NYC Health

NYC Coalition to End Racism in Clinical Algorithms (CERCA)

Program Evaluation

2021-2023

August 2025

Acknowledgments

We dedicate this report to Dr. Lundy Braun.
CERCA is indebted to her work and legacy. We strive onward in her spirit to organize and continue her efforts in understanding our harmful past to demand a more equitable and just future.

This evaluation was made possible by the generous funding of the Robert Wood Johnson Foundation.

Dear colleagues,

We are excited to share this evaluation of the first two years of the NYC Coalition to End Racism in Clinical Algorithms (CERCA) with you.

Within the pages of this report, you will read about how CERCA members and their leadership embraced change by using data and science in service of equity — like all of us do in our work at the NYC Health Department. To make lasting changes in health care and public health, CERCA members came together to address the inaccurate, unscientific notions of race as biology that have served to justify the use of harmful race-based tools and treatment over generations. Now more than ever, it is imperative that we use data and science to lead toward equity.

CERCA continues to build on its first two years of commitments. Its successes include de-implementing race adjustment in one of three priority clinical algorithms across seven participating health systems, successfully advocating for updated recommendations from the American Thoracic Society on de-implementing race-based reference equations in spirometry, raising more than $3 million to support safety-net hospitals in evaluating the impacts of harmful race-based algorithms, and launching CERCA community advisory boards to ensure that patients' voices are centered in each conversation.

This evaluation suggests that CERCA is a promising new model for collaborations between public health agencies and health care institutions, especially safety-net hospitals and health systems, to end the use of harmful race-based algorithms. We hope our findings spur excitement and motivate local and state health departments, health systems, and funders nationwide to take on this work. We hope they inspire confidence that removing harmful clinical practices is possible and can have lasting public health impacts.

As we all know, this work requires steadfast diligence, despite any backlash that may come. The dedication of CERCA members and NYC Health Department staff is unwavering, and we remain encouraged by our collective action to date. CERCA demonstrates that when health care and public health institutions remain firm in their dedication to health equity, change is possible, even when there are opposing forces.

The NYC Health Department has been protecting and promoting the health of New Yorkers for 220 years, supported by factual information grounded in science, and that does not stop now. We remain committed to those principles, and this evaluation report is a testament to them.

With appreciation,

Michelle Morse, MD, MPH
Acting Health Commissioner

Toni Eyssallenne, MD, PhD
Deputy Chief Medical Officer

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About This Report

In 2021, the NYC Health Department created the Coalition to End Racism in Clinical Algorithms (CERCA) to end the use in NYC of clinical algorithms that may perpetuate racial essentialism, the belief that there are fixed biological differences between racial groups. Evidence has shown that the inclusion of race as a proxy for biology can adversely affect the care that patients of color receive.* This report describes and evaluates the activities of the coalition's first two years, which included 10 health systems[1] and other stakeholders.[2] In this time, under the leadership of the NYC Health Department, coalition members worked to stop the use of three clinical algorithms designated as priority targets. These algorithms were chosen because evidence suggested they misused race or ethnicity and their use led to delays in diagnosis, treatment, or other care for patients of color.

Making medical decisions based on a person's race is unjust and scientifically unsound and can worsen health inequities.[3] Unlike a person's age or height, race is not biological — it is a social and political construct. Race was defined in the specific context of European oppression, discrimination, colonialism, and enslavement. The definition of race reflects these social and political contexts.[4,5] Racism is defined as "prejudice and discrimination, where prejudice means differential assumptions about the abilities, motives, and intentions of others according to their race, and discrimination means differential actions toward others according to their race."[6] Institutionalized in society, racism denies people of color access to resources like quality housing, food, health care, and generational wealth, all of which impact health. It also causes daily stress that can worsen health problems. Racism is an important influence on a person's health,[7] while race itself is not.

CERCA was launched in the context of the NYC Board of Health's declaration of racism as a public health crisis.[8] The coalition also advances the NYC Health Department's mission to bridge public health and health care by focusing on equity and anti-racism.[9] Finally, CERCA was a response to existing racial health inequities that became more widely and urgently visible during the COVID-19 pandemic.[10] This report focuses on the activities and evaluation of CERCA's first phase, which lasted from November 2021 to November 2023. The first section of the report describes the clinical algorithms that CERCA targeted. Later sections describe CERCA's membership and activities, as well as findings from the NYC Health Department's evaluation of CERCA. The report ends with recommendations for future coalition work.

Evaluation results suggest that CERCA is a promising new model for collaborations between public health agencies and health care institutions to end the use of harmful race-based algorithms. The NYC Health Department hopes funders, local and state health departments, and health systems nationwide will find this report useful.

Please note that throughout this report, footnotes at the bottom of a page correspond to the symbols found in the text on that page. The report uses "health systems" and "CERCA members" interchangeably.

* A health system is an organization that contains at least one hospital and a group of primary care physicians that works with the hospital.

Background

There is a 300-year history within the medical field of defining race in biological terms, using physical differences such as skin color and hair texture to categorize races as genetically distinct populations.[11-14] Modern science, however, shows that racial groupings are not indicators of biological differences.[15-17] Race is a social category created by people, with no basis in biology, genetics, or science.[18,19] Nevertheless, race is still one of the strongest predictors of health care access, quality, and outcomes simply because it correlates with the impact of racism.[20]

Racism operates at multiple levels: internalized, interpersonal, institutional, and structural. Racism can influence one's health. Racism — not race — is the primary driver of racial health inequities in disease burden, access to care, and clinical outcomes in NYC and the United States.[21-26]

The inaccurate use of race in research has led to a history of harmful interventions, delayed medical treatments, and flawed medical decision-making that cause marginalized people, especially Black people and other people of color, to be excluded from possibly lifesaving health care delivery.[27] Misinterpretations of what race does and does not represent continue to exist in medical education and clinical practice.

Use of Race in Clinical Algorithms

A clinical algorithm is a tool that health care professionals use to make decisions about patient care.[28] Clinical algorithms use large amounts of data to help health care providers make sense of information about an individual patient.[29,30] Providers use clinical algorithms to diagnose medical conditions, assess the risk of health outcomes, prescribe medications, manage chronic diseases, and determine critical resources.[31] These tools are intended to "improve clinician decision-making, reduce medical errors, optimize clinical workflows, and improve patient outcomes."[31] While clinical algorithms were developed to improve the quality and effectiveness of health care, evidence shows that they can be racially discriminatory and work to worsen existing racial inequities.[31-34] Sometimes, algorithms are race "corrected" to predict outcomes for non-white patients using "white" as the healthy standard to account for biological difference among racial groups, even if there is no evidence of racial differences.[31] Non-white and white patients can receive different recommendations based solely on their race, and this unequal treatment can cause harmful delays in care for patients of color.[31,33]

Race Essentialism and Its Impacts

The use of race and ethnicity in algorithms as a marker of biological differences is based on the concept of racial essentialism. Racial essentialism is the belief that there are fixed biological differences between racial groups.[35] This idea was foundational to science in the Enlightenment era, and this mistake has persisted in all scientific endeavors, including medical education.[36,37] Research shows that beliefs of racial essentialism are associated with the legitimization of existing social hierarchies based on race, acceptance of racial inequality, and anti-Black prejudice among white people in the United States.[37,38] The idea that race alone can explain disease risk ignores the complex interactions of genetic, environmental, social, and cultural influences on health.[34]

Race-specific equations have other problems besides being based on racial essentialism. They also label white bodies as "normal" and non-white bodies as "different"or "inferior."[39,40] Furthermore, they use broad racial categories such as "Black" and "non-Black" and fail to consider people of mixed race, who now comprise one in seven babies born in the United States.[41,42] Including race in clinical algorithms may ultimately normalize or hide the consequences of systemic racism, perpetuate racial essentialism, and widen racial health inequities.[43]

The Formation of CERCA To Address Racism in Clinical Algorithms

CERCA was created to end the use of algorithms that may perpetuate racial essentialism. The NYC Health Department partnered with 10 health systems and an advisory council of experts.

