kindness, and intelligence must be stirred together in a pot called leadership. So, I ponder—looking out the same window that he did for 12 years—when the days are long, the issues complex, the criticisms harsh—what would David Axelrod do? Oh, to have had the chance to hear his reply. AJPH

Howard Alan Zucker, MD, JD

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Obesity and Environmental Interventions in Tribal Nations

See also Blue Bird Jernigan, p. 132.

The United States is facing a public health crisis. More than 39% of adults and 18.5% of youths have obesity in the United States.[1] Among American Indian and Alaska Native (AIAN) adults, the obesity rate is higher—43.7%.[2] The obesity rate among AIAN youths is slightly lower at 15.9%.[2] AIAN populations are placed at higher risk for overweight, obesity, diabetes, and hypertension, but limited research has been done to explore the role of environmental factors that contribute to differential vulnerability. Environmental interventions are emerging as a primary intervention for addressing obesity, especially in rural and low-income environments. Despite their widespread use, retail interventions have never been rigorously evaluated, and there is no evidence to suggest that they are effective in addressing obesity.[3]

As the obesity epidemic climbs to crisis levels in the United States, and AIAN populations continue to experience higher prevalence of overweight, obesity, diabetes, and hypertension, researchers and communities are taking action. In this issue of *AJPH*, Blue Bird Jernigan et al. (p. 132) present results from the first-ever tribal retail intervention to address obesity. Tribal Healthy Retail Intervention (THRIVE) is a multicomponent intervention designed to improve tribal food environments at tribally owned retail convenience stores in the Chickasaw and Choctaw Nations. The goal of this study was to increase access to and consumption of healthy foods, using placement, promotion, and reduced pricing in tribal retail stores.

STRENGTHS AND WEAKNESSES

The strengths of the THRIVE study are numerous: the community-based participatory approach promotes community engagement in the research process; the cluster–controlled trial study design was scientifically rigorous and appropriate, it promoted increased access to healthy foods and increased communications around food policy, food access, and prices in the Chickasaw and Choctaw Nations.

The main weakness with THRIVE is that it did not increase consumption of healthy foods from before to after the intervention in either nation. A second problem is that it did not change perceptions about healthy foods. Third, although THRIVE reduced the costs of healthy foods and used culturally responsive marketing approaches, this did not have an impact on purchasing in either intervention or control groups. Finally, THRIVE did not address other environmental influences at the individual or community level regarding dietary intake.

A HOLISTIC APPROACH

Addressing obesity in tribal nations requires a holistic approach that encompasses multiple social determinants—it is apparent that the multicomponent intervention by Blue Bird Jernigan et al. integrated several social determinants of health into their study. However, a closer look at social determinants may provide insight for future environmental interventions that address obesity in tribal communities (Figure A, available as a supplement to the online version of this article at http://www.ajph.org).

Social Determinants and Obesity

Because the physical environment contributes to an estimated 10% of population health,[4] improving access to healthy foods at tribal convenience stores was consistent with a social-determinants-of-health approach. But this was not sufficient to increase consumption of healthy foods in intervention participants. At the same time, THRIVE addressed socioeconomic factors that may contribute to the lack of fruit and vegetable intake in tribal communities by reducing the price of healthy foods. This was important because socioeconomic factors may contribute up to 40% of a population's health.[4]

Perhaps the greatest lesson from THRIVE is the need to address health behaviors and health care. Combined, these determinants contribute to 50% of a population's health.[4] Although THRIVE encouraged shoppers to purchase healthy foods and used promotional signs and low-cost strategies, these were not sufficient to change the health behaviors (diets) of THRIVE participants. Increasing healthy food consumption requires interventions that target individual, family, community, and tribal norms related to healthy eating. Obesity interventions that increase

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access to quality health care and early intervention when combined with environmental interventions like THRIVE may result in more significant changes in healthy food consumption.

What Next?

Future efforts must address obesity holistically (Figure A). Multilevel interventions are needed to increase healthy food consumption and decrease obesity in AIAN populations. Continued policy efforts that focus on access to healthy foods, increased physical activity, and health behaviors in tribal nations are warranted. We will never know the precise remedy for obesity, but we can begin to work toward solutions by designing obesity interventions based on the multiple social determinants that contribute to our health. Interventions that address the individual, family, community, and tribal norms while improving the physical environment, socioeconomic conditions, health behaviors, and access to quality health care may be more effective in addressing obesity. AJPH

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I am grateful to the communities in which I have worked and the many teachers along the way—they have taught me what is needed to build healthy communities and nations.

CONFLICTS OF INTEREST

The author reports no conflicts of interest.

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Improving Public Health Systems for Substance-Affected Pregnancies

See also Admon et al., p. 148.

In 2017, more than 48 000 Americans died from an opioid-related overdose.[1] Although the United States has contended with opioid-related crises in the past, the current crisis is of unprecedented scope, and it shows no sign of subsiding. The current opioid epidemic has affected nearly every demographic group in the United States, including pregnant women and their infants. From 1999 to 2014, the number of pregnant women diagnosed with opioid use disorder grew more than fourfold,[2] and the number of infants diagnosed with neonatal opioid withdrawal grew nearly sevenfold.[3] The opioid crisis is exposing gaps in our public health system, and there is an urgent need for a comprehensive response that includes the needs of pregnant women and children.

In this issue of *AJPH*, the article by Admon et al. (p. 148) highlights the issues of opioid-affected births and the emerging threat of amphetamines. Opioid-affected births grew from 1.5 (95% confidence interval (CI) = 1.3, 1.8) to 6.5 (95% CI = 6.2, 6.9) per 1000 deliveries from 2004 to 2015. Similarly, amphetamine-affected births increased to 2.4 (95% CI = 2.2, 25) per 1000 delivery hospitalizations in 2014 to 2015 from their nadir in 2008 to 2009. Substance use in pregnancy is a complex public health problem. A broad public health approach to substance use in pregnancy is needed that includes reducing both licit (e.g., alcohol, tobacco) and illicit (e.g., heroin) substance exposures.

PUBLIC HEALTH APPROACHES

According to the 2017 National Survey of Drug Use and Health, 8.5% of US pregnant women had used an illicit substance, 13.8% had smoked cigarettes, and 11.5% had used alcohol while pregnant.[4] Admon et al. similarly found that women who used opioids and amphetamines commonly also used additional licit and illicit substances, especially tobacco, cannabis, and alcohol. Alcohol use in pregnancy is particularly problematic, as it can result in fetal alcohol spectrum disorders, which have lifelong implications for the child.

Public health approaches to substance use in pregnancy must also consider the life course, beginning well before pregnancy and extending beyond childhood. A 2009 publication by the Substance Abuse and Mental Services Health Administration (SAMHSA), titled "Substance-Exposed Infants: State Responses to the Problem," provides a framework for this approach. Before pregnancy, focusing on primary prevention and optimizing preconception health should be the priority. During pregnancy, ensuring that pregnant women have access to evidence-based substance use treatment is imperative as is addressing mental health and infectious comorbidities. As Admon et al. point out, some states have used punitive approaches, criminalizing substance use in pregnancy. Such policies, which were also employed in the crack cocaine epidemic of the early 1980s through the early 1990s, have not proven effective; they stigmatize pregnant women, creating an incentive to avoid needed care.[5]

We should focus on improving care for infants by keeping the infant and mother together, reducing variability in care, and

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