

STATE-OF-THE-ART REVIEW

Achieving Equitable Cardiovascular Care for All



ACC Board of Trustees Health Equity Task Force Action Plan

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ABSTRACT

Advancements in cardiovascular (CV) disease management are notable, yet health inequities prevail, associated with increased morbidity and mortality noted among non-Hispanic African Americans in the United States. The 2002 Institute of Medicine Report revealed ongoing racial and ethnic health care disparities, spearheading a deeper understanding of the social determinants of health and systemic racism to develop strategies for CV health equity (HE). This article outlines the strategic HE approach of the American College of Cardiology, comprising 6 strategic equity domains: workforce pathway inclusivity, health care, data, science, and tools; education and training; membership, partnership, and collaboration; advocacy and policy; and clinical trial diversity. The American College of Cardiology's Health Equity Task Force champions the improvement of patients' lived experiences, population health, and clinician well-being while reducing health care costs—the Quadruple Aim of Health Equity. Thus, we examine multifaceted HE interventions and provide evidence for scalable real-world interventions to promote equitable CV care. (JACC Adv 2024;3:101050) © 2024 The Authors. Published by Elsevier on behalf of the American College of Cardiology Foundation. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

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The authors attest they are in compliance with human studies committees and animal welfare regulations of the authors' institutions and Food and Drug Administration guidelines, including patient consent where appropriate. For more information, visit the [Author Center](#).

Manuscript received February 12, 2024; revised manuscript received May 15, 2024, accepted May 17, 2024.

**ABBREVIATIONS
AND ACRONYMS****ACC** = American College of
Cardiology**CV** = cardiovascular**CVD** = cardiovascular disease**HE** = Health Equity**PHOENIX** = Population Health
Outcomes Information
Exchange**SDOH** = social determinants of
health**VR** = virtual reality

Since its inception nearly 75 years ago, the American College of Cardiology (ACC) has been steadfast in understanding the needs of the members in the organization by providing updated clinical and educational practices, promoting policies and initiatives focused on improving cardiovascular (CV) health for all. These inclusive efforts were perhaps evident as early as 1951, when ACC inducted the first Black cardiologist Dr John Beauregard Johnson. Although member diversity may have not been the primary mission at that point, the ACC supported inclusivity, as the first woman, Dr Olga Haring was inducted in 1956. These additions to the college were undoubtedly pivotal milestones from the aspect of inclusivity. Dr Johnson was one of the pioneers for cardiac angiography, becoming one of the most distinguished Black cardiologists of his time.^{1,2} Dr Haring was also a prominent contributor to cardiology and teaching as the director of the cardiopulmonary-renal clinic at Northwestern University in 1965.³ While diversity and inclusion practices of the ACC cannot be definitively attributed to the induction of an African American or a woman to the ACC, these efforts may have played a significant role in establishing the basis for the current values of diversity and inclusion in the ACC.⁴

Regrettably, it took over 30 years for data to emerge that clearly indicate a strong correlation between health disparities and an increased number of deaths, particularly among African American individuals in the United States. The document in question is the 1985 Report of the Secretary's Task Force on Black and Minority Health. The publication known as The Heckler Report presented the initial thorough examination of the condition of racial and ethnic minority populations that had historically been neglected in the United States. The report emphasized the presence of stark health disparities, particularly affecting Black men and women, that resulted in 60,000 excess deaths.⁵ The findings of this report were groundbreaking, quickly becoming a clarion call for the medical community, policymakers, and society regarding the foundational and systemic dangers of health inequities.

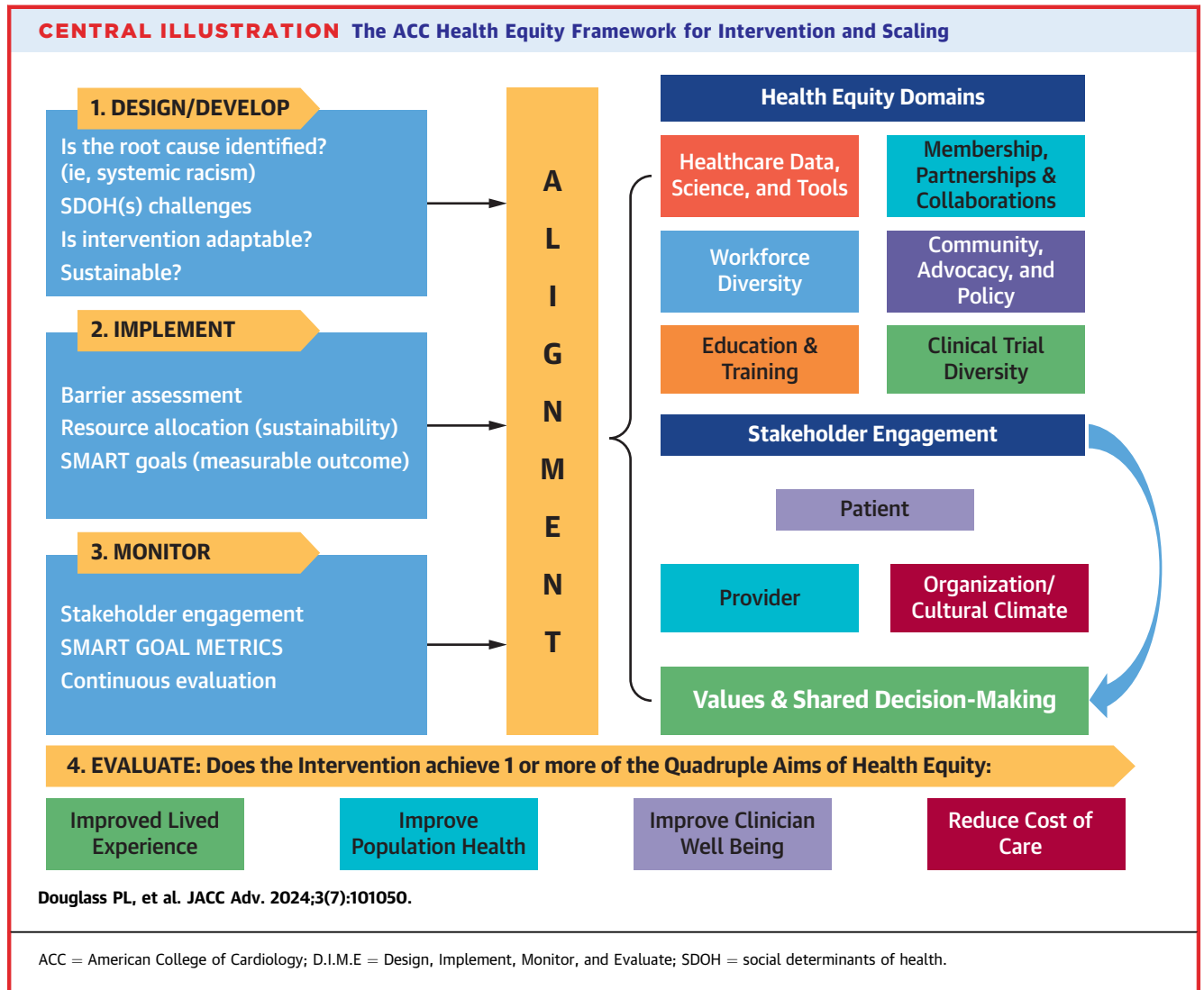
In 2002, the Institute of Medicine Report Unequal Treatment presented alarming data that confirmed the persistence of disparities in health outcomes despite continued advancements in medicine, with a compendium of supporting evidence. The report demonstrated that people from under-resourced communities experienced negative health outcomes due to systemic racism and disparities, even when