The next section of this report describes the first three race-based algorithms that CERCA targeted: estimated glomerular filtration rate (eGFR) equations, pulmonary function testing (PFT), and the vaginal birth after cesarean section (VBAC) risk calculator.

CERCA's Algorithms of Focus

Estimated Glomerular Filtration Rate (eGFR)

The kidney is an organ that removes waste and extra fluid from the body. It is important for clinicians to measure how well the kidneys are working to identify and assess conditions like chronic kidney disease (CKD) and to decide when to refer patients for specialized kidney care or organ transplantation. Clinicians use eGFR, an estimate of how well a person's kidneys can filter and remove the protein creatinine from their blood, to measure kidney function.[44] Before 2021, the two most common equations (MDRD and CKD-EPI) adjusted eGFR by race to assign higher eGFR and, therefore, healthier-appearing estimated kidney function to Black patients.[45,46] In other words, a Black person with the same age, weight, and serum (blood) creatinine level as a non-Black person would have a higher, or less severe, reported eGFR.

Recent research suggests that using race modifiers to estimate kidney function might mean Black people have not been diagnosed or treated for kidney issues as early as they should. Black individuals tend to get diagnosed with kidney problems later than other groups. This delay means they are less likely to be referred to a nephrologist, start dialysis, or get on a kidney transplant list when needed.[47,48] As a result, Black patients may not get a kidney transplant when they should, denying them lifesaving treatment. A 2021 national study estimated that removing race adjustment from the eGFR equation could result in an additional 3.3 million Black people in the United States receiving a Stage 3 chronic kidney disease diagnosis, 300,000 more qualifying for a referral to a kidney care specialist, and 31,000 becoming eligible for transplant evaluation and being added to a waitlist.[49]

Pulmonary Function Tests (PFTs)

PFTs, also known as spirometry tests, check how well a person's lungs work by measuring the rate and volume of air exhaled after a deep breath. PFTs confirm commons conditions like chronic obstructive pulmonary disease (COPD) and asthma. These tests are also used to track the progression of certain lung diseases and see if treatments are working,[50] evaluate for surgery risk, and determine disability and occupational health needs. In the United States, spirometry machines have been programmed with equations that estimate normal lung function based on a patient's age, sex, height, race, and ethnicity. PFTs are interpreted by comparing a patient's spirometry results to predicted normal lung function based on race-specific PFT equations. Race was originally included in PFT equations based on an incorrect assumption that, compared with white patients, Black patients have 10% to 15% smaller lung capacity and Asian patients have 4% to 6% smaller lung capacity.[51-54]

The idea that Black people have inferior lung capacity dates to 1785 when President Thomas Jefferson wrote of "a difference of structure in the pulmonary apparatus" between Black enslaved people and white people.[55,56] About 100 years later, United States doctor and plantation owner Samuel Cartwright used a spirometer to justify slavery. Cartwright's results indicated a 20% gap in lung capacity between Black and white people. He suggested that lower lung volume made Black enslaved people unfit for freedom and likely to "benefit" from forced labor.[57,58] In 1999, a study using data from the National Health and Nutrition Examination Survey found differences in lung capacity between Mexican Americans, Black people, and white people. This set the modern-day standard for race-specific estimates of lung function. Since then, spirometry machines have been automatically programmed to use PFT equations that adjust for race alongside age, sex, and height, assuming these differences are all biological.[59]

Race-specific lung function testing has contributed to racial health inequities. Assuming Black and Asian patients have smaller lungs than white patients may have led to underdiagnosis and undertreatment of respiratory problems. Also, adjusting for race could mean missing signs of COVID-19 complications such as pulmonary fibrosis, which spirometry tests often check for.[60] A recent study found that, among Black people, the use of race-neutral PFT equations instead of race-adjusted equations led to a 40% increase in patients with identifiable restrictive lung problems and a 20% increase in the severity of lung problems. It was estimated that a race-neutral algorithm could diagnose lung problems in an additional 1 million Black people and potentially allow them to get the care they need.[61]

Vaginal Birth After Cesarean (VBAC)

Each year in the United States, about 1.2 million women have cesarean births,[62] with around 517,000 of these being repeat cesareans. Because having multiple surgical births comes with more risks, the National Institutes of Health declared increasing the rate of vaginal birth after cesarean a public health priority in 2010.[63] To achieve a safe vaginal birth after cesarean, many pregnant people are offered the chance to labor after cesarean

delivery (LAC) and attempt a VBAC. While there are risks, the benefits of a successful VBAC compared with having another cesarean are clear: fewer chances of surgical problems, lower risk of bleeding and infection after birth, quicker recovery, and lower risk of issues in future pregnancies.[64] However, because of structural and health inequities, Black and Latino pregnant people continue to have higher rates of primary cesarean deliveries and lower rates of VBAC than white pregnant people.[65] Reducing unnecessary cesarean sections is, therefore, an important part of reducing racial maternal health inequities.

In 2007, the Maternal Fetal Medicine Units Network developed the VBAC calculator. The calculator was intended to help clinicians counsel patients on the probability of a VBAC by evaluating patient-level risk factors. For example, having a higher body mass index (BMI) and being older decreased the predicted probability of a successful VBAC, whereas prior vaginal birth increased the likelihood of success.[66]

Like with PFTs and eGFR, the equation for the VBAC calculator was race-adjusted — it included race and ethnicity adjustment factors for Black and Latino pregnant people. While identifying as a white woman increased the predicted probability of a successful VBAC, identifying as Black or Latino resulted in a lower predicted probability of success. This pushed clinicians to suggest that Black and Latino people not try a VBAC, even when one may have been successful.[67,68] In a recent survey, about one in five certified nurse midwives said the calculator was used to discourage or stop pregnant people from trying a VBAC.[69]

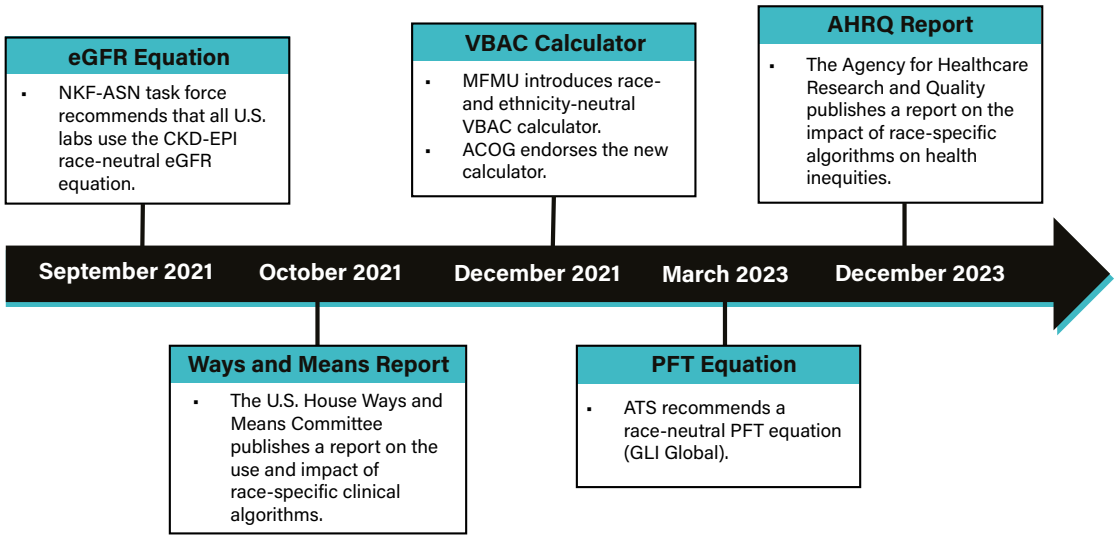
Government and Professional Societies' Responses to Racism in Algorithms

In response to new evidence of harm caused by race adjustment, federal regulatory agencies and policymakers have demonstrated interest in addressing the misuse of race in clinical algorithms. In 2021 and 2023, respectively, the U.S. House of Representatives Ways and Means Committee[70] and the Agency for Healthcare Research and Quality[71] published reports on the use and impacts of race-specific algorithms and clinical decision-making tools. Both reports recommended making the health care workforce more diverse, teaching patients and doctors about the problems with race-based algorithms, fixing any harms caused by these algorithms, and making broader policies to promote health equity.

