ABC
Association of Black Cardiologists, Inc.
Saving the Hearts and Minds of a Diverse America

November 30, 2020

The Honorable Richard E. Neal
Chairman
Committee on Ways and Means
U.S. House of Representatives
1102 Longworth House Office Building
Washington, DC 20515

Dear Chairman Neal:

On behalf of the Association of Black Cardiologists (ABC), we thank you for your interest in addressing the misuse of race in clinical algorithms and research and for soliciting the views and ideas of the medical community. The ABC is pleased to respond to your call for information.

Founded in 1974, the ABC is a nonprofit organization with a national and international membership of 2,023 cardiovascular specialists, cardiologists in training and other health professionals, as well as professionals outside of health care who are members of the community (Community Health Advocates) and corporate and institutional members. The ABC is dedicated to eliminating disparities related to cardiovascular disease for all people of color and adheres to the vision that all people regardless of race, ethnicity or gender should benefit equally from reduction in the frequency, duration and impact of diseases of the heart and blood vessels.

In 2007, ABC member Clyde W. Yancy, MD, MSc, MACC, FAHA, MACP, FHFSA wrote:

> “Race is neither physiologic nor scientific; rather it is a social construct that reflects a group of persons with shared ancestry and similar customs/lifestyles that also intermarry. Clearly, African Americans represent a heterogeneous group and there is no reason to believe that any single genetic trait is uniformly and exclusively distributed in African Americans. Race is not a proxy for genetics and any effort to ascribe such is shallow and lacking in understanding. However, within a group, it is conceivable that certain traits may be over represented and that these traits might contribute to disease.”[1]

More than 13 years later, racial bias remains pervasive throughout medicine, influencing medical decision making, quality of care and outcomes. The coronavirus pandemic has spotlighted racial and ethnic health care inequities and has, consequently, created an opportunity for meaningful

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[1] The Association of Black Cardiologists Responds to "Race In A Bottle”: A Misguided Passion; July 30, 2007. https://www.scientificamerican.com/article/the-association-of-black-cardiologists-responds-to-article/

policy reform. At the core of racial bias in medicine is structural racism. If the contributors to structural racism are not adequately addressed, it will be more difficult to address all its downstream effects.

Everyday racism, in work or in health care, results in higher rates of coronary heart disease, diabetes, stroke and end-stage renal disease. Higher levels of stress and consequent fight-or-flight hormone activation leads to high blood pressure, lack of sleep, improper diet, mental strain and medical mistrust. Those living in poorer communities also experience reduced access to care, lack of available nutritious food, unsafe built environments and a propensity to more maladaptive, addictive behaviors such as smoking, alcoholism and medical noncompliance. The result is lower life expectancy, poorer quality of life and fewer years of productive life. More research is needed on the link between structural racism and health care outcomes so effective interventions can be developed.

The ABC suggests the following must be confronted, including through changes in policy, to end racial bias in health care:

- address structural racism;
- eliminate economic and educational disparities;
- enable access to equitable and quality health care;
- increase diversity, both of patients and investigators, in clinical trials;
- increase the pipeline of medical professionals by actively recruiting those who are from disadvantaged racial and socioeconomic backgrounds; and
- reduce influence of implicit bias in clinical decision making.

Advances in health care have established the use of evidence-based medicine to guide clinical care. Consistent application of guideline-based care has been clearly demonstrated to eliminate treatment disparities in cardiovascular disease.[2] Health care technology has advanced to incorporate evidence-based medicine and health data into algorithms that support clinical decision making through artificial intelligence (AI). The ABC is pleased to provide responses to the following questions with the shared goal of addressing the misuse of race in clinical care algorithms and research.

To what extent is it necessary that health and health related organizations address the misuse of race and ethnicity in clinical algorithms and research?

