Social Determinants of Health and Response to Disease Associated With Health Outcomes of American Indian and Alaska Native Patients

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Elsewhere in JAMA Network Open, Musshafen et al report that American Indian and Alaska Native patients, despite a lower Elixhauser Comorbidity Index risk score than Black and White patients, were significantly more likely to die in the hospital of COVID-19. The mortality rate was higher than that of Black and White patients at every level of comorbidity risk. It is very important that other possible contributing factors should be investigated and defined.

In addition to the higher prevalence of comorbidities, the severe health outcomes associated with COVID-19 among American Indian and Alaska Native individuals could be associated with social determinants of health. The high rate of poverty, lack of running water, lack of basic utilities, inadequate access to healthy food, and even lack of access to broadband for telehealth and virtual education became more challenging for this population during the COVID-19 pandemic. These disparities in health are perpetuated by increased risk factors, health behavior, and access to adequate health care.

Outcomes associated with health disparities and health inequity begin in pregnancy and childhood in the American Indian and Alaska Native population. The toxic stress endured by American Indian and Alaska Native children hinders childhood development. Without mitigation, the outcomes of this chronic stress and trauma become intergenerational. These outcomes are often manifested in violence, domestic violence, depression, anxiety, high rates of substance use disorders, and suicide. However, they are also manifested in higher rates of asthma and other chronic illnesses that continue to adulthood. The physiological effect of these disparities on the health of the American Indian and Alaska Native population warrants investigation and research. Mitigation of adverse childhood events and the impact on health is crucial.

The lack of access to healthy nutrition creates changes in the immune system and can provoke a prolonged state of inflammation. In addition, chronic stress alters the epigenetics of the American Indian and Alaska Native individuals, which can result in a dysfunctional immune response to infections. Furthermore, American Indian and Alaska Native individuals continue to face challenges in mounting sufficient immune response and contract infectious diseases that are not common in other ethnic or racial populations, such as pertussis, tuberculosis, and Streptococcus pyogenes infections. The response of the immune system in this population should be studied using a functional medicine approach. Looking for the root causes of the dysfunctional response to infectious disease can identify approaches to mitigation and regulation of several physiologic responses at the cellular level; this includes correction of the methylation pathways, augmenting crucial cofactors, and treating vitamin deficiencies. Environmental inequities such as access to clean water, exposure to uranium and heavy metals, and constant presence of particulates from heating and cooking methods as well as poorly ventilated and crowded homes and the subsequent effects on health outcomes necessitate mitigation.

Research regarding the impact of social determinants on the health of American Indian and Alaska Native individuals is critical. Such research should be performed in the context of the historical trauma and social climate of racism and racial discrimination to truly understand all the factors that contribute to health status in the American Indian and Alaska Native population, and researchers need to use a mixed-method approach to study the complex phenomena of health disparities. The underlying factors of colonization, systemic racism, oppression, and marginalization in addition to...
the aforementioned health disparities are associated with severe health outcomes. Mitigation of health inequity will be necessary to improve health in the American Indian and Alaska Native population.

Although Musshafen et al included members of only 1 tribe and a relatively small sample of American Indian and Alaska Native patients, their findings are important nevertheless. The study found that American Indian and Alaska Native patients with fewer comorbidity risk factors had a higher rate of in-hospital mortality due to COVID-19, which underscores the need for further research. The high administration rate of the COVID-19 vaccine among American Indian and Alaska Native individuals suggests that equitable access to treatment may lead to positive health outcomes in this population. There has been a decrease in mortality among American Indian and Alaska Native individuals owing to the accessibility of the COVID-19 vaccines as well as the availability of COVID-19 therapeutic treatments. American Indian and Alaska Native communities led the country in early vaccination and remain the most vaccinated of all racial and ethnic populations, likely because their cultural values of family and community and the support of trusted tribal leaders drove their willingness to get vaccinated. The exceptional effort by American Indian and Alaska Native vaccination teams and the responsiveness of their communitites resulted in a significant reduction of mortality in this population due to COVID-19.

The strength and resilience of American Indian and Alaska Native communities in the effort to become vaccinated is inspiring. During the COVID-19 pandemic, the provision of equitable access to vital health resources may mitigate health disparities with immediate positive health outcomes. However, a sustainable infrastructure is needed to moderate health disparities and social determinants of health. To improve health outcomes in the American Indian and Alaska Native population, there must be a multifactorial and comprehensive approach to address the impact of health inequity, the social determinants of health, and research to define the clinical and physiologic responses to disease in this population.

ARTICLE INFORMATION
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REFERENCES