American Heart Association
Virtual Town Hall

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"A Conversation about Racial and Ethnic Inequities: An Organized Medicine Approach"

The approach to achieving health equity lives at the nexus of science and social justice. The structural and systemic inequities that produce outcome disparities are broadly present across all societal sectors, the profession of medicine being no exception. The last several years have highlighted the importance of ensuring that fact-based objectivity align with public discourse. A deepening body of scientific literature makes clear the association of bias, discrimination, and racial injustice as historic contributors to disparities in clinical care delivery and deleterious health outcomes. The responsibility of organized medicine to provide evidence-informed truth and transformative guidance through its professional societies and their academic partners has never been greater.

In addition to the overwhelming moral imperative, we are also beginning to fully understand the underlying physiologic disruptions associated with experienced, perceived and/or internalized racism. In fact, basic science discovery has shown that the effects of historically mediated trauma may linger even in individuals who have seemingly escaped the more toxic environments to which their ancestors may have been exposed. While daunting to conceptualize, honest reconciliation about the potential epigenetic impacts and subsequent intergenerational transmission of the effects of longstanding structural racism can elucidate mitigation strategies and obviate the fallacy of race-assignment as a biologic construct. The pediatric community is particularly well positioned to emphasize the biology of adversity and highlight the importance of a life course and generational perspective on addressing the systemic inequities that disadvantage historically, and contemporarily, marginalized communities.

So, what is the task at hand? In organized medicine, we must immediately:

- Recognize racism in all its forms;
- Call it explicitly by name;
- Declaratively oppose it;
- And most importantly, exercise commitment and resolve to actively replace it.

Among the actions currently being undertaken by the both the American Academy of Pediatrics and the American Heart Association and their constituent stakeholders is the unwinding of clinical algorithms and practice guidelines that are race-based. Dismantling such tools, that have long been taught and

contribute to biased and unjust decision-making in the delivery of care, is but a first step on the profession's health equity and anti-racism journey.

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RACE/ETHNICITY AND NEIGHBORHOOD CHARACTERISTICS ARE ASSOCIATED WITH BYSTANDER CPR AND OUTCOMES IN PEDIATRIC OUT OF HOSPITAL CARDIAC ARREST

Synopsis of Presentation by Maryam Y. Naim, MD, MSCE

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There are approximately 7000 pediatric out of hospital cardiac arrests (OHCA) each year in the United States. The incidence of pediatric OHCA is approximately 8.3 per 100,000 person years in contrast to adult OHCA with an incidence of 52 per 100,000 person years. When stratified by age OHCA in infants is higher than adults at 75,000 person years. Survival following pediatric OHCA remains poor with only one in ten children surviving to hospital discharge. (Fink Resus 2016, Nichol JAMA 2008, Benjamin Circ 2018)

Bystander CPR is associated with increased survival in adult OHCA. Until recently there were conflicting reports on the effectiveness of bystander CPR in pediatric OHCA. In a study we performed using the Cardiac Arrest Registry to Enhance Survival (CARES) from 2013-2015 less than half of pediatric OHCA's received bystander CPR. In this study racial/ethnic disparities in bystander CPR and outcome in pediatric OHCA were described where White children were more likely to receive bystander CPR if they had an OHCA compared to Black and Hispanic children who were more likely to not receive bystander CPR. Conventional CPR with rescue breaths is the recommended modality for bystander CPR in children. White children were more likely to receive conventional CPR whereas Black and Hispanic children were more likely to receive compression only CPR. Neurologically favorable survival was less likely in Black compared to White children. (Atkins Circ 2009, Breckwoldt Resus 2009, Naim JAMA Peds 2017)

Why are there racial and ethnic disparities in pediatric OHCA? Especially since most bystander CPR providers are parents or caregivers of these children? Similar disparities exist in adult OHCA where Black adults receive less bystander CPR, are more likely to have unwitnessed arrests and arrests with a non-shockable rhythm. Social determinants of these disparities have been described where Black adults in higher income neighborhoods have similar outcomes White adults, however even in affluent neighborhoods there is less bystander CPR in OHCA in Black compared to White adults. (Naim JAMA Peds 2017, Becker NEJM 1993, Sasson NEJM 2012, Chu Annals Emer Med 1998)

To examine the association of race/ethnicity and bystander CPR in pediatric OHCA further we performed a study using 2013-2017 CARES data and obtained neighborhood socioeconomic characteristics matching OHCA zip code to census tract data. We constructed a neighborhood socioeconomic index that ranged from 0-4 with 1 point each for a neighborhood that was >80% black, >10% unemployment, <80% high school education and with a <$52,000 median household income. We found less bystander CPR in pediatric OHCA in neighborhoods that were predominantly Black neighborhoods with higher unemployment, lower education, and lower median household income. Black children in more affluent neighborhoods (score 0-3)

were less likely to receive bystander CPR compared to White children whereas in less affluent neighborhoods (score 4) there was no difference in bystander CPR provision between Black and White children. There was lower survival to hospital discharge and lower neurologically favorable survival in neighborhoods with a score of 4 compared to neighborhoods with a score of 0. Similar disparities have recently been reported in a study from the National Emergency Medical Systems database where Black and Hispanic children were less likely to receive bystander CPR and have return of spontaneous circulation compared to White children. Together these data highlight existing racial and ethnic disparities in pediatric OHCA and targeted CPR training for low income, non-white neighborhoods may increase bystander CPR provision and outcome following pediatric OHCA. (Naim JAHA 2019, Shekhar Circ 2022)

Synopsis of Presentation from Cody Gathers, MD

Racial and socioeconomic disparities in pediatric cardiac arrest have been well documented; addressing interventions to further mitigate these disparities remains paramount. The National Institute on Minority Health and Health Disparities developed a health disparities framework to apply when considering how factors influence health disparities and health outcomes. Within this health disparities framework, five domains of influence affect health outcomes (biological, behavioral, physical environment, sociocultural environment, and healthcare systems). These domains of influence work at four levels (individual, interpersonal, community, and societal) to ultimately impact health outcomes. As this health disparities framework is applied to health disparities in OHCA, the ultimate contribution of the five domains of influence at various levels can be applied to the American Heart Association (AHA) Chain of Survival. The AHA Chain of Survival has been shown to improve cardiac arrest outcomes; however, the links in the Chain of Survival may not be as strong for communities that are Black, Hispanic, or of low socioeconomic status. Given this, the medical community must integrate the health disparities framework to address disparities in pediatric cardiac arrest. Additionally, it must work to achieve health equity in pediatric cardiac arrest through robust research, advocacy, and policy implementation, in addition to exploring the impact of our implicit biases on the patient and family experience.

The research community must work to evaluate race and ethnicity as social constructs and consider the additional socioeconomic factors that are inherently tied to one's race. Additionally, the research community needs to eliminate race-based clinical practice guidelines and work to recruit diverse patient populations in clinical trials. The advocacy community must work to implement and evaluate community-based cardiac arrest programs, and these programs should allocate funding to the most vulnerable communities and reduce barriers to accomplishing CPR training goals. Health policy should work to establish high-quality resuscitation programs within the hospital, in addition to requiring CPR teaching and appropriate AED accessibility outside of the hospital. Importantly, the impact of implicit bias must be continuously explored at the individual level, and hospitals must always work to mitigate implicit bias within their clinical workforce. Overall, the medical community must integrate the influence of its behavior, environment, healthcare workers, and healthcare systems into the links in the Chain of Survival, and these links must be continually fortified through vigorous research, advocacy, and policy as it looks forward to mitigating health disparities in pediatric cardiac arrest.