Clinical algorithms are critical to population health management.[3] Algorithms and risk prediction models should enable physicians and health systems to anticipate health care needs and allocate resources to improve outcomes for at-risk patients. At the same time, it is essential these algorithms perform equitably. As digital technology becomes more integrated into clinical care, the algorithms will be used more frequently and autonomously to guide patient care. If the data fueling the algorithms are flawed, the output will likewise be flawed as will the resultant

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[2] Get With the Guidelines-Heart Failure Publications American Heart Association (2019) https://www.stroke.org/-/media/files/professional/quality-improvement/get-with-the-guidelines/get-with-the-guidelines-hf/gwtg-heart-failure-publications-022519.pdf

[3] Obermeyer Z, Powers B, Vogeli C, Mullainathan S. Algorithmic Bias In Health Care: A Path Forward; Nov. 1, 2019. https://www.healthaffairs.org/do/10.1377/hblog20191031.373615/full/

patient care. Current health care data reflects underlying disparities. Populations facing socioeconomic barriers to accessing care are underrepresented or misrepresented in our systems. Likewise, current care patterns reflect the biases inherent to the systems collecting the data. Data enables analytics and AI, but we must understand the shortcomings of our data and the social implications of using biased data to drive care decisions. Marginalized populations not included in the data will not reap the full benefits of AI.

The ABC is aligned with the assessment that race has been misinterpreted and misused in clinical care algorithms with consequent harm to communities of color. Much of the misuse may be unintentional and based on the inclusion of faulty data reflecting current inequities into algorithm programming. However, the topic of racism in health care is more deeply rooted and complicated than clinical algorithms alone. Not addressing the inaccurate outputs from clinical algorithms incorrectly programmed to factor race and ethnicity data will lead to perpetuation of disparate care with respect to referral for treatment, allocation of resources and patient satisfaction which may ultimately lead to further disenfranchisement from the health care system through missed treatment opportunities, unfavorable outcomes and failure of treatment adherence.

Across virtually every type of diagnostic and treatment intervention, blacks and other minorities receive fewer procedures and poorer quality medical care than whites with similar disease burdens. Although the incentives to use AI algorithms for clinical decision support have worked well for acute care, chronic disease management using AI powered tools (population health management) is fraught with more complexity due to the environmental and social context that are part of patients' lives. In fact, some clinical algorithms for heart failure management artificially raised the risk score for non-blacks which consequently reduced the 'perceived' severity of blacks resulting in their delayed referral for advanced care.[4] Clinical algorithms are also subject to the inherent implicit biases of the clinicians using them. Research continues to document the persistence of higher implicit bias scores among physicians being associated with biased treatment recommendations and poorer communication in the care of black patients.[5,6] The role of health care providers is to provide context for the algorithm-generated decision during the clinical encounter.

Historical health inequities are embedded in the data used to drive AI algorithms. Health care outcomes are not the same across populations. For example, black women are 42 percent more likely to die from breast cancer. This can be at least partially attributed to factors like a higher burden of co-morbidities and barriers to accessing care that stem from the enduring legacies of structural racism and intergenerational poverty. Black women are also more likely to be diagnosed at later stages of the disease and experience delays in treatment of two or more months. These types of inequitable outcomes are baked into health care data.

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[4] Vyas D., et al. (2020) Hidden in Plain Sight-reconsidering the use of race correction in clinical algorithms. NEJM doi: 10.1056/NEJMms2004740

[5] Williams, D. R., Lawrence, J. A., & Davis, B. A. (2019). Racism and Health: Evidence and Needed Research. Annual review of public health, 40, 105–125. https://doi.org/10.1146/annurev-publhealth-040218-043750

[6] Breathett K, Yee E, Pool N, et al. Does Race Influence Decision Making for Advanced Heart Failure Therapies? *Journal of the American Heart Association*. 2019;8. https://doi.org/10.1161/JAHA.119.013592

Algorithms learn from historical patterns to make predictions and decisions, but if they learn from biased data they will produce biased outputs. By using biased insights to inform care decisions, systems may unintentionally create or perpetuate inequities. For example, one emerging application of AI is predicting intensive care unit (ICU) demand. Algorithms can be used to identify which inpatients are at risk for clinical deterioration and will require a transfer to an ICU. A model could be built using historical health records of patients who were transferred to ICUs. However, if the training data contains more white than black patients, the model will make better predictions for white patients. Deterioration might be underestimated for black patients, leading to fewer transfers and worse outcomes.

Other examples of clinically significant algorithmic bias listed in the *New England Journal of Medicine* article[4] demonstrate how improperly programmed algorithms can lead to withholding open heart surgery from black patients when they may be appropriate candidates, and race adjustment for renal function that delay referral for specialist care for transplantation in black patients. Similarly, for many years clinical guidelines incorrectly directed against the use of Tamoxifen in black women with breast cancer based on an underpowered sample of 100 black women in early breast cancer studies.

