root cause of US racial health inequities. *N Engl J Med*. 2021;384:768–773.
12. Logan RG, McLemore MR, Julian Z, et al. Coercion and non-consent during birth and newborn

care in the United States. *Birth*. 2022:1–14. Published online June 23, 2022. doi:10.1111/birt.12641
13. Matthews K, Morgan I, Davis K, et al. Pathways to equitable and antiracist maternal mental health care: insights from Black women stakeholders. *Health Aff (Millwood)*. 2021;40:1597–1604.
14. Howell EA. Reducing disparities in severe maternal morbidity and mortality. *Clin Obstet Gynecol*. 2018;61:387–399.
15. Howell EA, Brown H, Brumley J, et al. Reduction of peripartum racial and ethnic disparities: a conceptual framework and maternal safety consensus bundle. *J Obstet Gynecol Neonatal Nurs*. 2018;47:275–289.
16. Howell EA, Sofaer S, Balbierz A, et al. Distinguishing high-performing from low-performing hospitals for severe maternal morbidity: a focus on quality and equity. *Obstet Gynecol*. 2022;139:1061–1069.
17. Russell S. Eradicating racism from maternity care begins with addressing implicit bias. *Nurs Womens Health*. 2021;25:167–169.
18. Chambers BD, Taylor B, Nelson T, et al. Clinicians' perspectives on racism and Black women's maternal health. *Womens Health Rep*. 2022;3:476–482.
19. Altman MR, McLemore MR, Oseguera T, et al. Listening to women: recommendations from women of color to improve experiences in pregnancy and birth care. *J Midwifery Womens Health*. 2020;65:466–473.
20. Cooper LA, Saha S, van Ryn M. Mandated implicit bias training for health professionals—a step toward equity in health care. *JAMA Health Forum*. 2022;3:e223250.
21. Biden-Harris Administration. White House Blueprint for Addressing the Maternal Health Crisis. The White House; 2022. Available at: https://www.whitehouse.gov/wp-content/uploads/2022/06/Maternal-Health-Blueprint.pdf. Accessed July 14, 2022.
22. Siden JY, Carver AR, Mmeje OO, et al. Reducing implicit bias in maternity care: a framework for action. *Womens Health Issues*. 2022;32:3–8.
23. Black Mamas Matter Alliance. Black Mamas Matter: Advancing the Human Right to Safe and Respectful Maternal Healthcare. Center for Reproductive Rights; 2018. Available at: http://blackmamasmatter.org/wp-content/uploads/2018/05/USPA_BMMA_Toolkit_Booklet-Final-Update_Web-Pages-1.pdf. Accessed July 1, 2021.
24. Bohren MA, Corona MV, Odiase OJ, et al. Strategies to reduce stigma and discrimination in sexual and reproductive healthcare settings: a mixed-methods systematic review. *PLOS Glob Public Health*. 2022;2:e0000582.
25. Seybold D, Calhoun B, Burgess D, et al. Evaluation of a training to reduce provider bias toward pregnant patients with substance abuse. *J Soc Work Pract Addict*. 2014;14:239–249.
26. Mitchell C, Lawton E, Morton C, et al. California pregnancy-associated mortality review: mixed methods approach for improved case identification, cause of death analyses and translation of findings. *Matern Child Health J*. 2014;18:518–526.
27. Hardeman RR, Burgess D, Murphy K, et al. Developing a medical school curriculum on racism: multidisciplinary, multiracial conversations informed by Public Health Critical Race Praxis (PHCRP). *Ethn Dis*. 2018;28(Suppl 1):271–278.
28. Weiner S. Medical schools overhaul curricula to fight inequities. American Association of Medical Colleges—News. Published May 25, 2021. Available at: https://www.aamc.org/news-insights/medical-schools-overhaul-curricula-fight-inequities. Accessed August 7, 2022.
29. Peters MDJ, Godfrey CM, Khalil H, et al. Guidance for conducting systematic scoping reviews. *JBI Evid Implement*. 2015;13:141–146.
30. Grant MJ, Booth A. A typology of reviews: an analysis of 14 review types and associated methodologies. *Health Inf Libr J*. 2009;26:91–108.
31. Munn Z, Peters MDJ, Stern C, et al. Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. *BMC Med Res Methodol*. 2018;18:1–7.
32. Zestcott CA, Blair IV, Stone J. Examining the presence, consequences, and reduction of implicit bias in health care: a narrative review. *Group Process Intergroup Relat*. 2016;19:528–542.
33. Scott KA, Bray S, McLemore MR. First, do no harm: why philanthropy needs to re-examine its role in reproductive equity and racial justice. *Health Equity*. 2020;4:17–22.
34. Green CL, Perez SL, Walker A, et al. The cycle to respectful care: a qualitative approach to the creation of an actionable framework to address maternal outcome disparities. *Int J Environ Res Public Health*. 2021;18:4933.
35. White VanGompel E, Lai JS, Davis DA, et al. Psychometric validation of a patient-reported experience measure of obstetric racism (The PREM-OB Scale suite). *Birth*. 2022;49:514–525.
36. Bill Text—SB-464. California Dignity in Pregnancy and Childbirth Act. Available at: https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201920200SB464. Accessed September 3, 2020.
37. Diversity Science. Eliminating Inequities in Perinatal Health Care Project. Diversity Science. Available at: https://www.diversityscience.org/training-and-education/equal-perinatal-care/. Accessed September 12, 2020.

38. Lett E, Adekunle D, McMurray P, et al. Health equity tourism: ravaging the justice landscape. *J Med Syst*. 2022;46:17.
39. Brown AF, Ma GX, Miranda J, et al. Structural interventions to reduce and eliminate health disparities. *Am J Public Health*. 2019;109(Suppl 1): S72–S78.
40. Carter EB, Mazzoni SE. A paradigm shift to address racial inequities in perinatal healthcare. *Am J Obstet Gynecol*. 2021;224:359–361.
41. McLemore MR. Using retrofit, reform, and reimagine to advance toward health equity. *J Perinat Neonatal Nurs*. 2022;36:99–102.
42. Scott KA, Chambers BD, McKenzie-Sampson S, et al. The virtual perinatal quality improvement prioritization by affected communities (V-QPAC) protocol. *Health Serv Res*. 2021;56(Suppl 2):56–57.
43. Vedam S, Stoll K, Taiwo TK, et al. The Giving Voice to Mothers study: inequity and mistreatment during pregnancy and childbirth in the United States. *Reprod Health*. 2019;16:1–18.