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SPOTLIGHT:  
**ASTHMA DISPARITIES  
AMONG INDIGENOUS  
AMERICANS**

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Asthma Disparities in America

# ASTHMA DISPARITIES AMONG INDIGENOUS AMERICAN POPULATIONS

The American Indian (AI) and Alaska Native (AN) people have long experienced health disparities when compared to other American people.<sup>1</sup> A disproportionate burden of disease leads to poorer quality of life and lower life expectancies.

Three major mechanisms by which systemic racism influences health equity<sup>2</sup>:

Discrimination (including implicit bias)

Segregation      Historical trauma

The causes of health disparities experienced by AI/AN people are complex. Factors such as lack of available health services or insurance coverage, long distances from health care services, language and communication barriers, lack of diversity in health care workforce, discrimination and racism, high rates of poverty and unhealthy housing conditions, and proximity to high levels of air pollution are just some of the factors contributing to health disparities in AI/AN communities.<sup>3</sup>

Asthma prevalence and risk factors differ between tribal nations given the varied cultures, traditions, lifestyles and environmental exposures that are experienced by AI/AN populations. Data on asthma conditions for AI/AN communities are limited. The Centers for Disease Control and Prevention's (CDC) National Health Interview Survey (NHIS) datasets do not consistently contain reliable asthma data for AI/AN groups (i.e. data with relative standard error below 30%).

According to an analysis of 2016–2018 data from the NHIS, 10.4% of AI/AN individuals have asthma compared to 8.0% of white individuals. The disparity is even greater in children (Table 1).

Table 1 . National Prevalence of Current Asthma

|              | TOTAL | CHILDREN | ADULTS |
|--------------|-------|----------|--------|
| <b>AI/AN</b> | 10.4% | 10.2%    | 10.5%  |
| <b>White</b> | 8.0%  | 6.8%     | 8.2%   |

Source: CDC, National Center for Health Statistics, National Health Interview Survey (2016–2018)

Prevalence estimates for AI/AN and white race do not include people of Hispanic ethnicity.



To better evaluate asthma disparities in these populations, we sought information from other sources such as the Indian Health Service (IHS), tribal health organizations and state health departments.

IHS reports that AI/AN people have a 10% higher risk of death from chronic lower respiratory diseases (including asthma).<sup>4</sup> IHS regional rates of asthma hospitalizations declined in all regions except Alaska from 2003–2005 to 2009–2011. The Navajo Nation is the most populous of all Indian Nations and reports the highest rates for asthma hospitalizations among the six IHS regions.<sup>5</sup> Potential risk factors for health disparities in Navajo children with asthma living on reservations include poverty, limited access to specialty care, and environmental challenges, which include high levels of indoor and outdoor air pollution.<sup>6</sup>

Information on potential asthma-relevant environmental determinants remains sparse, but indoor use of wood-burning stoves and tobacco smoke is suspected to be common. Exposure to air pollution (ambient, atmospheric, and indoor) is associated with the development of asthma in young children<sup>8</sup> and increased asthma exacerbations in all populations.<sup>9</sup> Toxic pollutants known to worsen asthma are present in wood smoke including particulate matter, carbon monoxide, nitrogen oxides, and volatile organic compounds. Air pollution from secondhand smoke is a leading risk factor of lung disease and increasing asthma severity.<sup>10</sup> Additional causes of poor air quality in tribal communities include mold, formaldehyde, forest and grass fires, particulates, airborne toxins, and radon.<sup>11</sup>

Comorbidities including high body mass index (obesity) are also linked to increased asthma prevalence in AI/AN populations. Obesity is a risk factor for the development of asthma, worsening asthma symptoms and poor asthma control.<sup>12</sup> The Child Health Measures project studied students in 4th through 12th grades in five reservation communities in Montana and Wyoming. The study found students who were overweight or obese were more likely to self-report current asthma.<sup>13</sup> The Office of Minority Health reports AI/AN adolescents are 30% more likely than non-Hispanic white adolescents to have obesity. AI/AN adults are 50% more likely to have obesity.<sup>14</sup>