Data from clinical research is used to create the evidence-based guidelines that power AI engines. If incomplete, inaccurate or data skewed by underlying disparities in clinical trial access are used, then the resultant algorithm outputs will also be skewed. Clinical research is also closely tied to existing clinical guidelines. The inequities programmed into clinical guidelines also appear as inclusion/exclusion criteria which can broaden the data gap by excluding participation of minority patients.

What role should patients and communities play?

Patients and communities should work to establish partnerships with health care and other entities using AI to provide decision support. Partnership examples include public health departments, nursing homes, local care agencies (home health, mental health), school districts, faith-based organizations, public safety providers, and other non-profit service groups (food banks). Data obtained through health information exchanges from these sources will provide more accurate representation of vulnerable populations which will improve decision making and proactive intervention algorithm accuracy. Community groups should provide feedback that can be used to validate and refine algorithms based on local users' specific data, as opposed to the large national databases on which algorithms are typically built. Patients and communities should be a part of the local health care organization's clinical decision support tool validation and feedback mechanism. This is particularly important if an algorithm is being used across multiple care sites with different demographic profiles.

Patients and communities should strive to overcome the 'digital divide.' Remote patient monitoring devices produce a new source of detailed patient-generated health data when patients are not in a facility, but data are collected only from patients who can access and use the devices. Populations that are less tech-savvy or don't have consistent internet access will be left out of these data sets.

Communities should also encourage diversity in digital health through supporting education and employment in health data acquisition, management, analysis and implementation. Diverse health IT teams are more likely to identify biases and create solutions which will ultimately lead to greater trust and faster adoption of AI systems.

What have been the most effective strategies that you or your organization have used to correct the misuse of race and ethnicity in clinical algorithms and research, if any?

Removal of race and ethnicity in clinical algorithms alone will not eliminate racial bias in the delivery of medicine. Large databases (such as Mayo Clinic) are used to power AI algorithm engines, if these databases do not contain a sample of representative minorities, an accurate minority experience will not be reflected in the AI output. As such, significant focus is needed on the structural components of racism that give rise to racial inequities.

Education and Training

Diversity in medicine allows patients to connect with their providers on cultural and social levels. Consequently, having more diverse members of our country's physician scientific workforce leads to excellence in patient/population outcomes.

The ABC is leading increasing diversity in the African American cardiology health care workforce.

- In collaboration with historically black colleges and universities (HBCUs) and academic health centers, the ABC supports innovative training programs in clinical cardiology and its subspecialties.

- The ABC works with cardiology training programs to identify black trainees seeking cardiovascular careers and engages medical students by providing mentorship and scholarship opportunities.

- Because ABC members reflect a wide variety of cardiology subspecialties and practice modalities, our cardiologists-in-training are provided with open access to guidance from our experienced cardiovascular specialists.

- ABC recently launched a diversity and inclusion scorecard for academic cardiovascular training programs in the United States published annually in collaboration with several cardiology program directors. The ABC Diversity, Inclusion and Belonging Scorecard seeks to address racial gaps while fostering an inclusive and more diverse cardiology workforce by assessing academic programs utilizing four characteristics: (1) number of underrepresented in medicine (UIM) in general cardiology fellowships; (2) the change in the number of UIM fellows over the life cycle of the of the training program; (3) trainee assessment of a sense of belongingness (i.e. how welcome they feel in that program); and (4) the number of UIM faculty overall, as well as in leadership positions in their cardiology training program. A "traffic light" rating system will evaluate programs as poor, at-risk or excellent based on these four metrics. Rankings will be announced on an annual basis.

- ABC has established the Diversity in Cardiology Award presented to cardiovascular training programs adopting diversity.

- The ABC Mentor for Youth Program connects medical professionals to youths in high school or college considering a career in medicine.