HIGHLIGHTS

- Despite 40 years of medical attention to health disparities, they persist worldwide.
- Recommended equity domains to tailor interventions include workforce inclusion, health care data, research, and tools; education and training; membership, partnership, and cooperation; advocacy and policy; and clinical trial diversity.
- The Quadruple Aim of Health Equity supports interventions aimed to improve patients' lived experiences, enhance population health, reduce health care costs, and improve the work life of health care providers.

they presented with similar diseases, risk factors, access to care, sex, gender, socioeconomic status, geography, rurality, sexual orientation, and place of native origin. The report highlighted the need for addressing these inequities to improve health outcomes in under-resourced communities.⁶ Recently, the National Academies for Sciences, Engineering, and Medicine supported a workshop to revisit the 2003 Unequal Treatment Report in order to gain a better understanding of the current state or racial and ethnic disparities in health care. The workshop allowed experts of health equity (HE) to convene, share best practices, and report why there are still significant health inequities, over 2 decades after the publish the Unequal Treatment Report. The literature reporting health disparities since the report in 2003 increased significantly; however, investigators also discovered the paucity of studies that evaluated an intervention to reduce inequity and that many of the past and current efforts to reduce inequities do not work.^{6,7}

Armed with these data, along with the momentum of social unrest and ongoing effects of individual and systemic racism highlighted in 2020, the ACC diligently leveraged its strengths of scientific expertise and commitment to improve CV HE. Thus, the ACC Board of Trustees appointed the Health Equity (HE) Task Force to address the pressing challenges surrounding CV HE and social injustice while strategically leveraging the strengths and resources of the organization. In short, the HE Task Force formulated 3 goals: 1) *create a culture of health equity in CV medicine*; 2) *prioritize health equity in all ACC*



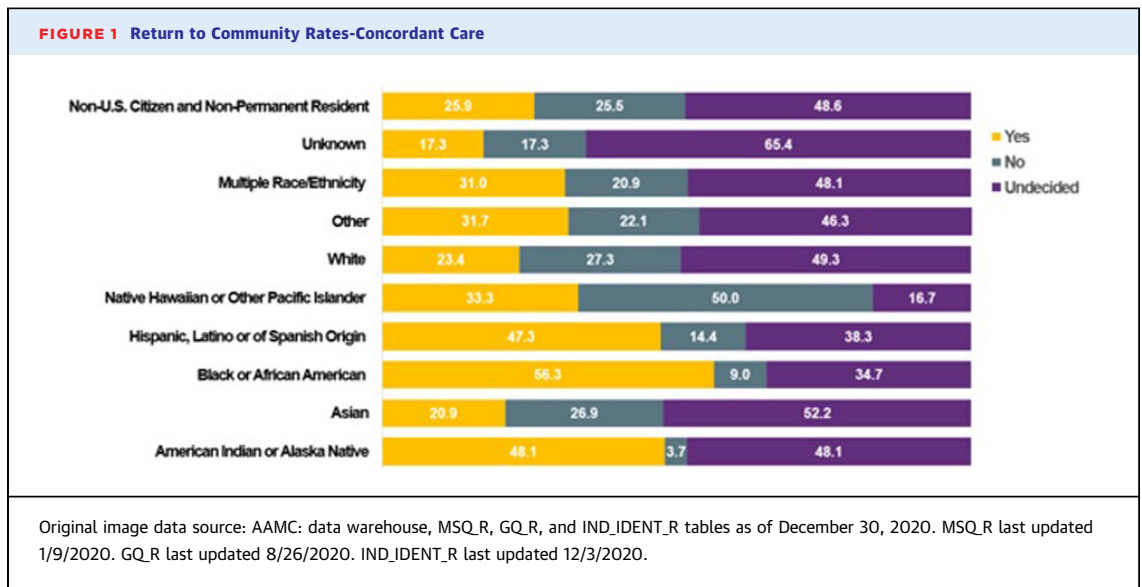
activities; and 3) *eliminate disparities by ensuring equitable CV care for all.*

Before a further description of the framework begins, we must explore the origins and current definitions of HE. Although the concept of “equity” can be traced back to 1801, the first publication on HE appeared in 1966 by Meltsner, termed “Health and Equality.”⁸ Over time, HE has become a state in which everyone has a fair and just opportunity to attain the highest level of health, irrespective of socioeconomic status, race, gender, sexual orientation, or geographic location. This implies equal access and the provision of care that adequately addresses the specific health needs of diverse populations, ensuring that everyone has a fair and just opportunity to attain their highest level of health.

Achieving this goal requires focused and ongoing societal efforts to address historical and

contemporary injustices, overcome economic, social, and other obstacles to health care, and eliminate preventable health disparities. Since the inception of the HE Task Force, initial efforts have gained significant momentum, expanding the organization’s endeavors by implementing strategies to accomplish the objectives set forth. Understanding the importance of collaborative and strategic objectives, the ACC fosters the connection of members and patients to educational and health-related resources and strategically channels organizational partnerships that cultivate solutions to address CV inequities (**Central Illustration**). The strategic equity domains outlined in our plan were designed as comprehensive repositories to encompass a broad perspective on solutions and potentially impactful interventions.

The ACC aligns its initiatives with the Quadruple Aim of HE, which stems from the Triple Aim



framework, to advance CV HE.^{9,10} In 2007, Don Berwick and the Institute for Healthcare Improvement introduced the Triple Aim, intending to enhance health care system performance and outcomes by improving patient experience, improving population health, and reducing the cost of health care.¹¹ Over time, the absent component of clinician well-being led to a dedicated charge that expanded the Triple Aim to the Quadruple Aim of HE.

Through insights and innovations, the HE Task Force is committed to ensuring everyone has access to optimal CV health without facing avoidable barriers. To achieve these goals, the ACC is determined to enhance the quality and delivery of care while addressing the underlying causes of health disparities. This expanded vision incorporates the crucial elements of the Quadruple Aim in HE initiatives and reflects our true dedication to transforming CV medicine and achieving HE.

