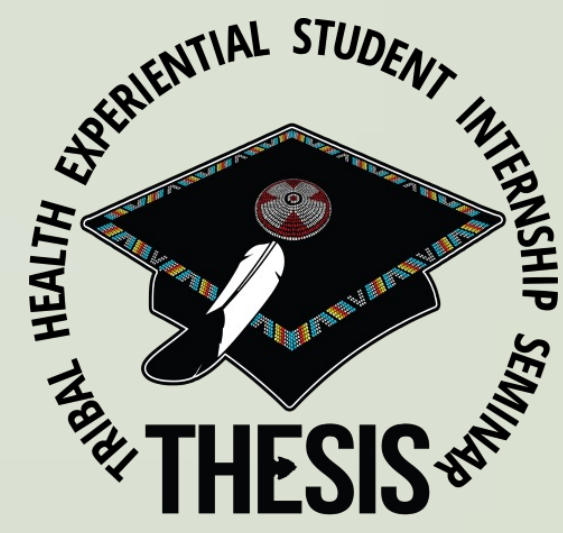


Examining the connection between respiratory health in American Indian communities and environment influences.



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Abstract

Respiratory health in American Indian communities is based on environmental factors, behavior, and risk factors regarding overall health. American Indian and Alaska Native communities are disadvantaged with health disparities that increase their risk to develop chronic heart disease, diabetes, and chronic respiratory disease. Through a comprehensive literature review that evaluated American Indian/Alaska Native respiratory health with a focus on environmental injustice, air quality, prevalence asthma in youth, was used to determine how health was reflected in the environment.

There was little data about the extent of air quality influence on respiratory health specific to AI/AN. National estimates that prevalence of asthma in AI/AN youth is 13.0% Data was difficult to find about asthma prevalence specific to AI/AN populations. The lack of surveillance of air quality data on reservations puts tribal communities at risk for exposure to unsafe air quality.

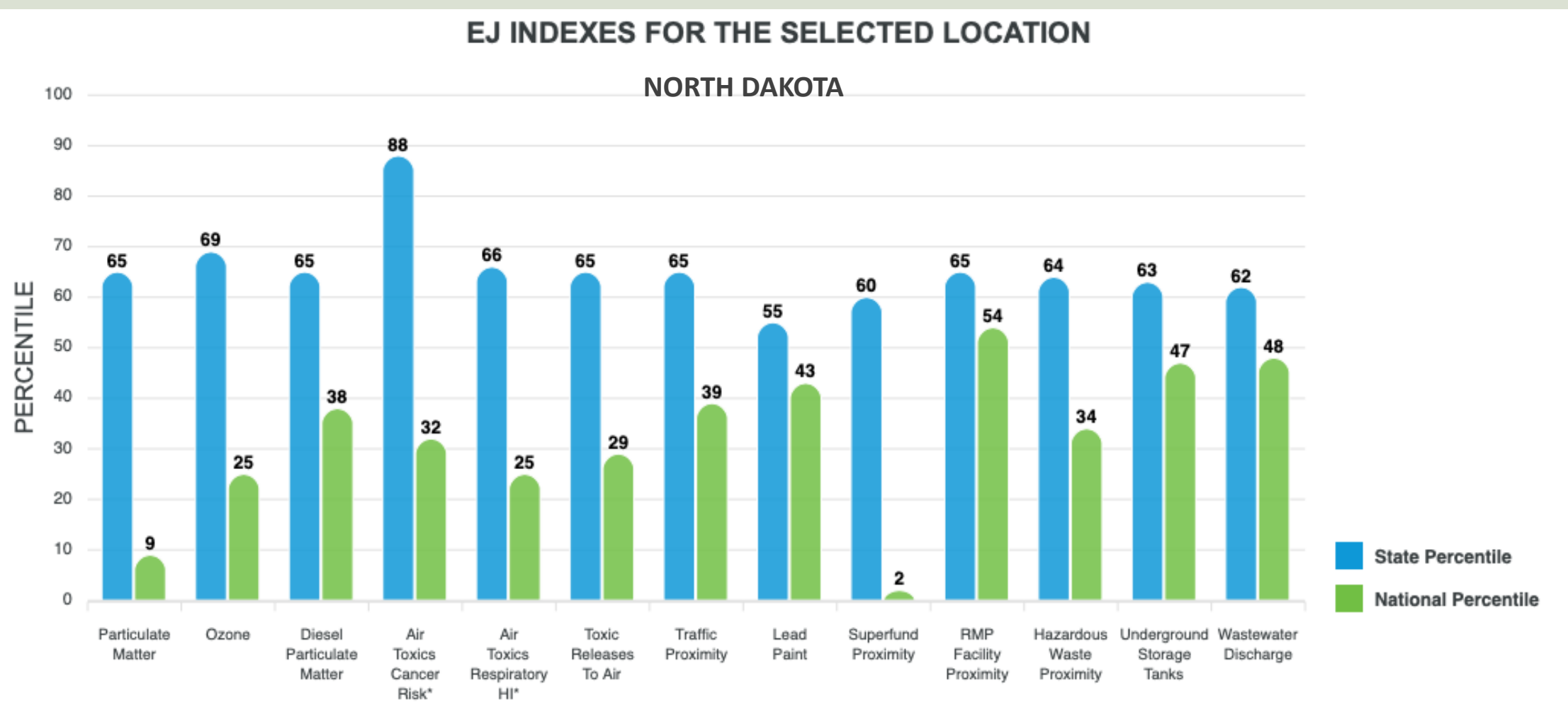
Environmental justice studies suggest causal relationships but call for further study of prevalence of poor respiratory conditions due to environmental factors specific to their respective geographical locations (Fort Berthold Indian Reservation and Navajo Nation). This study aims to demonstrate the need to allocate resources towards further research in AI/AN asthma prevalence as well as equipping tribal nations with the means to monitor air quality to inform their respective communities as a method to protect their populations' health.