Data Collection

The ABC believes patient health is heavily influenced by social determinants of health (SODH). Algorithms are often biased because non-clinical factors are not included in their programming. Algorithm accuracy has been improved by incorporating SDOH data. An example from University of North Carolina (UNC) Health System demonstrates how quickly identifying and addressing risks can significantly improve patient outcomes. As part of UNC's population health program, nursing staff would check in with patients at risk of readmission. Due to resource constraints, the staff needed to evaluate how to best focus their efforts on their most high-risk patients. The initial model used length of stay, acuity, co-morbidities, and emergency department visits. UNC partnered with a health analytics firm to build a better model for predicting readmissions. The new "Modern Social Determinants of Health" model did not begin from preconceived theories, but instead used machine learning to ingest and evaluate UNC's data to generate dramatically better predictions of readmission risk. The resulting model takes risk factors into account that are not always intuitive, and it segments the population in ways that are not medically or socially obvious. Despite the "black box" effect, the results were impressive. When compared to more traditional discharge planning rules, the new model correctly predicted twice as many readmissions when 20 percent of the population was targeted for follow-up.[7]

The lack of diversity in data is a long-standing problem the ABC is working to address with the Cardiovascular Implementation Study (CVIS), a practice-based research registry that is integrating social determinants and technology innovation to address health disparities. CVIS is enrolling diverse patients with prioritized health conditions from collaborating ABC member practices, as well as patients from academic health centers and Federally Qualified Health Centers. CVIS prospectively collects socio-demographic and economic data at the point of care. CVIS will evaluate the safety and clinical outcomes of new therapeutic agents, including post-marketing surveillance. CVIS data collection tracks quality of care standards established by the Centers for Medicare and Medicaid Services (CMS) and commercial health plans. Long term, CVIS will become the most comprehensive patient registry for diverse patients with cardiovascular disease and co-morbid conditions by providing real-world data to address health disparities. CVIS will inform cardiovascular algorithms and guide future research that is relevant to diverse populations.

Clinical Trials

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[7] Health Care IT Advisor, Advisory Board (2020)The Artificial Intelligence Ecosystem https://www.advisory.com/-/media/project/advisoryboard/shared/research/itsc/research-study/2018/the-artificial-intelligence-ecosystem-2.pdf?rev=f2e253bd71c1425cb6e2bfa92f5355f7&hash=2111637A12128148DCA6D4C1AF391D44

The ABC is uniquely qualified to monitor and initiate diversity in cardiovascular care and research. The ABC has created continuing medical education programs that promote evidence-based clinical care supported by practice guidelines. However, practice guidelines and clinical algorithms need robust research databases that reflect the diversity of affected patients and communities. Lack of diversity in clinical trials, as well as racial bias at the point of care, remain a significant barrier to developing effective practice guidelines and the clinical algorithms that rely on them.

The ABC continually strives to overcome the dearth of clinical data from minority communities. This involves an increased investment in research infrastructure, including trained personnel to increase the recruitment and retention of African Americans and other under-represented patients. The ABC has developed a "train the trainer" mentorship and collaborates with HBCUs, health care provider organizations and research organizations to scale and sustain the clinical research participation of diverse providers and the patients they serve.[8] The lack of clinical data from minority communities is also being addressed through clinical research endeavors such as the African American Heart Failure Trial and participation in ongoing research initiatives sponsored by industry and academia. To control algorithm bias in health care, rigorous validation of clinical data, including vetting in the public domain through publications and scientific symposia, will eventually fuel algorithms and validation of the AI outputs to the target community. Well-constructed AI algorithms may also identify data gaps that compel future research endeavors.

The ABC publicly exposes bias appearing in guidelines and the clinical literature. Recent examples are the rebuttal to the JNC 8 High Blood Pressure Guidelines[9] and the retraction of a racially biased article that appeared in the *Journal of the American Medical Association*.[10] The Association also leads fellow professional organizations, such as the American College of Cardiology and the American Heart Association, to renounce racism in medicine and medical education through joint statements and continuing medical education.[11,12,13] Similar targeted analyses and education through a benchmarking and test-and-learn technique could be used to remove algorithmic bias.

What have been the challenges and barriers to advancing those strategies?

Common challenges to implementing AI algorithms in minority populations are due to issues stemming from available data, health care system or regulatory policies, or patients.