*“The health impacts of air pollution on many American Indian/Alaska Native (AI/AN) communities is magnified by such factors as the inability to receive quality medical care due to issues like cultural barriers and geographic isolation, and spending more time in unhealthy air environments than their non-AI/AN counterparts.”*

– 2019 Status of Tribal Air Report

Washington state has 29 federally recognized American Indian tribes and has the seventh highest AI/AN population in the United States. In 2012, the Washington State Asthma Program (part of the Washington State Department of Health) conducted a study to assess and address asthma burden on the AI/AN populations living in the state of Washington. Table 2 summarizes the findings of the Asthma Among American Indians and Alaska Natives in Washington report.

**Table 2. Asthma Among American Indian and Alaska Natives in Washington**

The Washington AI/AN population has higher prevalence of other chronic conditions, risk factors, and worse outcomes. The ten-year combined asthma death rate of AI/AN is two times higher than the general population.

| AI/AN ADULTS   | AI/AN CHILDREN   |
|--|--|
| Higher asthma prevalence than general population in all income levels                                      | Only one in four have received a written asthma action plan from their provider  |
| Nearly twice as likely to experience asthma symptoms every day than other adults with asthma               | 30% of 12th graders reporting having lifetime asthma (general population reported 20%)   |
| Report more asthma episodes or attacks compared to general population                                      | High school youth with asthma were nearly four times as likely to report having a long-term disability or health problem than youth without asthma |
| Report waking up more during the night because of asthma related symptoms than other adults with asthma do | Twice as likely to smoke and about 1/3 of high school youth with asthma are exposed to secondhand smoke  |
| More likely to experience poor mental health and emotional issues including stress and depression          | Over 1/3 of high school youth with asthma are depressed and one in six has seriously thought about suicide   |

Source: Washington State Department of Health, *Asthma Among American Indians & Alaska Natives in Washington (2012)*

AI/AN: defined as people who are Non-Hispanic American Indians or Non-Hispanic Alaska Natives.

Centuries of racism and government-sponsored land redistribution have displaced AI/AN communities who continue to experience poverty, housing problems and instability at a higher rate than the average U.S. population.<sup>15</sup>

**Table 3. Poverty Status in the United States**

| <b>RACE/ETHNICITY</b>                      | <b>ESTIMATED PERCENT OF POPULATION BELOW POVERTY LEVEL</b> |
|--|--|
| White, non-Hispanic                        | 9.5%   |
| <b>Black</b>                               | <b>22.5%</b>   |
| <b>American Indian / Alaska Native</b>     | <b>23.7%</b>   |
| Asian                                      | 10.8%  |
| Native Hawaiian and Other Pacific Islander | 16.7%  |
| Two or More Races                          | 15.9%  |
| Hispanic or Latino (any race)              | 18.8%  |

*Source: U.S. Census Bureau, American Community Survey (2018)*

The Tribal Public and Environmental Health Think Tank, commissioned by the CDC and supported by the American Public Health Association, has focused on five social determinants which have affected tribal health:

1. Unsafe, inadequate housing
2. Barriers to educational achievement
3. Persistent generational poverty
4. Deeply rooted historical trauma
5. Societal and institutional racism and discrimination

The Think Tank is working to advance American Indian and Alaska Native health by addressing environmental factors and social determinants of health that are contributing to poorer health incomes experienced by the AI/AN communities.<sup>16</sup>



*Over multiple generations, American Indian communities have endured a succession of traumatic events that have enduring consequences for community members.<sup>18</sup>*



– Teresa Evans–Campbell

**Historical trauma is another form of structural racism that shapes the health outcomes of certain racial and ethnic groups, including American Indians and Alaska Natives.<sup>17</sup>**