In addition, several race-based clinical guidelines have been replaced by alternatives without race over the last several years (Figure 1). In 2021, the Maternal Fetal Medicine Units Network (MFMU) updated their VBAC calculator that had originally used race and ethnicity to remove the Black race and Latino ethnicity fields and add a field for history of chronic hypertension.[72,73] The American College of Obstetricians and Gynecologists (ACOG) issued a Practice Advisory in December 2021 endorsing the use of the modified VBAC calculator.[74] Also in 2021, a National Kidney Foundation (NKF) and American Society of Nephrology (ASN) task force recommended a race-free eGFR calculator.[75,76] In March 2023, the American Thoracic Society (ATS) recommended the replacement of race-specific PFT equations with race-neutral equations.[77] Other race-specific algorithms,

such as those used to predict the risk of urinary tract infections in children and determine anemia in pregnant people, are also no longer recommended.[78-80]

Figure 1. Timeline of Government Reports and New Clinical Guidelines on Race-Neutral Algorithms



Coalition Members

Health systems' leaders were individually engaged by the NYC Health Department. CERCA was introduced to them to encourage buy-in for de-implementation of race-based algorithms system-wide.

Those who joined CERCA included some of the largest private and public health systems in NYC: NYC Health + Hospitals, Maimonides Medical Center, Mount Sinai Health System, Montefiore Health System, NewYork-Presbyterian, Northwell Health, One Brooklyn Health, SBH Health System, and SUNY Downstate. Nuvance Health, based outside NYC, joined CERCA in the coalition's second year. The majority (60%) of members are safety-net health systems, which provide health care regardless of patients' insurance status or ability to pay.[81] The NYC Health Department was deliberate in recruiting safety-net hospitals to participate in CERCA. These hospitals have limited resources due to a long history of disinvestment, while serving NYC's most vulnerable and marginalized communities. Moreover, safety-net systems predominately serve the populations in NYC that are most impacted by race-based algorithms. The NYC Health Department assisted each member, especially safety-net hospitals, at every stage of de-implementing race-based algorithms.

Each CERCA member worked toward the following goals:

- Ending race adjustment in at least one clinical algorithm: eGFR, PFT, or VBAC
- Evaluating the impact of using race-neutral algorithms on racial health inequities in patient outcomes
- Creating and implementing initiatives for patient engagement to prioritize care for patients of color whose care may have been delayed or denied because of the algorithm

Health systems selected a representative, designated the implementation lead, to be the main contact with the CERCA team at the NYC Health Department. Implementation leads were executive (40%), health equity (30%),* and clinical leaders (30%). Leads formed an "algorithm team" of executive, clinical and population health leaders for each algorithm they planned to address. Seven health systems chose to work on VBAC, six on eGFR and three on PFTs, which led to the formation of 16 algorithm teams across systems (Table 1). The NYC Health Department provided guidance to each lead and their team whenever needed. This setup blended hands-on experience from implementation leads with support from the Health Department.

Table 1. Number of Algorithm Teams Across CERCA Health Systems

Algorithm	Number of Teams
VBAC	7
eGFR	6
PFT	3
Total	**16**

CERCA Meetings

The NYC Health Department's Office of Chief Medical Officer held 12 virtual bimonthly coalition meetings from 2021 to 2023. Each meeting began with grand rounds-style presentations (described in Appendix A) on topics such as:

- Recent publications and research related to eGFR, PFT or VBAC algorithms
- Guideline recommendations and changes
- Case studies or real-world clinical perspectives
- Patient engagement
- Policy and advocacy

After the presentation, members met in breakout groups by algorithm. Each group shared status updates and troubleshooted ongoing challenges in partnership with facilitators and the CERCA team. Some key topics and issue areas that were discussed within each breakout group of the two-year duration:

eGFR

- Needing provider education and acceptance from kidney specialists before transitioning to a race-neutral eGFR equation
- Updating electronic health records (EHR) and laboratory interfaces to reflect changes in eGFR reporting
- Identifying appropriate and accessible metrics to measure the new equation's

* Health equity leaders are directors of institutional centers dedicated to health equity initiatives or research.

impact on referrals to kidney specialists, dialysis and transplant evaluations
- Educating patients about changes in eGFR values and resulting changes in care
- Collaborating with the National Kidney Foundation and other patient advocacy groups on patient engagement

VBAC

- The need for a better understanding of current VBAC calculator use among OB-GYN providers
- Other factors the VBAC calculator considers, such as BMI, that may contribute to higher rates of cesarean sections in Black and Latino people
- Identifying other possible influences on VBAC counseling, such as provider bias
- Benefits to VBAC counseling without the use of the VBAC calculator and considering other factors, such as hypertension
- Encouraging providers to use shared decision-making and focus on a pregnant person's priorities
- Creating a video for patients that encourages pregnant people to talk to their providers about VBAC

PFT

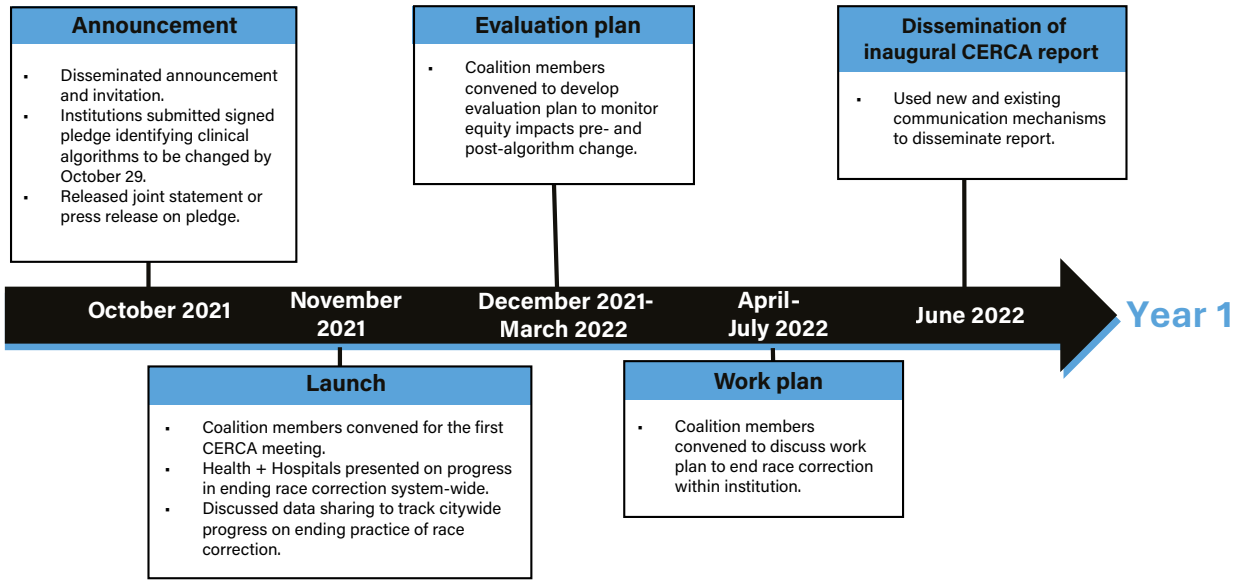
- Replacing outdated spirometry machines that were preprogrammed with race-adjusted or race-specific reference equations
- Identifying current PFT equations based on datasets that do not reflect NYC communities
- Ongoing debate around using race-based PFT equations and the role of genetic ancestry in equation precision, as well as what determines "normal" versus "abnormal" lung function
- Strategizing on advocacy to persuade the American Thoracic Society to recommend a race-neutral PFT equation*
- The role of patient advocacy groups in encouraging movement toward race-neutral reference equations in PFT