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[8] Ofili E.O., Schanberg L.E., Hutchinson B.,Sogade F., Fergus I., et al (2019). Int. J. Environ. Res. Public Health 16, 1631; doi:10.3390/ijerph16091631

[9] Wright J., Fine l., et al. 2014 Evidence supporting a systolic blood pressure goal of less than 150 mmHg in patients aged 60 years or older: the minority view. Ann Int Med doi: 10.7326/M13-2981

[10] Kuehn B. (2020) Association of Black Cardiologists Calls for Urgent Effort to Address Health Inequity and Diversity in Cardiology doi: 10.1161/CIRCULATIONAHA.120.050130.

[11] Albert M. Structural Racism and Anti-Blackness in Medicine. https://abcardio.org/structural_racism_medicine/

[12] Lloyd-Jones D., Albert M., Cooper L. et al. Structural Racism as a Public Health Crisis AHA 2020 https://abcardio.org/aha2020/

[13] Albert M., Harrington R., Poppas A. Joint statement on health equity, social justice and civil unrest from the Association of Black Cardiologists, the American Heart Association and the American College of Cardiology AHA Newsroom May 31,2020.

Data-related Challenges

- General-purpose solutions may use datasets to power the algorithms that are biased by inadequate representation of minority groups in the populations the algorithms are used to support. Insufficient sociodemographic variability may be a factor if the algorithm being used crosses multiple sites of care with varying demographic profiles.

- Baseline disparity metrics and benchmarks may not be available to train the algorithm system.

- Silos of data collection are created by traditional lack of collaboration, incompatible technology (interoperability), inadequate resourcing, and a lack of knowledge/standardization.

- Electronic health record (EHR) systems and processes are not built to collect holistic patient data. EHRs were built to be billing tools first and clinical tools second. They are often missing data and are not set up to easily capture demographic and SDOH data.

System-related Challenges

- Large-scale health IT solutions are expensive and typically not primarily designed to promote health equity. The primary billing and clinical management functions often initially outweigh disparity reduction which is programmed secondarily with variable interoperability.

- Larger health care systems can afford to invest resources in validation and refinement of the AI models; smaller systems may not have the capacity to do the same, resulting in bias.

- Equity initiatives are often not linked to a clinical or business goal and may not have full executive level buy-in.

- The health IT market utilizing AI algorithms is very competitive with algorithms frequently incased in ‘black box’ systems that do not easily yield to manipulation due to IT complexity or proprietary construction.

- Cultural resistance from existing workers slows adoption and corrective feedback. Suboptimal human/machine interfaces and lack of evidence of success reduce trust necessary for system integration.

- Over-reliance on automated systems, particularly when tied to provider performance, may introduce human bias.

Policy-related Challenges

- Health data are highly regulated. Anonymity and data protection policies may prevent capturing specific data needed to refine the algorithms.

- The 2020 White House Executive Order forbidding anti-racism training in federal institutions detracts initiatives to correct existing racial biases and disparate consequences from the highest level.[14]

Patient-related Challenges

- The 'digital divide' in health care contributes to data bias. Less technology-oriented patients with limited internet access or available wearable/remote monitoring devices will not be included in these datasets.

What strategies would you propose to build consensus and widely used guidelines that could be adopted broadly across the clinical and research community to end the misuse of race and ethnicity in clinical algorithms and research?

Racial bias in the delivery of health care is self-perpetuating and begins with the collection of biased health data during the patient's initial encounter with the health care system or researchers. Due to unequal access to health care and clinical studies, minority groups are under-represented in current health services and research datasets. This underrepresentation adversely affects the quality of health services provided to that demographic group since they might be treated according to guidelines informed by data that disproportionately represent people of the majority ethnic or racial group.[15]

The ABC suggests the following strategies:

- Refine algorithms with more data, including SDOH, which can help correct for bias. The ABC CVIS registry uses the National Institutes of Health-developed PhenX Toolkit[16] on social determinants of health to systematically collect sociodemographic data at the point of care. Collection of SDOH measures upstream factors that shape behaviors and health outcomes. PhenX provides a common currency for studying SDOH across public health research studies while allowing researchers to examine the role of SDOH and the factors related to health inequities to identify effective interventions to reduce health disparities. Such standardization of SDOH will allow the CVIS registry to expand its data capacity and predictive modeling by linking with other public health databases. Such analyses will ensure ongoing race, ethnicity and SDOH testing of clinical algorithms.