WORKFORCE INCLUSIVITY

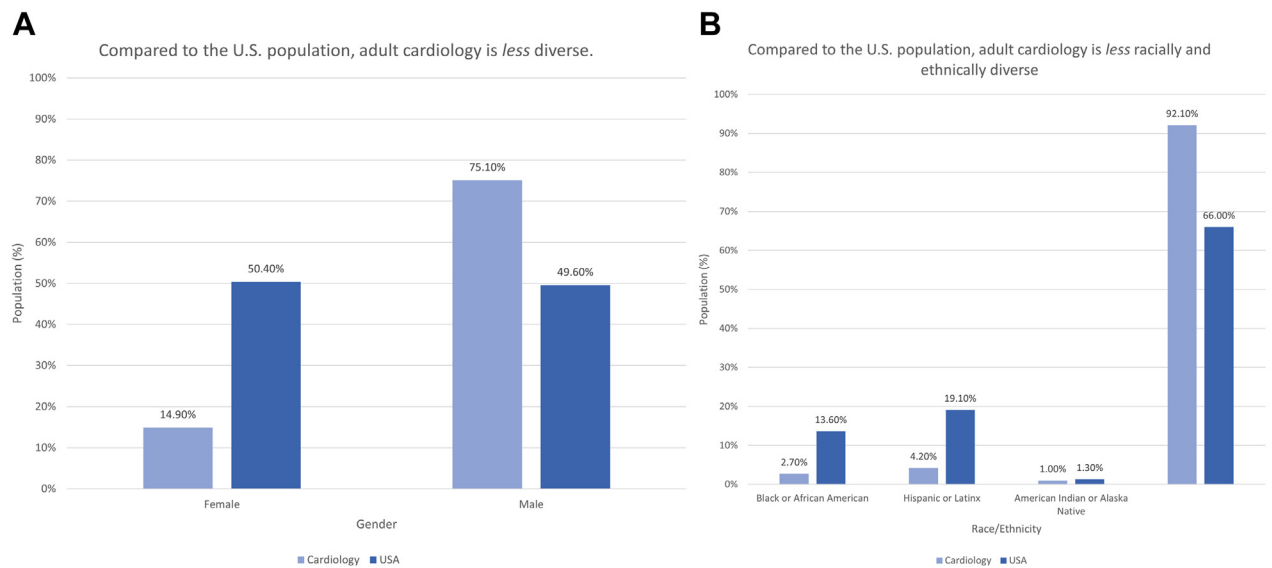
Dedicated efforts to increase our understanding of humanity are essential to address CV health care disparities and inequities in the United States effectively. Although physicians and researchers continue to understand the ever-growing concepts of “inequity” or “disparity” in the current times, our knowledge and sentiment often grossly pale in comparison to the actual lived experience of disenfranchised people. Consequently, when people from marginalized groups successfully attain health care careers, there is often a deep sense of pride and respect in their hometowns or communities. Underrepresented

cardiologists and other allied health professionals who “give back” by mentorship and other activities are often clinicians who may return to work closer to home after training (Figure 1).

However, as one might guess, there are significant disparities in the CV workforce (Figure 2).¹²⁻¹⁶ Women, Black, Indigenous, and Hispanic people are poorly represented in every CV subspecialty. The most promising and successful approaches to improving CV HE are multifaceted, requiring strategies that include the promotion and training of individuals from underrepresented communities in Medicine to pursue careers in cardiology.¹⁴ To successfully accomplish these initiatives, more investments may be required in younger students who are earlier in their academic journey (ie, elementary, middle school).¹⁷

Having diversity reflected across cardiologists and all CV team members is essential to health care management, but mitigating bias in the selection processes, such as medical school admissions and selection for residency/fellowship, is equally important. Although increasing the pathway may increase the number of underrepresented in cardiology applying to medical schools, the applicants may be subject to microaggressions and bias during the admission process. Thus, increased representation in medicine requires not only the diligent engagement of underrepresented youth but also a process that lessens the challenges in the academic environment resulting from a lack of cultural sensitivity and inclusivity. The scarcity of physicians from underrepresented groups can hinder advancements in delivering equitable care that aligns with diverse

FIGURE 2 Cardiology Workforce Diversity by Race and Gender by U.S. Representation



(A and B) show the distribution and diversity of cardiology workforce by race and gender. From Brotherton S & Etzel S. JAMA. 2020;324(12):1230-1250, JAMA Cardiol. 2019;4(10):1029-1033. Included with permission.

patient populations.^{14,18} Patients frequently prefer physicians who share the same race, ethnicity, and religion for comfort, language similarities, physical and physiological safety, trust, respect, proximity, and shared worldviews.¹²

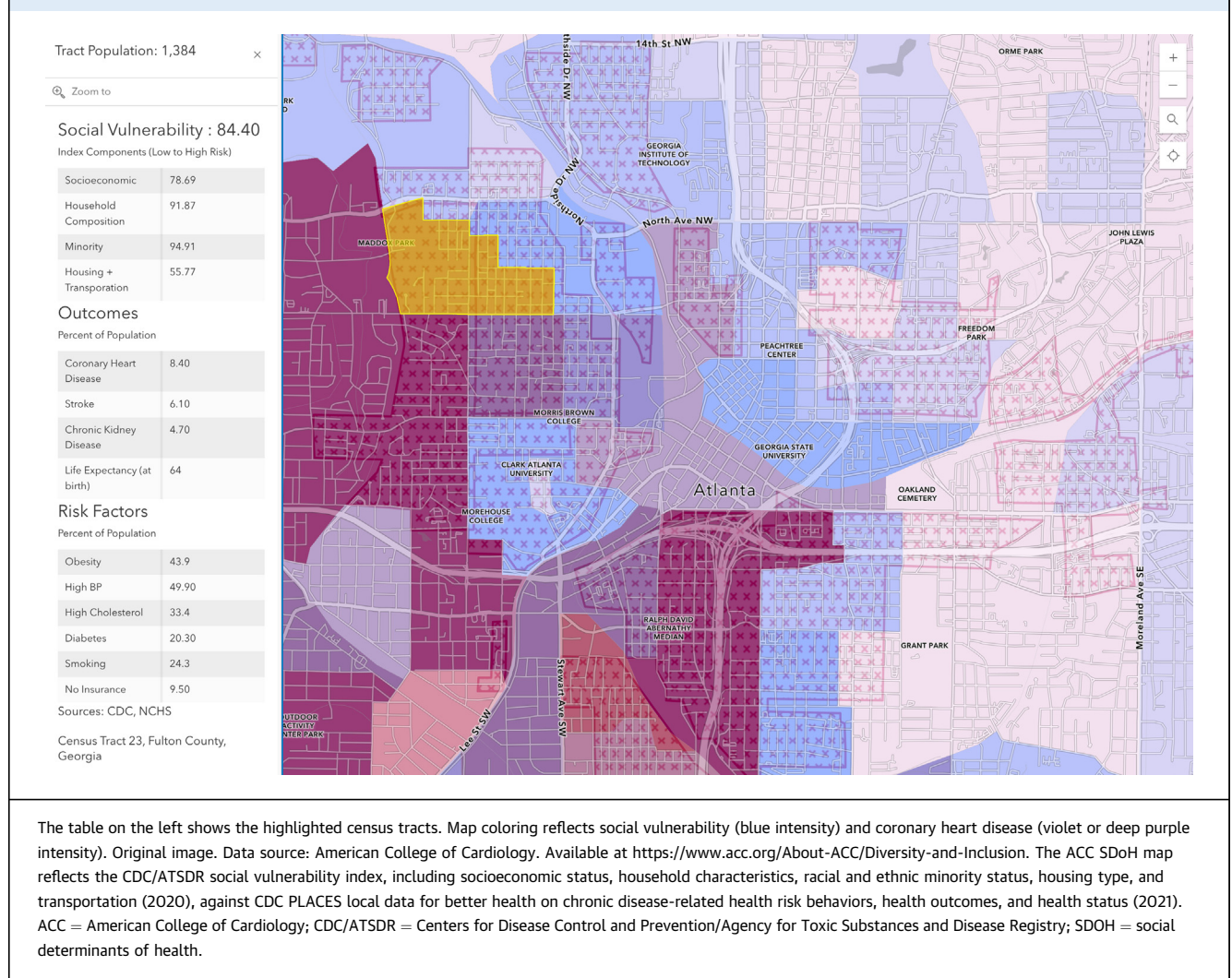
Best practices to enhance diversity in the cardiology workforce will include engaging and inspiring children from underrepresented populations, investment in under-resourced K-12 schools in rural or urban areas, and significant and regular points of contact with members of the allied health profession.^{15,16,19} Continuous engagement of underrepresented youth in science-related activities through medical school is not the endpoint for those dedicated to pursuing a career in medicine, as it is not expected that all underrepresented trainees will have the desire to continue their journey.