CERCA Activities

In the first year, CERCA members focused on developing a working plan to end race correction in their algorithm or algorithms of focus. They also created evaluation plans for monitoring and evaluating the impact on patient outcomes of removing race from the algorithms of focus (Figure 2). CERCA's inaugural report, published in July 2022, provides more detail about Year 1 efforts.[82]

* In February 2023, the American Thoracic Society released an official statement recommending the replacement of race-specific reference equations with race-neutral average reference equations for spirometry testing.

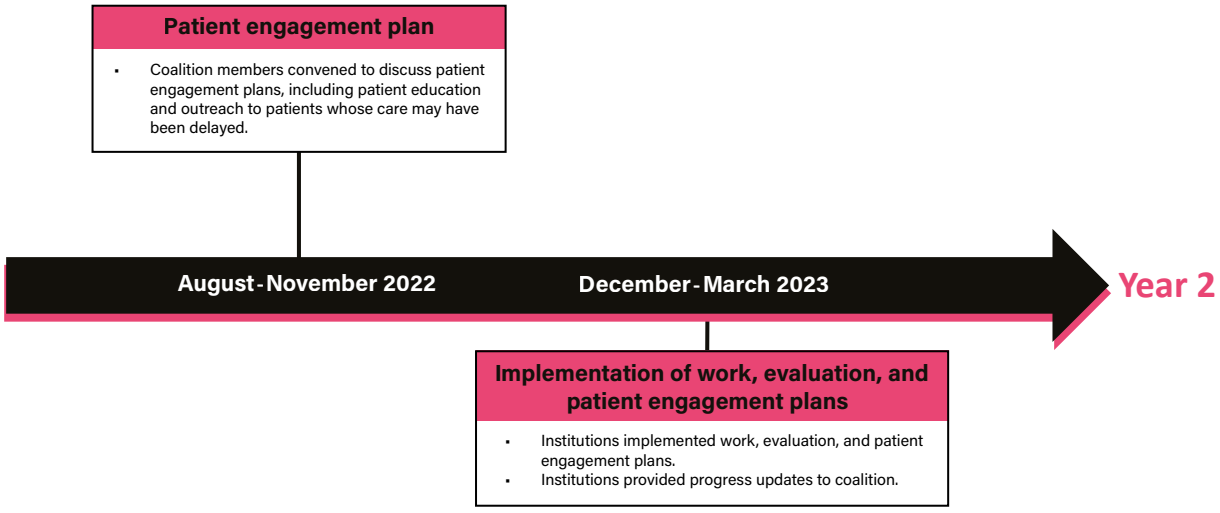
Figure 2. Activity Timeline for Year 1 of CERCA



In Year 2, CERCA members continued to work on their respective work and evaluation plans. At this time, the NYC Health Department also asked members to create a plan for engaging and educating patients about how algorithm change may have impacted their care (Figure 3).

As CERCA members de-implemented race-based clinical algorithms, new and unexpected challenges arose. For example, members focusing on de-implementing race-based eGFR began to explore structural issues in access to dialysis and kidney transplantation among patients of color. Members focusing on race-based VBAC calculations started to discuss the need for more shared decision-making tools in VBAC counseling as an alternative to relying on static tools such as the VBAC calculator.

Figure 3. Activity Timeline for Year 2 of CERCA



Evaluation Methodology

CERCA evaluation aimed to assess members' perceptions of the coalition's effectiveness, how health systems implemented the change to race-neutral algorithms, and the impact of these changes on patient outcomes. The following qualitative and quantitative methods were used:

CERCA member survey: Twenty-four individual members (36%) completed the survey and 29 (43%) partially completed it. The survey asked individual coalition members how effective CERCA's leadership, meeting presentations, and breakout groups were.

Key informant interviews: Evaluators interviewed 23 key informants from CERCA health systems and two National Kidney Foundation staff members. The interviews helped evaluators understand how the algorithm changes, evaluation, and patient engagement were implemented; the key factors that influenced the process; and the challenges and successes that members encountered.

Secondary data sources: To supplement survey and interview data, evaluators reviewed records of CERCA meetings and health systems' implementation plans.

Evaluation Results

Member Engagement

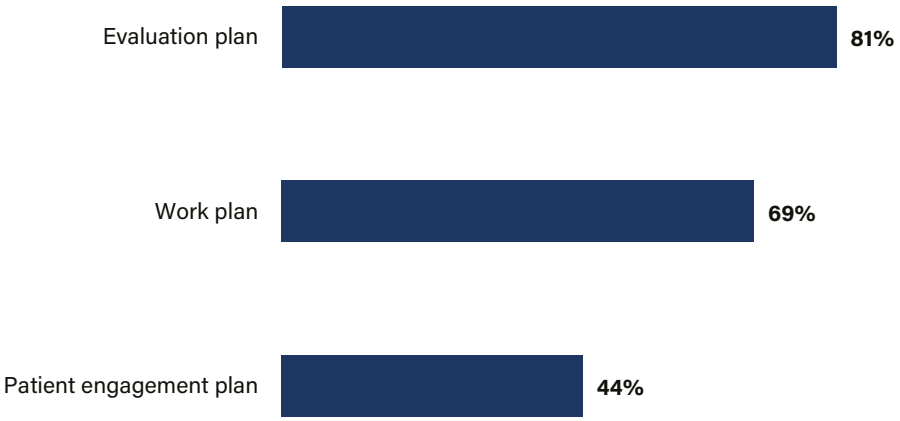
Engagement was measured in four ways:

- Percentage of health systems that remained in CERCA throughout its first phase, from November 2021 to November 2023
- Coalition meeting attendance
- Percentage of health systems' algorithm teams that submitted a work plan, evaluation plan, or patient engagement plan to the CERCA team at the NYC Health Department
- Survey questions about commitment to CERCA

Nine out of 11 health systems that joined CERCA in 2021 remained coalition members throughout its first two years. Two systems left CERCA because they did not have the capacity to attend meetings and complete the required deliverables. While those two members left the coalition, Nuvance Health joined in 2022, resulting in a total of 10 members. Seventy-eight health systems leaders and clinicians were individual members of CERCA and 14 individuals attended meetings on average across 11 meetings.

CERCA members formed 16 algorithm teams, as some health systems worked on more than one algorithm. Most teams submitted a work plan (69%) and evaluation plan (81%), while less than half (44%) submitted a patient engagement plan (Figure 4).