- "Train" algorithms to predict less biased outcomes and encourage algorithm developers to work with physicians and others closely involved in care delivery to build advanced prediction algorithms. If AI does not code for unintended bias in the development stage, algorithms will perpetuate bias. Bias in, bias out. AI manufacturers and researchers could be required to

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[14] Trump D. Executive Order on Combating Race and Sex Stereotyping. https://www.whitehouse.gov/presidential-actions/executive-order-combating-race-sex-stereotyping/

[15] Geneviève, L.D., Martani, A., Shaw, D. et al. Structural racism in precision medicine: leaving no one behind. BMC Med Ethics 21, 17 (2020). https://doi.org/10.1186/s12910-020-0457-8

[16] https://www.phenxtoolkit.org

conduct audits of their predictions before their products ever support a patient.[17] Rigorous validation should assess completeness and quality of data to adequately reflect the community, test relationships between variables, stratify performance results from all angles to identify disparities, and establish a strategy for ongoing performance management.

- Remove registry data collection factors that lead to generalizability of patient outcomes, the consequences of which are profound, including risk prediction scores that misrepresent risk in patients who are excluded.

- Ensure health care costs are not used as a proxy measure for health needs. Algorithms commonly used by health systems and insurance companies, which often use health care expenditures as endpoints, perpetuate existing racial biases.[18] Lower health care costs among underserved and minority populations can be reflective of under-utilization due to access limitations and other factors, including historic medical mistrust by the African American community.[19] The focus of AI algorithms should be on growth over savings.

- Promote partnerships with universities, research centers, agencies and professional organizations to fill data gaps using agile test-and-learn techniques across multiple AI technologies. This will also help assure specialists versed in disparities and health equity are involved in planning, integration and implementation of AI systems. Re-skilling the workforce to integrate AI into workplace processes with an eye toward diversity is a necessity.

Other Strategies:

We suggest public reporting of physician performance data and existing quality improvement programs can contribute to a bias in data that is ultimately used for clinical algorithms. Physicians who are concerned that an unfavorable patient outcome will negatively impact their publicly reported outcomes are more prone to avoid patients who are identified as high-risk.[20] By avoiding these patients, data collected in patient registries becomes skewed and perpetuates racial bias when included in clinical algorithms. The conventional wisdom is that when the disincentives that drive risk avoidance are removed, data from a more racially and clinically diverse patient population will be captured and algorithms will become more accurate.

For example, readmission rates under Medicare Hospital Readmissions Reduction Program (HRRP) are calculated using three previous years of data. Among cardiovascular conditions tracked for readmission are: acute myocardial infarction (AMI), heart failure (HF), and coronary artery bypass grafting (CABG). After gathering readmission data for the six targeted conditions,

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[17] Vartan S. Racial Bias Found in a Major Health Care Risk Algorithm
Black patients lose out on critical care when systems equate health needs with costs. Oct. 24, 2019. https://www.scientificamerican.com/article/racial-bias-found-in-a-major-health-care-risk-algorithm/

[18] Sokol E. Eliminating Racial Bias in Algorithm Development. Dec. 26, 2019. https://healthitanalytics.com/news/eliminating-racial-bias-in-algorithm-development

[19] Breathett, K., Jones, J., Lum, H.D. et al. Factors Related to Physician Clinical Decision-Making for African-American and Hispanic Patients: a Qualitative Meta-Synthesis. J. Racial and Ethnic Health Disparities 5, 1215–1229 (2018). https://doi.org/10.1007/s40615-018-0468-z

[20] Blumenthal DM, Valsdottir LR, Zhao Y, et al. A Survey of Interventional Cardiologists' Attitudes and Beliefs About Public Reporting of Percutaneous Coronary Intervention. JAMA Cardiol. 2018;3(7):629–634. doi:10.1001/jamacardio.2018.1095

CMS then adjusts for demographic factors such as age and overall health of the hospital's patient population. There is long-standing concern throughout the cardiovascular community that the HRRP has contributed to an increase in mortality among HF patients as hospitals focus on reducing readmissions. For HF, the evidence is that an inverse relationship has historically existed between a hospital's readmission rate and its mortality rate — low-mortality hospitals tend to have higher readmissions.[21,22] It is therefore incumbent upon CMS and other payers to include health services researchers and scientists to design the implementation of health care demonstration programs, as well as to evaluate the data and risk adjustment used for existing programs to ensure they do not reflect racial bias and will perform as intended. The UNC readmissions initiative mentioned above is a good example. Only through an iterative evaluation and titration of policies will we arrive at optimal health policies.