HEALTH CARE DATA, SCIENCE, AND TOOLS

In the endeavor to achieve the Quadruple Aim, leveraging the full potential of health care data poses a significant challenge. The sheer amount of data currently generated exceeds the human capacity to be retained, making it essential to develop a robust strategy for utilizing these data effectively. As high volume, unstructured and complex databases, big data as is the term, continue to advance rapidly alongside technological advancements, it is crucial to

recognize the dawn of a new era in data synthesis and utilization for scientific progress.²⁰ Although academic cardiologists and the research community have enhanced their understanding of CV disease (CVD) risk and the intricate interplay between geographic, social, environmental, and political factors through data analysis, there is still much more to explore. By incorporating cutting-edge analytical tools and scientific methodologies into health care data analysis, a transformative approach to addressing health disparities can be realized. A comprehensive roadmap can be devised through meticulous data collection and effective utilization to guide the implementation of equitable care practices.²¹⁻²⁴

Along with the traditionally defined social determinants of health (SDOH), cutting-edge information technology now facilitates further understanding of the geographic and environmental factors that mutually influence CVD risk and mortality.^{23,25-27} Data repositories and tools assist in identifying at-risk communities, help prioritize resource allocation, and tailor public health interventions.²⁷⁻²⁹ The evidence of redlining, a discriminatory and now illegal practice of denying an individual credit a loan or insurance based on their race or ethnicity that overlays the ACC heatmaps, provides historical and structural causes of adverse health outcomes (Figure 3).³⁰ Moreover, integrating data from untapped resources, such as electronic health data and

FIGURE 3 American College of Cardiology Social Determinates of Health Map

The table on the left shows the highlighted census tracts. Map coloring reflects social vulnerability (blue intensity) and coronary heart disease (violet or deep purple intensity). Original image. Data source: American College of Cardiology. Available at <https://www.acc.org/About-ACC/Diversity-and-Inclusion>. The ACC SDoH map reflects the CDC/ATSDR social vulnerability index, including socioeconomic status, household characteristics, racial and ethnic minority status, housing type, and transportation (2020), against CDC PLACES local data for better health on chronic disease-related health risk behaviors, health outcomes, and health status (2021). ACC = American College of Cardiology; CDC/ATSDR = Centers for Disease Control and Prevention/Agency for Toxic Substances and Disease Registry; SDOH = social determinants of health.

clinical registries, allow investigators to associate SDOH with neighborhood, environmental, and CVD mortality according to the census tract. Redlining is an example of a political determinant of health and the lasting effects of policies that impact health care and cause health disparities.³¹ Such insights highlight the critical need for interdisciplinary collaboration among health care professionals, policymakers, and community leaders to address these issues.

The integration of multiple data sources has proved crucial in comprehending the impacts of SDOH in relation to geographical areas. For example, The Health Equity Heat Map, developed by the ACC, is a population health map that uses location-based variables to analyze the demographic characteristics of local areas around the United States. The primary use of population health maps such as this help

inform the development and execution of HE strategies both upstream and downstream. Future HE strategies are likely to include further integration of other nontraditional data sets not thought initially to provide any specific population health-based strategies (ie air pollution, ultraviolet rays). However, by overlaying the most current environmental data with social vulnerability and census tract data, investigators can now have a more in-depth understanding of the interplay of SDOH with CV risk factors and disease outcome.

Previously, large hospital systems such as Northwell Health, the largest health care system in New York, championed this concept. Northwell Health utilizes data to identify community vulnerabilities and develop tailored strategies for community engagement, ultimately aiming to improve HE.³² By

TABLE 1 ACC Workforce Diversity Programs

Program	Participant Type	Components	# of Participants to Date
Young Scholars	Junior/Senior high school Freshman/Sophomore college	Exposure to careers in cardiovascular medicine and science Mentorship Education Research	~600 since 2019
Medical Student Leadership Group and Member Section	Medical students	Education Peer networking	~2,000
Internal Medicine Cardiology	URIC U.S. IM interns, residents, or those who have completed residency and plan to apply to cardiology fellowship	Exposure to ACC resources and leadership Education Mentorship Interview and application preparedness Peer networking Award opportunities	>800 since 2021 African American/Black Hispanic/Latinx Indigenous peoples LGBTQ+ Women
Medical Resident Leadership Group and Member Section	Medical interns, residents	Education Peer networking Exposure to ACC resources and leadership	~1,100
Fellows in Training Leadership Council and Member Section	Cardiology fellows in training	Education Peer networking Exposure to ACC resources and leadership	~4,900
Careers in Clinical Trials Research (CTR)	URIC ACC members with demonstrated interest in clinical research	Education Award opportunities Publications Mentorship	~200
ACC/ABC Merck Research Fellowship Award	Adult cardiology fellows in training	1-year funded fellowships for research in adult cardiology	~200

ACC = American College of Cardiology; URIC = underrepresented in cardiology.

considering factors such as poverty, unemployment, income levels, educational variables, and minority populations, Northwell Health identified 11 “Communities of Focus” across its service area. In response, the Northwell Community Scholars Program was established in 2022, partnering with local K-12 school districts and community colleges. Eligible students receive one-on-one mentorship, college preparation, career advice, paid internship opportunities, and financial support to pursue a degree or certificate at a local institution of higher education. The program aims to empower young people and strengthen under-resourced communities, addressing the long-standing effects of systemic intergenerational inequities.

EDUCATION AND TRAINING

The significance of education in the pursuit of HE, particularly in CV care, cannot be overstated.

Education encompassing both specialized CV training and broader educational programs is a critical tool for advancing the understanding and implementation of HE. The term “health equity (HE)” has gained widespread recognition; however, a comprehensive grasp of its implications and the objectives it seeks to achieve—specifically, equitable CV care for all individuals—is essential.