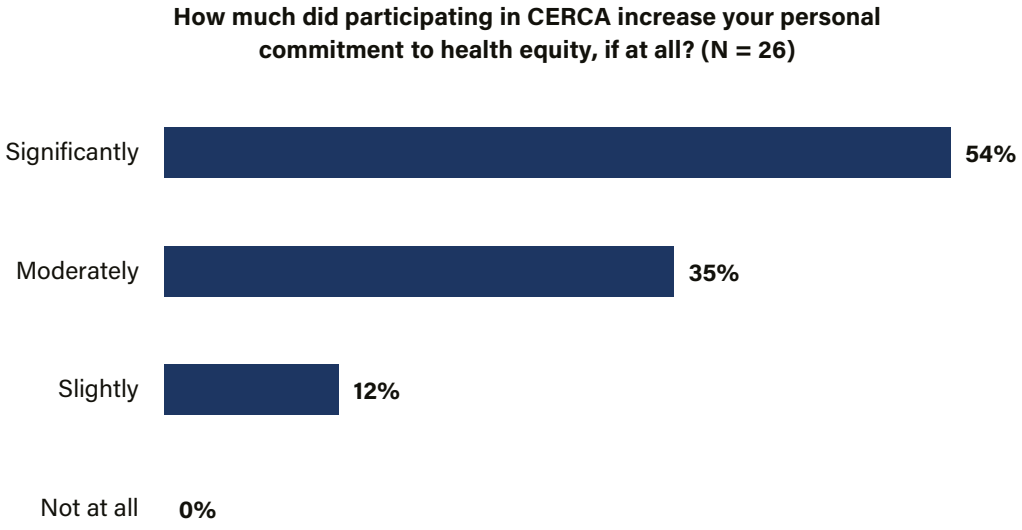
Figure 4. Percentage of 16 Algorithm Teams That Submitted Implementation Documents



Source: Program records

Nearly all individual CERCA members who responded to the survey (N = 29) agreed or strongly agreed that they were personally committed (94%) and their health system were committed to CERCA's work (93%). In addition, 89% of respondents (N = 26) said participating in the coalition moderately or significantly increased their personal commitment to health equity (Figure 5). These measures indicate that most systems were highly engaged in the work of CERCA.

Figure 5. Increase in Commitment to Health Equity

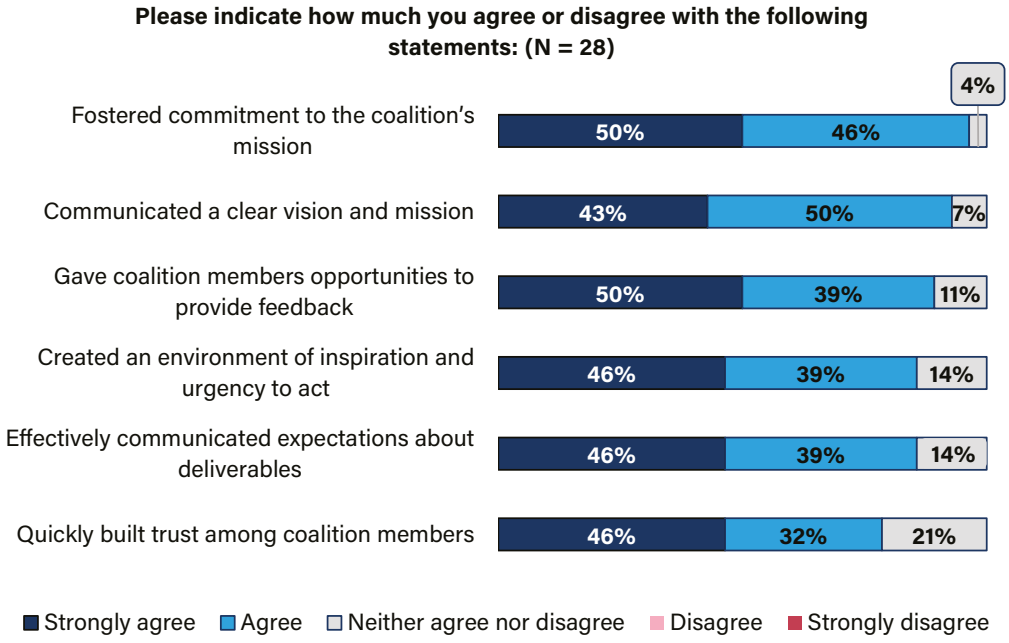


Source: CERCA member survey

Perceptions of CERCA Leadership

CERCA leadership was defined as the NYC Health Department's Chief Medical Officer, the Deputy Chief Medical Officer, and the CERCA manager. Overall, most respondents felt that CERCA's leaders created a productive environment for the coalition. Figure 6 shows that nearly all respondents (N = 28) agreed or strongly agreed that leadership communicated a clear vision and mission (93%) for the coalition and created an environment of inspiration and urgency to act (86%).

Figure 6. Member Perceptions of CERCA Leadership



Source: CERCA member survey

Perceptions of CERCA Meetings

In general, coalition members expressed positive perceptions of CERCA meetings and breakout group discussions. Each CERCA meeting began with grand rounds-style presentations. Survey respondents rated presentations about clinical algorithm research, guidelines, and case studies as the most useful.

After each presentation, members joined algorithm-specific breakout groups. Most survey respondents (83%) rated breakout group discussions as moderately or very useful in advancing their CERCA work (Appendix C). A large majority agreed or strongly agreed that breakout groups "encouraged shared ownership of coalition actions" (87%) and "fostered peer-to-peer learning" (83%). However, a lower proportion (63%) of respondents reported that discussions "generated solutions to implementation challenges."

In interviews, members said they appreciated the opportunity to meet, network, and socialize with peers at CERCA meetings:

> It was good to socialize with people … being in spaces with like minds is always reinvigorating around this work.
>
> **— CERCA member from a participating health system**

Evaluators asked individual CERCA members in the survey and interviews how CERCA meetings could be enhanced. They made suggestions related to meeting frequency and times as well as breakout groups. Specifically, members requested that group facilitators increase breakout group structure and actively engage members to ensure meaningful and implementation-focused discussion (Table 2).

Table 2. Member Suggestions for CERCA Meetings

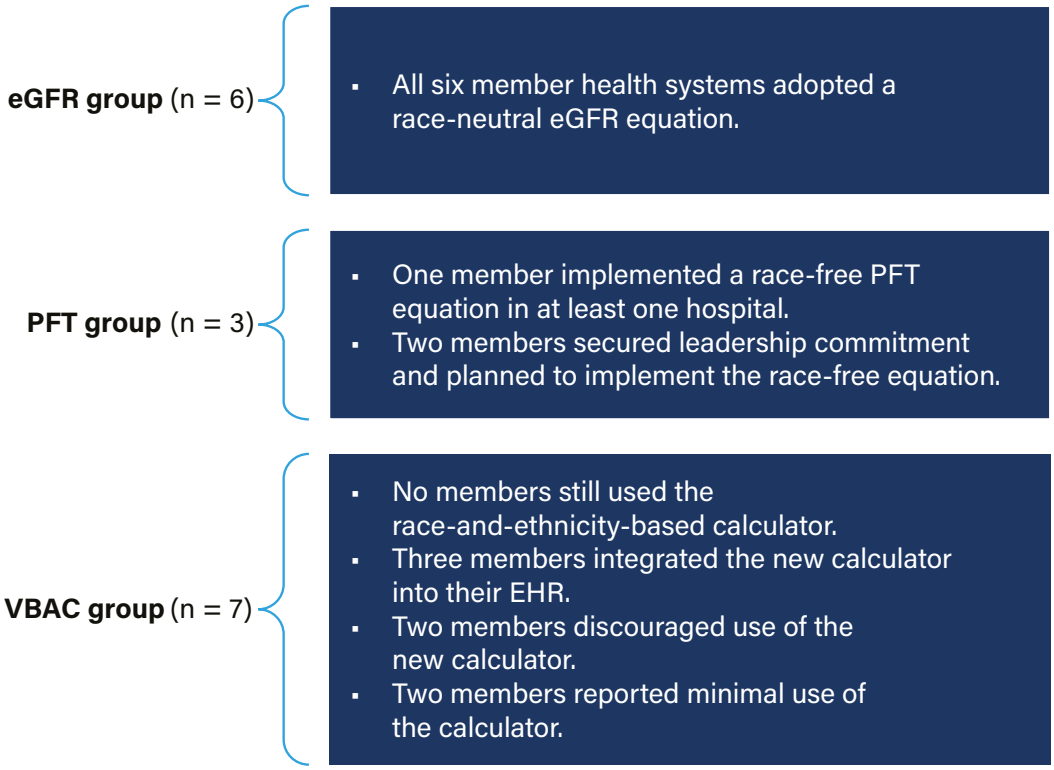
Scheduling	Breakout groups
▪ Hold less frequent meetings ▪ Vary meeting times (for example, offer evening meetings) ▪ Host at least one in-person meeting ▪ Provide meeting dates far in advance	▪ Provide agendas and discussion prompts ▪ Develop written group guidelines ▪ Recap topics discussed at previous meetings ▪ Ask members to report on the status of their initiatives ▪ Engage members who speak infrequently ▪ Create solutions-oriented task lists