An additional strategy is use of macro evaluations, including population-based metrics, for determining whether health care services are being under-utilized. For example, the same mechanisms for identifying over-utilization of interventions could be used for identifying underuse. This same approach can be taken when procedures, like dialysis and non-traumatic amputations, are over-performed.

For example, Mississippi is an epicenter for cardiovascular disease including peripheral artery disease (PAD) and amputations, and it has had the lowest reduction in the probability of dying from cardiovascular disease.[23] As the ABC previously shared with this Committee, an initiative led by ABC member Foluso Fakorede, MD resulted in a reduction in the rate of amputations in a focal region of the Mississippi delta by 87.5 percent over the last 3.5 years.

This successful model was the result of a team of individuals who used aggressive early screening, diagnosis and treatment of modifiable cardiovascular risk factors in at-risk patients and advocated for clinical care algorithms focused on angiograms before amputations. They promoted patient medical literacy and advocacy via a faith-based approach, building community navigators, educating the community about PAD and stressing the importance of prevention over cure. They also recognized the SDOH and discussed solutions with stakeholders on local and state levels. The results in Mississippi can be realized elsewhere. Taking this as an example that amputation reduction is possible, there is the need to publish research and to develop real-world treatment algorithms to effect change in other underserved communities.

Finally, strategies could include creating a high-risk pool of patients, based on a standard set of criteria, for whom outcomes would be evaluated separately. Such an approach may remove current disincentives (e.g., public reporting, hospital readmissions) for treating patients who are at high-risk of adverse outcomes. While Medicare's quality programs include risk-adjustment, most physicians have little confidence in the accuracy of those adjustments. The intended

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[21] Jha A; To Fix the Hospital Readmissions Program, Prioritize What Matters. JAMA, February 6, 2018; Volume 319, Number 5.

[22] Gupta A, Fonarow GC. The Hospital Readmissions Reduction Program-learning from failure of a healthcare policy. Eur J Heart Fail. 2018 Aug;20(8):1169-1174. doi: 10.1002/ejhf.1212

[23] The Burden of Cardiovascular Diseases Among US States, 1990-2016; JAMA Cardiol. 2018;3(5):375-389. doi:10.1001/jamacardio.2018.0385 Published online April 11, 2018.

outgrowth of this approach is the collection of data from a more clinically and racially diverse population that can be used to develop future clinical algorithms.

Conclusion

Improving health care equity is a policy imperative. The ABC and its members stand ready to assist you to the fullest extent of our resources and expertise. Questions and requests for additional information should be directed to ABC policy consultant Camille Bonta at cbonta@summithealthconsulting.com or (202) 320-3658.

Sincerely,

Elizabeth O. Ofili, MD, MPH, FACC
Chair, ABC Board of Directors
Professor of Medicine
Morehouse School of Medicine
Chief Medical Officer
Morehouse Choice Accountable Care Organizations

Jennifer L. Ellis, MD, MBA, FACS, FACC
Co-chair ABC Policy and Advisory Committee
Chief of Cardiothoracic Surgery Bellevue Hospital NYC H+H
Clinical Associate Professor, Department of Cardiothoracic Surgery
NYU Grossman School of Medicine

Paul L. Underwood MD, FACC, FSCAI
Co-chair, ABC Policy and Advocacy Committee
Medical Director, Interventional Cardiology/Structural Heart Boston Scientific Corporation

OluRotimi Badero, MD, FACP, FASN, FNKF, FASDIN, FASA, FASNC, FICA, FACC, FSCAI
Interventional CardioNephrologist & Peripheral Endovascular Specialist
Executive Director, Cardiac Renal & Vascular Associates
Jackson, MS

Khadijah Breathett, MD, MS, FACC, FAHA, FHFSA
Assistant Professor of Medicine
Division of Cardiology
Advanced Heart Failure & Transplant
The University of Arizona, Sarver Heart Center