The ACC HE Task Force has undertaken notable initiatives in this context. Its work involved formulating a range of definitions pertaining to HE in CV care.³³ The definitions sparked important conversations among ACC leaders, members, and external stakeholders, leading to a clearer understanding of HE in the CV field. This foundational work is crucial for identifying and addressing disparities in CV health, which is part of the ACC’s larger education strategy. The Accreditation Council for Graduate Medical Education has established criteria for incorporating HE into training curricula. Each accredited

Topic	Type	Description
Online HEDI Resource Center	Various	Online resources, printable materials, on demand webinars and courses
Implicit Bias Mitigation Workshop	Virtual course	2-h virtual course, prework and post-evaluation, credit offered
Implicit Bias Train the Trainer Live Course	Live course	1-d in person course, prework, and postwork for full course facilitator competency
Challenges in Contemporary Cardiac Care	Online case-based module	8 HE-based clinical case modules
CardioSmart	Online, printable patient education	Cadre of patient education materials spanning CV disease, procedures, general heart health, and lifestyle modification
NCD Academy Course-Health Equity and SDOH	Online course	Global perspective at addressing noncommunicable disease in addition to CV disease and associated conditions
HEDI Webinar Series	Virtual, on-demand	Topics ranging from microaggressions, creating inclusive cultures to specific patient population management
Companion Guide-South Asian	Online, printable	Population-specific information, data, and clinical pearls
Companion Guide-Indigenous Communities	Online, printable	Population-specific information, data, and clinical pearls
Reference Guide-LGBTQ + Inclusive Communication	Online, printable	Guide to better communication and HE-based care of LGBTQ + individuals
Annual Scientific Session Health Equity Hub	Various	Live stage sessions, interactive heat maps, virtual reality experiences, handouts, and education panels
Virtual Reality Case Based Experiences	Live simulation	Live VR simulation experience, 2 cases

CV = cardiovascular; HE = Health Equity; VR = virtual reality.

program must comply with the Accreditation Council for Graduate Medical Education Common Program Requirements, which outline equitable care practices.³⁴ Additionally, fellows must demonstrate an understanding of and responsiveness to structural and social determinants that affect health outcomes. The ACC provides education and resources such as webinars, companion guides, live courses, and annual scientific sessions to support this aspect of training. Annual evaluations ensured compliance and effectiveness (See [Table 1](#)).

Addressing the implicit bias in CV care is a paramount educational objective. Implicit bias, a subtle yet significant factor, perpetuates disparities in health care access and outcomes, particularly affecting groups of people who have been historically underserved through health care policy and culture.^{35,36} The current landscape of implicit bias training varies, and some traditional methods have proven to be less effective or even counterproductive, leading to unintended consequences such as apathy or anxiety among participants.^{37,38} Nevertheless, a recent scoping review of implicit bias training reveals that several conventional approaches, either independently or in conjunction, can offer novel strategies to captivate a more extensive cohort of participants.^{39,40} Notably, virtual reality (VR) techniques have demonstrated more profound and enduring effects in diminishing biases compared to conventional methods.^{41,42}

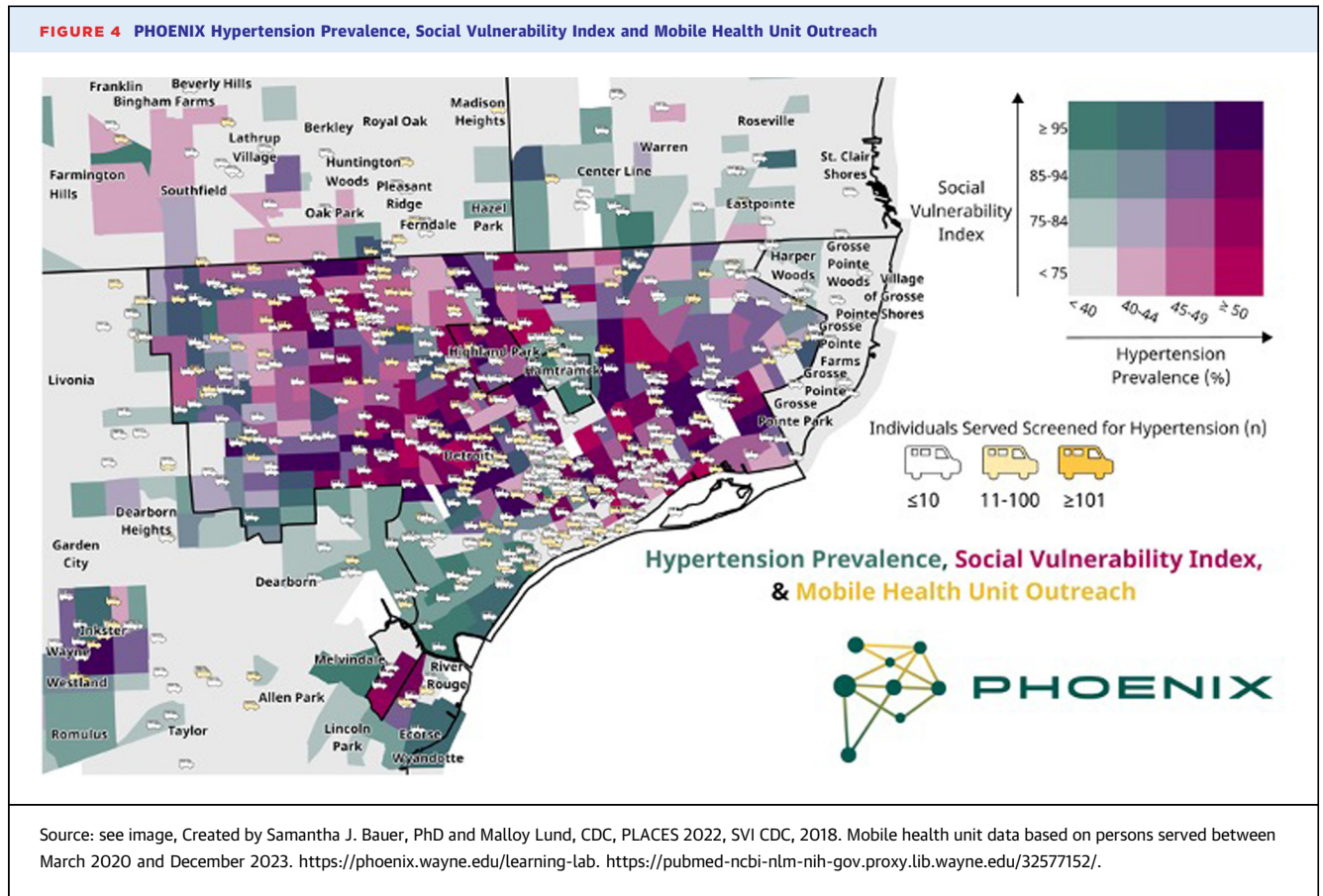
The ACC has embarked on developing immersive clinical scenarios that simulate the experiences of

implicit bias and the impact of SDOH. This simulation and VR-based training initiative garnered positive responses, as evidenced by post-training surveys. Participants reported heightened awareness of their biases and a renewed commitment to addressing them to enhance their professional effectiveness. Such progressive educational strategies underscore the ACC's commitment to fostering HE through innovative and effective training methodologies for the comprehensive CV care team⁴³ ([Table 2](#)).