To address asthma health specifically, tested solutions include:

- Providing in-home asthma care, visits, education and assessments<sup>19</sup>
- Using community health workers
- Training providers to offer culturally competent care
- Installing home interventions to reduce asthma triggers in the home (e.g. air quality monitors, chimney thermometers, green cleaning kits, allergy abatement products)<sup>20</sup>

In addition to addressing the structural inequities prioritized by the Tribal Public and Environmental Health Think Tank, the following strategies can improve health outcomes for AI/AN people with asthma:

- Improve data collection to monitor disparities experienced by AI/AN populations
- Expand funding of the CDC's National Asthma Control Program to support tribal health organizations with their efforts to improve asthma care
- Build asthma programs with tribal health leaders and AI/AN patient advisors
- Improved regulations and enforcement of Clean Air Act near tribal communities

## REFERENCES

- <sup>1</sup> Sarche, M., & Spicer, P. (2008). Poverty and health disparities for American Indian and Alaska Native children. *Annals of the New York Academy of Sciences*, 1136(1), 126–136. <https://doi.org/10.1196/annals.1425.017>
- <sup>2</sup> National Academies of Sciences, Engineering, and Medicine, Health and Medicine Division, Board on Population Health and Public Health Practice. (2017). The root causes of health inequity. In A. Baciu., Y. Negussie, A. Geller, & J.N. Weinstein (Eds.), *Communities in action: Pathways to health equity* (pp. 99–185). National Academies Press (US); <https://www.ncbi.nlm.nih.gov/books/NBK425845/>
- <sup>3</sup> Jones, D. S. (2006). The persistence of American Indian Health disparities. *American Journal of Public Health*, 96(12), 2122–2134. <https://doi.org/10.2105/ajph.2004.054262>
- <sup>4</sup> Indian Health Service (2019). *Indian health disparities*. U.S. Department of Health and Human Services. [https://www.ihs.gov/sites/newsroom/themes/responsive2017/display\\_objects/documents/factsheets/Disparities.pdf](https://www.ihs.gov/sites/newsroom/themes/responsive2017/display_objects/documents/factsheets/Disparities.pdf)
- <sup>5</sup> Mehal, J. M., Holman, R. C., Steiner, C. A., Bartholomew, M. L., & Singleton, R. J. (2014). Epidemiology of asthma hospitalizations among American Indian and Alaska Native people and the general United States population. *Chest*, 146(3), 624–632. <https://doi.org/10.1378/chest.14-0183>
- <sup>6</sup> Lowe, A. A., Bender, B., Liu, A. H., Solomon, T., Kobernick, A., Morgan, W., & Gerald, L. B. (2018). Environmental concerns for children with asthma on the Navajo Nation. *Annals of the American Thoracic Society*, 15(6), 745–753. <https://doi.org/10.1513/AnnalsATS.201708-674PS>
- <sup>7</sup> National Tribal Air Association. (2019). *Status of Tribal air report*. U.S. Environmental Protection Agency, Office of Air & Radiation. <https://www.ntatribalair.org/wp-content/uploads/2019/12/2019-NTAA-Status-of-Tribal-Air-Report.pdf>
- <sup>8</sup> U.S. Environmental Protection Agency. (2018, October 22). *The links between air pollution and childhood asthma*. <https://www.epa.gov/sciencematters/links-between-air-pollution-and-childhood-asthma>
- <sup>9</sup> U.S. Environmental Protection Agency. (2014, August 18). *Asthma Triggers: Gain Control*. US EPA. <https://www.epa.gov/asthma/asthma-triggers-gain-control>
- <sup>10</sup> Office on Smoking and Health. (2006). *The health consequences of involuntary exposure to tobacco smoke: A report of the Surgeon General*. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. <https://www.ncbi.nlm.nih.gov/books/NBK44324/>
- <sup>11</sup> Tribal Public and Environmental Health Think Tank. (2018). *Priorities in Tribal public health*. *American Public Health Association*. [https://www.apha.org/-/media/files/pdf/topics/environment/partners/tpeh/priorities\\_tribal\\_health\\_2018.ashx?la=en&hash=C06951A62A5E215BE6C99442A9E1E9DDD060B7C6](https://www.apha.org/-/media/files/pdf/topics/environment/partners/tpeh/priorities_tribal_health_2018.ashx?la=en&hash=C06951A62A5E215BE6C99442A9E1E9DDD060B7C6)
- <sup>12</sup> Centers for Disease Control and Prevention. (2013) *Asthma and obesity*. U.S. Department of Health and Human Services. [https://www.cdc.gov/asthma/asthma\\_stats/asthma\\_obesity.htm](https://www.cdc.gov/asthma/asthma_stats/asthma_obesity.htm)
- <sup>13</sup> Noonan, C. W., Brown, B. D., Bentley, B., Conway, K., Corcoran, M., FourStar, K., Freide, P., Hemlock, B., Wagner, S., & Wilson, T. (2010). Variability in childhood asthma and body mass index across Northern Plains American Indian communities. *Journal of Asthma*, 47(5), 496–500. <https://doi.org/10.3109/02770901003759436>
- <sup>14</sup> Office of Minority Health. (2020). *Obesity and American Indians/Alaska Natives*. U.S. Department of Health and Human Services. <https://minorityhealth.hhs.gov/omh/browse.aspx?vl=4&lvlid=40>
- <sup>15</sup> Solomon, D., Maxwell, C., & Castro, A. (2019, August 7). *Systemic inequality: Displacement, exclusion, and segregation*. Center for American Progress. <https://www.americanprogress.org/issues/race/reports/2019/08/07/472617/systemic-inequality-displacement-exclusion-segregation/>