Source: CERCA member survey

Implementation of Race-Free Algorithms

By November 2023, CERCA members had made major progress in implementing race-free algorithms (Figure 7). The story of the VBAC group was the most complex. While none of the VBAC group members reported using the race- and ethnicity-based VBAC calculator in 2023, only three had integrated the new race-free calculator into their electronic health records (EHR) system. Other members reported not integrating the race-free VBAC calculator into EHR systems due to remaining bias in the tool or infrequent use by providers. As such, the focus of the group shifted to patient counseling and shared decision-making with patients around vaginal birth after cesarean.

Figure 7. Implementation Status of Race-Neutral Algorithms (as of November 2023)



Source: Key informant interviews

Appendix D (Page 31) summarizes members' implementation activities and the outcomes they planned to monitor. Leads collaborated with enterprise leadership, information technology and pathology departments, and nonphysician practitioners (such as nurses and respiratory therapists) to coordinate work plan implementation. All CERCA members educated their providers about the algorithm change and some delivered education about racism and implicit bias in medicine.

In late 2023, most members were still in the process of evaluating algorithm change. A few shared their results with the NYC Health Department, mostly anecdotally. SUNY Downstate published a retrospective study that compared chronic kidney disease (CKD) progression using race-modified and race-neutral eGFR equations in a cohort of outpatient African American patients. A notable proportion of patients were reclassified with more severe CKD when eGFR was recalculated with a race-neutral equation.[83] Another member verbally reported the results of an unpublished retrospective review of adult CKD patients that found that a significantly higher proportion of African American patients had an eGFR less than 21 when the race-neutral equation was used, making them eligible for transplantation. Two health systems reported a decrease in overall cesarean section rates since beginning their VBAC equity work. NewYork-Presbyterian published the results of a provider survey that assessed providers' usage and perceptions of the VBAC calculator. They found that about one in four providers (23%) was unaware that race and ethnicity had been removed from the calculator.[84] At the time of the

evaluation, most members were in the planning stages of patient engagement. To facilitate patient engagement efforts for members working on eGFR, the NYC Health Department partnered with the National Kidney Foundation (NKF) of Greater New York on the Black Kidney Health Matters patient education campaign and invited the NKF to at several CERCA meetings. A few members collaborated or had planned to collaborate with the NKF on patient education.

CERCA: A Key Facilitator of Change

According to members, CERCA was a significant facilitator of progress. Eight out of 10 survey respondents said participating in CERCA "moderately" or "significantly" facilitated progress toward their health system's racial equity goals. The coalition and its leadership helped members make progress in several ways, as summarized in Figure 8.

Figure 8. Ways CERCA Facilitated Progress Toward Goals

Source: CERCA member survey and key informant interviews

Health Department's credibility: The Health Department's role as a champion lent additional urgency and credibility to the issue of racism in clinical algorithms, speeding up buy-in at the health system level.

Collective advocacy: The NYC Health Department and CERCA members successfully used collective advocacy to compel the American Thoracic Society (ATS) to remove race adjustment from PFT equations. This advocacy included meetings with the ATS and an open letter to the ATS, signed by Health Department leaders, CERCA members, and clinical leaders from around the country.[85]

Implementation support: The NYC Health Department provided members with templates for planning their implementation activities, which some members found useful.

Learning from peers and experts: CERCA members traded information about implementation challenges, successes, and best practices. Eighty-one percent of survey respondents reported that, since participating in CERCA, their knowledge about racism in clinical algorithms had "moderately" or "significantly" increased.

Accountability: CERCA helped keep members "accountable to each other." Hearing others' success stories motivated members to work toward change, driven by friendly competition and commitment to the coalition's mission.

> Even though we've all read the articles and guidelines, I think always having [CERCA] as a resource — like, "Oh, yeah … let me just search that CERCA email and look up that article again" — created a central way to go back to the resources for the argument behind why we do what we did.

— CERCA participant

> CERCA had a systematic approach and encouraged the participating institutions to follow. And so, the support with that process … even down to the templates for the engagement, was very helpful.

— CERCA participant

Implementation Facilitators and Barriers

In interviews, members described facilitators and barriers to algorithm changes. These are described below and summarized in Table 3.

Table 3. Implementation Facilitators and Barriers

Facilitators	Barriers
▪ The NYC Health Department ▪ C-suite leadership's support and participation ▪ Successful use of work groups and committees in health systems ▪ Alignment with ongoing equity work and mission within institution ▪ Resident and student advocacy ▪ Relevance to current social movements for racial justice	▪ Limited resources (staffing, financial, and capital) ▪ Patient education complexity ▪ Deference to guidelines ▪ Reluctance to discuss racism due to lack of related education

Source: CERCA key informant interviews

Implementation Facilitators

The NYC Health Department: The official support of the NYC Health Department, a public organization, helped many health systems understand the importance of the CERCA program.

Strong executive leadership support: Leadership's backing was critical to getting widespread buy-in and resources for implementation, including staffing, funding, and capital resources.

> So, you need to have leadership involved from the outset because you need to have support. And finances are helpful, but it's not only finances. You need to have that power base behind you.
>
> **— CERCA participant**

Successful use of work groups: At many health systems, the work that started the algorithm change and maintained its momentum took place in internal work groups and committees. Examples include health equity committees, system-wide clinical work groups, and birth equity task forces.

Alignment with institutional commitment to equity and ongoing equity work: CERCA's work aligned with some members' ongoing equity work and institutional missions of providing equitable care to people of color. Equity leaders championed and leveraged existing resources for change.

Deeply committed implementation leads: Some leads were motivated by a strong personal dedication to improving health equity. They found this work refreshing and protective against burnout.

> … When you're invited to talk about a topic that you just hold very dear because it's your own personal interest and passion, it can help relieve some of the burnout, and … give you extra motivation.
>
> **— CERCA participant**

Engagement of frontline staff: Nonphysician staff such as midwives and respiratory therapists proved to be essential partners in algorithm change implementation. Soliciting buy-in, input, and participation from them was essential to success.

Resident and student advocacy: Residents and students urged clinical leaders to investigate the use of race in clinical algorithms and start the change process.

Social movements for racial justice: The Black Lives Matter movement and national visibility of the maternal health crisis minimized resistance to some health systems' equity-focused work.

Implementation Barriers

Staffing shortages and competing priorities: Several health systems were short-staffed because of higher turnover and retirement since the COVID-19 pandemic. As a result, providers were stretched very thin and juggled multiple responsibilities, making it challenging to keep providers committed to changing algorithms. Health equity work was often put aside because it was not financially incentivized for providers.

> For any of the health equity work we are doing, we don't have people for whom this is a dedicated part of their role. So especially when you have clinicians who are … paid for their productivity … they're losing money. People have so many competing priorities. And if this isn't built and baked into your responsibilities and your workflow, then it gets to the bottom of the list.
>
> **— CERCA participant**

Limited financial and capital resources: Safety-net hospitals, which rely on Medicaid reimbursement, were challenged by limited financial resources. Securing capital resources was a particularly large hurdle for health systems working on PFTs because they needed to purchase expensive new spirometry machines compatible with the race-neutral equation. Additionally, securing capital for new machines required the backing of clinical, finance, and operations leaders.