MEMBERSHIP, COLLABORATIONS, AND PARTNERSHIPS

ACC is a leading advocate for CV health, underpinned by its member-driven characteristics. This key feature ensures that the insights and experiences of a diverse range of CV professionals influence ACC strategies and decisions. From various backgrounds and cardiology specializations, members provide valuable knowledge and practical insights for addressing the multifaceted challenges in delivering quality CV care. This diversity extends beyond professional expertise to encompass cultural, geographic, and experiential aspects, enriching ACC's strategies and initiatives. By fostering a responsive and dynamic environment, the ACC stays at the forefront of innovative care, aligning its policies, educational programs, and advocacy efforts with the practical needs of health care providers and patients.⁴⁴

The ACC has demonstrated its dedication to addressing the SDOH by engaging with community-



based programs, such as the Caring Hearts Initiative.⁴⁵ This program facilitates the optimal use of other well-established HE solutions by connecting them to communities. This initiative began after a mass shooting in Buffalo, New York, in 2022 and has grown to support other cities such as Camden, New Jersey, and Philadelphia, Pennsylvania. These solutions include FoodSmart, an app-based grocery platform that provides registered dietitian coaching, recipes, cost-effective grocery shopping support, and tailored meal planning tools. The Healthy Corner Store Initiative has increased access to fresh produce and healthier food options at local markets and corner stores. Also included in the Caring Hearts program are Higi health stations, offering educational content, health risk tests, and other digital and home health tools to communities.⁴⁶

These efforts reflect the ACC’s dedication to improving community health outcomes. These partnerships underscore the ACC’s foresight in integrating cutting-edge technology and community-centered approaches to combat health disparities. By aligning with diverse external entities, from tech innovators to community organizations, the ACC

broadens its impact and brings a more holistic and inclusive approach to tackling CV health challenges. This strategic approach to partnerships and collaborations is instrumental in driving ACC’s mission to achieve HE in CV care.

COMMUNITY, ADVOCACY, AND POLICY

A broad definition of “community” is required to engage a society of people, which begins with identifying trusted partners and includes an objective needs assessment. As previously indicated, the ACC provides various tools to help identify areas of emphasis. However, other programs, such as Wayne State University’s PHOENIX Platform (Population Health Outcomes Information Exchange) (Figure 4) combine multiple publicly available data sets with regional electronic health record data, enabling deep neighborhood phenotyping.⁴⁷ The information from these models provides valuable insights into the essential output of high-quality data.

Codesigning interventions with community organizations and hospital systems ensures that these strategies accurately reflect the needs and

FIGURE 5 PHOENIX and Grady Food as Medicine Community Programs^{47,48}

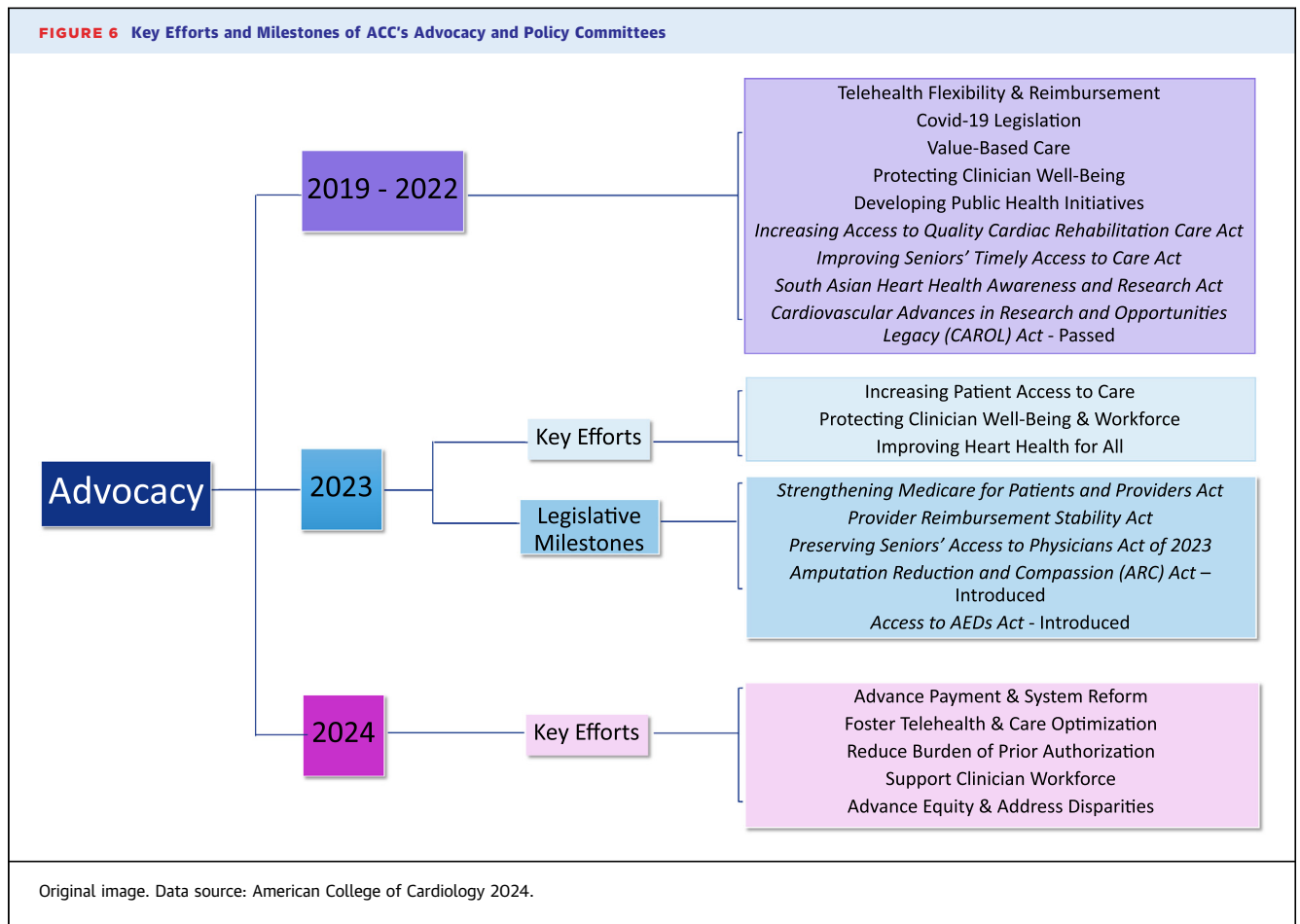


preferences of the recipient population. The ACC provides tools to identify areas to emphasize, while the PHOENIX Platform combines publicly available data sets with regional electronic health record data for deep neighborhood phenotyping. Successful program sustainability requires a strong community partnership. Achieving equitable delivery of CV care requires working with communities directly or in partnership with community-based organizations. Embracing the principles outlined herein will facilitate this process, as demonstrated by Grady Health System's and Wayne Health's experiences (Figure 5). These programs have been successful using a community-based participatory model which engages the community as a partner if the efforts to improve HE.⁴⁸⁻⁵⁰ However, health policies are crucial in promoting HE by eradicating diseases and reducing mortality rates. Government involvement is critical as it possesses the necessary resources and platforms to improve health care access and reduce disparities. The Affordable Care Act of 2008 is an example of successful policy implementation that increased access to health care, reduced mortality and disparities, and improved overall health outcomes.⁵¹⁻⁵³ While

some states have yet to expand Medicaid and those that have still demonstrated gaps to close, this represents a powerful example of how advocacy translates into public policy, which positively impacts HE. In a larger sense, advocacy powers change in the community, education, awareness, and outcomes; to answer the clarion call of improving heart health for all, advocacy is often the "how" (Figure 6).