<sup>16</sup> Tribal Public and Environmental Health Think Tank. (2018). *Priorities in Tribal public and environmental health fact sheet*. American Public Health Association. [https://apha.org/-/media/files/pdf/topics/environment/partners/tpeh/priorities\\_handout.ashx?la=en&hash=8F50383B89686D68D738BC097DC2B11FDFF85592](https://apha.org/-/media/files/pdf/topics/environment/partners/tpeh/priorities_handout.ashx?la=en&hash=8F50383B89686D68D738BC097DC2B11FDFF85592)

<sup>17</sup> Walters, K. L., Mohammed, S. A., Evans-Campbell, T., Beltrán, R. E., Chae, D. H., & Duran, B. (2011). Bodies don't just tell stories, they tell histories. *Du Bois Review: Social Science Research on Race*, 8(1), 179–189. <https://doi.org/10.1017/s1742058x1100018x>

<sup>18</sup> Evans-Campbell, T. (2008). Historical trauma in American Indian/Native Alaska communities: A multilevel framework for exploring impacts on individuals, families, and communities. *Journal of Interpersonal Violence*, 23(3), 316–338. <https://doi.org/10.1177/0886260507312290>.

<sup>19</sup> Asthma Community Network. (2019, July 23). *Opportunities for in-home asthma care in Native communities: A Northwest initiative and Tribal pilot project* [Webinar]. U.S. Environmental Protection Agency. [https://www.asthmacommunitynetwork.org/system/files/webinar/pdf/ACN%20Webinar%20R10%20Tribal%20Asthma\\_FINAL.pdf](https://www.asthmacommunitynetwork.org/system/files/webinar/pdf/ACN%20Webinar%20R10%20Tribal%20Asthma_FINAL.pdf)

<sup>20</sup> Nelson, M.A. (2018, July 21). *Asthma in Tribal communities: Indoor air quality in Tribal communities* [Presentation]. Northern Arizona University, Institute for Tribal Environmental Professionals. <https://www.asthmaeducators.org/resources/Documents/2-ITEP%20Asthma.pdf>

This spotlight is part of the  
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