Patient education complexity: About two-thirds of survey respondents asked for assistance with patient engagement. Some members said that communicating with patients about algorithm change was challenging.

- **eGFR:** Some patients did not easily understand how having a lower eGFR, which implies weaker kidney function, could help them. Clinicians often had to explain this multiple times or across several visits.

> One of the patients didn't think that it was a good idea to have a low eGFR. … I'm trying to convince her of the impossible: How can you tell me that lower is better than higher? She was very, very adamant. She wasn't willing to accept that lower is better than higher. But it took a couple of visits, and then she understood that this is a system change. It's not just hers.
>
> **— CERCA participant**

- **PFT:** One PFT lead anticipated challenges when explaining why a patient's lung function may appear to have changed. Patient engagement was also difficult as there are relatively few well-resourced patient advocacy organizations working on obstructive lung disease.

- **VBAC:** The decision to undergo labor after cesarean is influenced by multiple factors, not just a calculator's output. Providers must discuss these factors in a shared decision-making process with the patient. Moreover, patient counseling may be influenced by providers' implicit biases.

Deference to guidelines: Two health systems working on PFTs were hesitant to adopt a new algorithm until it was recommended by the American Thoracic Society (ATS). However, once ATS revised its guidelines in 2023, these members immediately set a work plan in motion.

Separately, a few members said their health system chose not to work on PFTs because providers were hesitant to adopt the new algorithm before ATS changed its guidelines.

Reluctance to discuss racism due to lack of related education: Engaging providers on the topic of racism in medicine can be difficult. Members said that medical training may not prepare providers to understand or talk about the relationship between racism and health inequities. As one interviewee said, "They're not trained to think about it that way."

> [Providers need] repetition. … It has to be very visible to them, very public, very in their face where they can't avoid asking questions about it.
>
> **— CERCA member**

Conclusion

CERCA members made many positive strides toward implementing race-neutral clinical algorithms. All six systems working on eGFR adopted a race-neutral algorithm. In the PFT group, one health system started using the new PFT equation, while the other two planned to implement the equation after acquiring new spirometry machines.

While none of the VBAC group members reported using the race- and ethnicity-specific VBAC calculator, just three out of seven had integrated a link to the new race-free calculator into their electronic health records (EHR) system. Two VBAC group members did not embed the new calculator in their EHR because their leadership considered it to still be biased due to the inclusion of BMI and hypertension, and therefore discouraged its use. The last two members rarely used the calculator. Encouraging health systems to adopt a race-neutral VBAC calculator may not have been a sufficient goal, and more work needs to be done to address bias in the tool.

The NYC Health Department was crucial in advancing algorithm change across health systems. First, the agency's credibility allowed CERCA members to secure buy-in for change in their health systems. Secondly, the Health Department provided valuable technical support and created a space for sharing best practices. Thirdly, it successfully recruited and retained health systems serving vulnerable populations.

CERCA leadership was praised for their communication, clear vision, and ability to inspire action. Additionally, membership in CERCA promoted accountability and equipped its members to make progress toward their goals through learning and collective action. CERCA meetings were seen as generally effective, although there was a perceived need for more structure in the small-group sessions. Other important facilitators of change included institutional executive leadership support, existing health equity leadership and infrastructure, and collaboration with multiple departments and nonphysician staff.

Financial and resource limitations were challenging, especially for safety-net institutions. Members also cited provider hesitance to engage in discussions about racism as a notable barrier. Outreach and training to providers may help reduce that hesitancy. Members perceived patient education on algorithm changes to be complex; however, collaborations with patient advocacy organizations, such as the National Kidney Foundation, created opportunities for engagement. The limited reporting on evaluating the impact of algorithm changes on patient health outcomes made it challenging to assess.

Some of the key successes of CERCA were that members reported increased knowledge about racism in clinical algorithms and a strengthened commitment to health equity generally. To truly address racism in medicine, however, it is essential to have broader discussions that go beyond changing clinical algorithms. These conversations can help health systems understand the deeper ways racism affects their institutions.

Recommendations

Based on the key findings of this evaluation, the following actions are recommended in developing and implement a similar initiative:

Coalition Leadership and Structure

- Lead a coalition that inspires members to make change by:
  - Communicating the coalition's mission and vision clearly
  - Using agendas, community agreements,[86] and discussion guides to structure group meetings
  - Identifying and facilitating solutions to implementation barriers
  - Inviting experts to discuss clinical algorithm research, guidelines, and case studies

Provider Engagement

- Support health system provider engagement efforts by:
  - Encouraging executive leadership, IT, and nonphysician staff in implementation committees and efforts
  - Providing education on implicit bias, anti-racism in clinical decision-making and patient care, and shared decision-making with patients

Patient Engagement

- Equip health systems to implement effective patient engagement by:
  - Understanding patient advocacy organizations' and patients' visions of equitable health care
  - Applying a patient engagement framework (for example, Healing ARC) to their work[87]
  - Establishing partnerships with patient advocacy organizations
  - Recruiting patients to the coalition and forming a patient advisory board
  - Using patient-affirming, patient-centered approaches to communicate and inform on algorithm change

Evaluation

- Provide personalized technical assistance with monitoring and evaluating algorithm change to demonstrate impact.

Funding

- Identify opportunities to help safety-net systems fund equipment, staffing, provider education programs, and patient engagement materials.

Advocacy and Systems Change

- Activate coalition members to advocate for change through collective action.

Next Steps

Our evaluation found that CERCA members were interested in expanding the coalition's focus to include race-based hypertension medication prescribing. After discussion with partners and the NYC Health Department, it was decided that CERCA would expand its focus to include this race-based practice. This focus on hypertension will help develop race-conscious approaches to prescribing blood pressure medication. This algorithm was also selected because hypertension is linked to kidney and maternal health outcomes, both of which are already areas where CERCA has institutional experience.[88-90]

In addition, CERCA will continue its work to enhance equity in kidney, pulmonary, and maternal health. During its next phase, CERCA will shift its focus from implementing a race-free eGFR algorithm to addressing structural barriers that impact transplantation equity. CERCA members will also continue to work on incorporating shared decision-making practices into VBAC counseling. Finally, having successfully advocated for the American Thoracic Society to adopt race-neutral PFT guidelines, CERCA members will focus on implementing the race-neutral reference equations in spirometry testing.