CLINICAL TRIAL DIVERSITY

The underrepresentation of women and racial/ethnic minorities in CV clinical trials is a significant challenge that requires complex, multifaceted solutions. These solutions include but are not limited to, setting specific recruitment targets, employing culturally sensitive recruitment strategies, leveraging technology and social media, and fostering inclusive practices within a research community.⁵⁴⁻⁵⁶ Before the current efforts of researchers, the National Institutes of Health (NIH) and legislation enacted by the NIH Revitalization Act, passed in 1993, played a significant role in revitalizing and reorganizing the NIH. This legislation emphasized the need for increased



representation of women and minorities in clinical research.⁵⁷ Nevertheless, more than 30 years later, industry and the clinical research biosphere continue to struggle with processes to improve clinical trial diversity despite innumerable breakthroughs in therapies and interventions.

Then why is representation crucial if clinical advancements continue to rely on trials that underrepresent certain groups? The importance of representation in clinical trials cannot be overstated. An increased focus on clinical trial representation could reveal issues and inefficiencies unique to study sponsors, local sites, patients, or the community.⁵⁸⁻⁶⁰ Representing underrepresented populations in clinical trials is also directly related to the generalizability of study findings and the efficacy of targeted therapies and interventions for underrepresented populations.^{18,20,61} By ensuring a diverse cohort of individuals participating in clinical trials, researchers can enhance the applicability of their findings and develop more effective interventions to cater to the unique needs of people who are medically underserved.

The standard of care for patients with CV disease largely relies on the results of clinical trials, which often underrepresent several groups. Therefore, considerations and actions to diversify clinical trials are paramount to generalizability yet are often deprioritized during the implementation and monitoring of the study.²⁰ While there are sometimes exhaustive efforts to organize goals to improve the representation of underrepresented participants, various invested entities may prioritize other key performance indicators, preempting the goals of representation.⁵⁸ Above all, the safety of trial participants is the most important goal and can guide investigators and sponsors to continue or terminate a clinical trial.

The ACC continues to advocate for clinical trial diversity through strategic collaborations and partnerships with a wide range of community leaders and industry sponsors. There is a vast market for health information and digital media technology, which has the potential to enhance diverse clinical trial recruitment.⁶²⁻⁶⁴ However, these solutions have limited reach in some geographical areas, particularly

for individuals who are disadvantaged. Nevertheless, involving health care providers, particularly those in rural areas or in clinical sites with limited resources, may be a complex but potentially effective strategy for improving patient enrollment in clinical trials utilizing technology.²¹

The ACC recognizes the need to advocate for more inclusivity of many groups who are not traditionally included either by a process of systemic exclusion or not engaged by the sponsors and investigators. Thus, the ACC continues to motivate the engagement of medical trainees, including residents and fellows, as a vital way to enable trainees to learn the clinical trials process, while fostering future early investigators. Other innovative The Cardio Nerds network, a well-established cardiology education platform, illustrates how educational and advocacy platforms can promote diversity in clinical trials.^{23,54,63} Through collaboration with clinical trial investigators, the group demonstrated that motivated trainees can learn and positively impact efforts in clinical trial diversity.²⁴

Enhancing diversity in CV clinical trials is an ethical, imperative, and crucial for advancing comprehensive health care. Although progress has been made through legislation like the NIH Revitalization Act and educational initiatives, there is still much work to be done as achieving true diversity in clinical trials remains challenging.^{63,65} Future strategies will need to demonstrate the importance of involving the community in comprehensive approaches to overcoming barriers to diversity in clinical research. Addressing the complexity of this issue requires sustained collaboration and integration of technology, community engagement, and educational outreach to ensure that all populations are adequately represented. As science and technology advance, the clinical research community must take a proactive and evolving approach to meet changing and diverse health care needs.

BLUEPRINT FOR IMPLEMENTING EQUITY INITIATIVES

This review focuses on the role of the ACC in promoting HE in the CV space, beginning with a background on HE challenges and a review of the strategic framework of our HE plan. Several key factors must be considered when assessing the effectiveness of HE interventions. Nevertheless, prior to evaluating effectiveness, a structured and deliberate approach to implementing the intervention is frequently required. Given the importance of ensuring equitable care, it is crucial to prioritize dissemination and

implementation science that focuses on increasing the effectiveness when implementing an intervention. Thus, the processes of dissemination and implementation science are often key drivers as to whether an intervention is adopted within a population of focus.²⁷ The ACC HE Task Force recognizes the intricate nature of creating HE interventions within a member-driven context and proposes a tailorable strategy for this process (See **Central Illustration**).

Consistent with a significant portion of the literature in this area, the initial step in the process of developing an intervention entail comprehending the fundamental causes of health disparities within communities of focus. Understanding the root cause of an inequity involves analyzing the social and political factors that influence health and health policy. Additionally, it is crucial to acknowledge that systemic racism persists and has historically contributed to numerous health inequities present in the United States and worldwide.^{27,56,66,67} Implementing interventions without addressing the systemic racism within a large health care system will only provide temporary solutions that are not sustainable due to the weight of policies that support systemic racism and its downstream effects. The ACC HE Task force acknowledges the utmost significance of comprehending the fundamental reason(s) for the disparities that impact groups and communities who have historically been excluded in health care. Members of health advocacy organizations should recognize the negative consequences of disregarding systemic racism and make every effort to thoroughly explore the extent to which systemic racism influences public policy and shapes the outward facing actions of the organization.

Secondly, organizations *must assess and utilize their available resources effectively* to extend the reach and sustainability of HE initiatives.^{66,68-71} Medical institutions and organizations that promote public HE are most likely to gain from strategic collaboration when allocating resources. The process of resource allocation becomes increasingly more important for organizations or countries under significant economic strain. The COVID-19 pandemic is the most recent example in which resource allocation became the major driver of care worldwide.^{21,72,73} Understanding a complex forecast of resources often precludes development of HE efforts that are not equipped for long-term sustainability.