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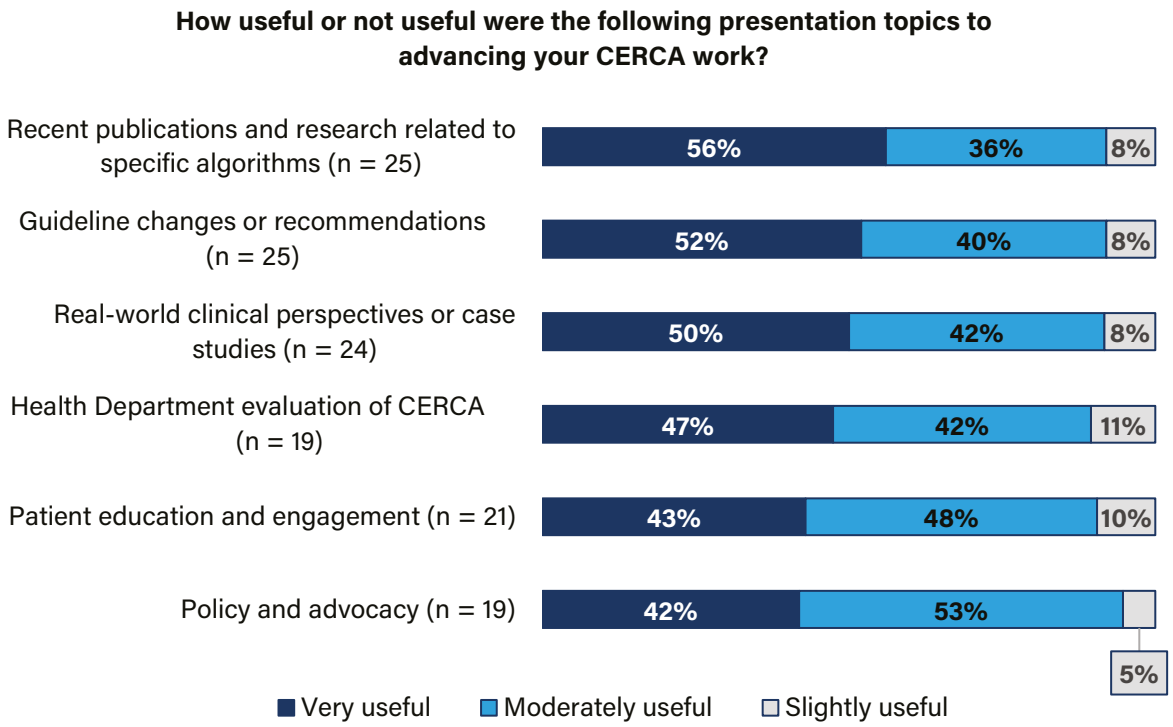
Appendix A

Coalition Meeting Presentation Topics	
Presentation type	Presentation titles
Publications and research	Race/Ethnicity and Spirometry Reference Equations: A Review of the Literature – Arielle Elmaleh-Sachs, MD eGFR Literature Review & Update – Salman Ahmed, MD, MPH Race/Ethnicity and VBAC Calculator – Amitasrigowri S. Murthy, MD, MPH, FACOG Review of the CARDIA Lung Study – Charlene Ngamwajasat, MD
Guideline changes and recommendations	The Race Correction Debates: Progress, Tensions, and Future Directions – Michelle Morse, MD Challenges in Selecting Predicted Equations for Pulmonary Function Testing – Ted Naureckas, MD ATS Statement on the Use of Race and Ethnicity in Pulmonary Function Test and Interpretation – Stephanie Lovinsky-Desir, MD, MS Racial Bias in Outpatient Clinical Algorithms: Hypertension Treatment – Toni Eyssallenne, MD, PhD
Real-world clinical perspectives or case studies	On the Road to Health Equity: Eliminating Race-Based Medicine at NYC H+H – Nichola Davis, MD, MS, and Lou Hart, MD Race-Based Medicine, eGFR, and Jordan Crowley – Jennifer Tsai, MD, MEd
Health Department activities	CERCA Evaluation Plan – Charlene Ngamwajasat, MD CERCA Evaluation Update – Evaluation team Data Collection for Equity: Program Updates – Bureau of Equitable Health Systems
Patient education and engagement	Advancing Health Equity Through Patient Education and Engagement – Saskia Thomson Transplant Navigation Pilot – Karina Albistegui Adler, JD, and Leo Eisenstein, MD NKF Collaboration Update – Saskia Thomson and Toni Eyssallenne, MD, PhD A Third Way: Race-Conscious Approaches to Health Inequities – Bram Wispelwey Transplantation Navigation Pilot – Leo Eisenstein & Karin Albistegui Adler

Appendix B

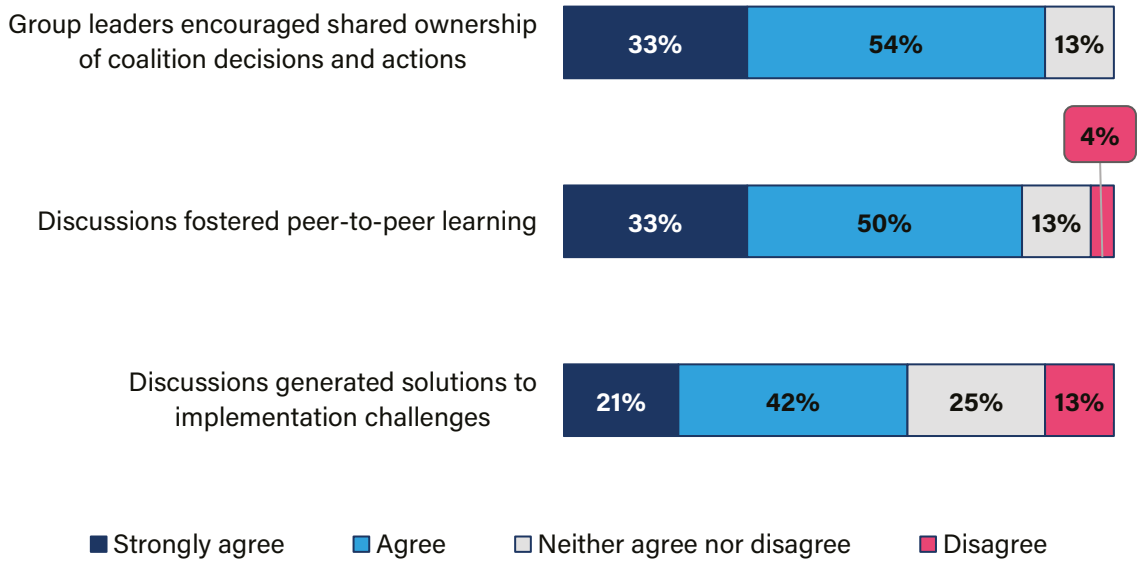
Usefulness of CERCA Presentations



Appendix C

Perceptions of Breakout Group Discussions

Please indicate how much you agree or disagree with the following statements: (N = 24)



Appendix D

Implementation Strategies and Evaluation Metrics			
Algorithm	eGFR	PFT	VBAC
Implementation of race-neutral algorithm	▪ Partnered with pathology to change eGFR formula ▪ Partnered with informatics to program new eGFR in the EHR	▪ Collectively advocated for guideline change ▪ Partnered with respiratory therapy to source PFT machines ▪ Purchased new machines	▪ Partnered with informatics to embed the new calculator in EHR*
Provider education focus	▪ Evidence behind the new eGFR equation ▪ Potential impact of the new eGFR on kidney disease outcomes ▪ Implicit bias in medicine	▪ ATS guidelines ▪ Impact of new equation on patient care ▪ Implicit bias in medicine ▪ Discussing new algorithm with patients	▪ New VBAC calculator ▪ Shared decision-making with patients ▪ Standardized guidance for LAC counseling ▪ Implicit bias in medicine
Patient engagement strategies	▪ Patient advisory committee ▪ Redress plan for patients harmed by race adjustment ▪ Partnership with NKF or dialysis centers on patient education ▪ Outreach to patients newly qualifying for transplant	▪ Education about removal of race from PFT equations and impacts on care ▪ Connecting patients to support (for example, support groups)	▪ Education about shared decision-making and the benefits of VBAC ▪ Access to midwives and doulas
Clinical outcomes of interest†	▪ CKD stage reclassification ▪ Utilization of medications to slow CKD progression ▪ Referral rates to general or transplant nephrology ▪ Time to transplant listing	▪ Prevalence of obstructive/restrictive pulmonary disease, overall and by severity ▪ Prescriptions of medications for lung disease ▪ Thirty-day hospital readmission rates	▪ Provider awareness, use, and perceptions of the VBAC calculator ▪ Rates of cesareans (all types), first-time cesareans, LAC, and VBAC

* Only applicable to systems whose providers use a VBAC calculator.
† This table lists the outcomes most often mentioned by CERCA members.

NYC Health

8.25