The suggested domains depicted in the **Central Illustration** were formulated by the ACC HE Task Force following a thorough evaluation of multiple factors and circumstances that could enhance health care provision and improve patient outcomes. This

TABLE 3 Future Work, Challenges, and Opportunities for Health Equity

Areas of Focus	Challenges	Opportunities
Closing Data Gaps	Scarcity of data Inconsistency of data from marginalized populations Inherent systemic and structural racism Bias of omission in data collection	New data sets created from real-world evidence Multiple data sources utilized Bias removal from data input processes AI-driven algorithms, mobile health, community-driven initiatives
Addressing Social Determinants of Health	Complex interconnections between socioeconomic factors, environmental conditions	SDoH assessment prioritization AI-assisted identification and mitigation of SDoH Addressing modifiable SDOH factors related to the root cause of disparity
Using Technology to Scale HE	Lack of access to providers Geographical barriers Delayed care Low health literacy Resource constrained environments	Telemedicine and remote monitoring AI for predictive analysis Utilization of apps and wearable devices Technology to increase efficiency clinical processes of care Wearable device monitoring for promotion of preventive health care practices
Health Information Exchange	Health information inconsistency and inaccessibility Lack of care continuity	Seamless information exchange to increase patient access Personalized, inclusive care for diverse populations
Ethical Considerations in AI	Bias in algorithms Lack of transparency in data collection and utilization Inadequate security	Development of robust ethical frameworks in research and data collection Proactive establishment of AI guidance and process of implementation
Embracing Emerging Innovations	Inability to remain current about the newest technologies and advancements Issues with global collaboration and communication	Future research acknowledges impact of new technologies and innovations on health equity

HE = Health Equity; SDOH = social determinants of health.

comprehensive analysis entails a continuous review of evidence-based recommendations in connection to the specified domains as well as the current literature for developing a best practice intervention. The HE Task Force has achieved significant change via strategic collaboration and partnerships with like-minded organizations.^{22,27,74,75} The fragmented efforts of numerous organizations and health systems developing siloed interventions can significantly impede the flexibility and implementation of effective interventions that should be expanded for a greater reach. Nevertheless, the potential of HE initiatives developed by the ACC is directly related to available resources and the strengths of the organization. More specifically, understanding how to utilize particular strengths of an organization can amplify or enrich the value of existing and future initiatives. Through a thorough assessment and analysis of the enduring qualities and capabilities that directly contribute to the goal of the ACC, we have gained crucial insights into the different aspects that impact health care delivery and patient outcomes.

In order to effectively tackle the challenges encountered by health care organizations and professionals regarding the enhancement of quality and the influence of provided care, we can establish a

connection between each undertaking of the ACC HE Task Force and one or more components of the Quadruple Aim of HE, which ensures that a substantial and influential intervention is appropriately valued in the proper context.

Assessing the value of a HE-focused intervention is an ongoing process that should embrace the flexibility sometimes needed to adjust strategy depending on the primary stakeholders involved (See **Central Illustration**). This process involves evaluating the utility of an intervention for all stakeholders, including the organization, and clinicians, and patients.

Patients are the primary entities in a HE value system and are of utmost importance. In the absence of a patient-centered approach in health care interventions, organizations may lose sight of the significance of the intervention to the patient and its alignment with their values. The health care sector's emphasis on the development of treatments and solutions may result in inadequately planned interventions that overlook crucial variables. As a result, efforts may focus on putting on a show rather than actually enhancing a patient's experience, with a greater emphasis on public-facing projects that boost an organization's reputation.

FUTURE WORK

A major stumbling block in our quest for HE lies in the scarcity and unreliability of health data, especially for marginalized populations. By recognizing the existence of structural racism, we gain a deeper understanding of how historical and ongoing discriminatory practices have molded our health care system. These practices have disproportionately impacted marginalized communities, resulting in disparities in access to quality health care, health outcomes, and overall well-being. It is undeniable that health care has historically favored certain demographics while neglecting others. The consequences of these exclusions are far-reaching and lead to inadequate health care access and delivery for marginalized groups but also contribute to the perpetuation of health disparities.

To attain true HE, future initiatives must prioritize and continue to address SDOH and utilize advanced technological solutions to bridge gaps in health care access, reduce disparities, and foster inclusivity (Table 3). Telemedicine and remote monitoring can enhance accessibility, eliminate geographical barriers, and ensure medical care. Remote monitoring devices empower individuals to manage their health actively, particularly those with chronic conditions, promote preventive care, and minimize complications. Wearable devices enable real-time monitoring and provide valuable health data. VR and augmented reality aid in patient training and education, making health care expertise more accessible across different regions and providing innovative therapeutic interventions.⁷⁶

CONCLUSIONS

For countless reasons, it is imperative to recognize the importance of awareness of the resources available within organizations and their accessibility to the community. By actively addressing barriers and involving the community in decision-making

processes, we can ensure that resources are available and easily accessible to those who need them the most. This commitment to fairness and equity is crucial for promoting the community's well-being and development. We can work toward a more just and equitable society by acknowledging and challenging existing inequities. It is time for us to come together, listen to the voices of those who have been marginalized or are underrepresented, and take decisive action to create a future where HE is a fundamental right for all. Let us consider this opportunity to design interventions at every level of care in pursuit of the Quadruple Aim of HE. Together, we can make a real difference in the lives of those we serve.

FUNDING SUPPORT AND AUTHOR DISCLOSURES

Dr Echols has a consultation/advisory committee role for Amgen, Bayer, Boehringer Ingelheim, Merck, Regeneron, Novo Nordisk, and Novartis; and is on the Data Safety Monitoring Committees of REACT-AF. Dr Bozkurt has a consultation/advisory committee role for Abiomed, Amgen, AstraZeneca, Bayer, Boehringer Ingelheim, Merck, Occlutech, Regeneron, Roche, Sanofi, scPharmaceuticals, Vifor, and Zoll/ Respicardia; and serves on the Data Safety Monitoring Committees of Liva Nova, Cardurion, Novo Nordisk, and Renovacor. Dr Ogunniyi has received institutional research grant support from AstraZeneca, Boehringer Ingelheim, Cardurion Pharmaceuticals, and Pfizer; and and serves on a clinical trial steering committee for Novartis, all outside and not relevant to the contents of this manuscript. Dr Levy has a consultation/advisory committee role for Bayer, Beckman Coulter, BTG Specialty Pharmaceuticals, Cardionomics, Heart Beam, Hemisens, Medscape, Moderna, Pathfast, People.Health, Quidel Ortho, and Roche Diagnostics; is on the Data Safety Monitoring Board for Life Recovery Systems; has ownership/partnership with Alerje, Emergencies in Medicine, and My Patient Insight; and has received from Pfizer and COVID-19 Surveillance Testing for Quest Diagnostics. Dr Bailey has a consultation/advisory board role for Novo Nordisk, OptumRX. All other authors have reported that they have no relationships relevant to the contents of this paper to disclose.

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KEY WORDS American College of Cardiology (ACC), cardiovascular disparities, community engagement and partnerships, health equity, health equity education, health equity frameworks, innovative health care technology, racial and ethnic health disparities, social determinants of health (SDOH), workforce diversity in cardiology