Community Impacts – Tribal Health

Air quality immediately impacts overall health and the analysis of public data shows that AI/AN communities face disproportionate health impacts from oil and gas development.

From the Clean Air Task Force, the likelihood of living within 0.5 mile of an oil and gas facility compared to surrounding states is 2x for the residents of the Fort Berthold Indian reservation and 42x for the Uintah-Ouray (Northern Ute) tribe.

- Damages were more likely to be distributed across communities with lower levels of employment and high population of people of color.
- 1% increase in upwind natural gas flaring caused a 0.74% increase in a downwind respiratory related hospital visitation rate. (Blundell 2022).
- Mining and dust activity had increased respiratory health burdens.
- Exposure to metals (e.g., chromium, uranium) are associated with wheezing symptoms.
- Dust storms have also become more prevalent with the increase in drought and wildfires.

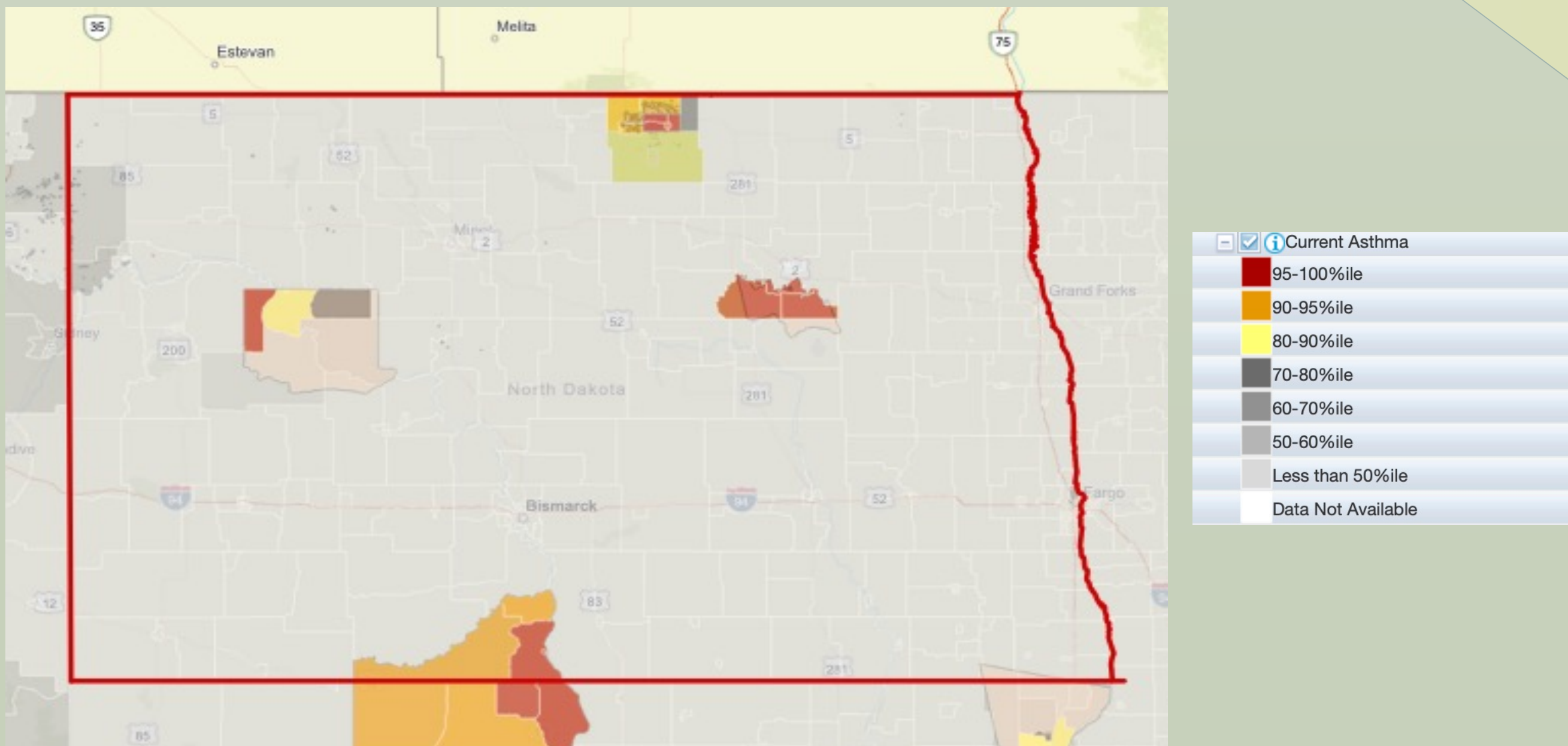


EPA EJScreen:
Environmental
Justice Screening
and Mapping Tool

As many tribes turn the corner to put emphasis on returning to traditional diets, cultural practices and traditions, customs, and language, there is an important need to continue to maintain and value natural resources. AI/AN communities are unique in that health disparities may put the population at higher susceptibilities for immediate exposure to air pollution, cumulative risks from the immediate impacts of climate change and the readiness of tribes to respond.

Health Equity

- The North Dakota Blundell Study found that people of color, people with lower levels of employment, who resided near areas with natural resource development were more likely to shoulder the burden of poor respiratory outcomes.
- In New Mexico, increased dust in the air is a problem for the Navajo Nation along with the wildfires in the state that occur nearly every summer (Lowe 2018).
- “Very little is known about the prevalence among children in American Indian/Alaska Natives.” (Brim 2008)
- The current asthma prevalence for AI/AN children is estimated at 13.0%. (Brim 2008).
- In certain populations, race correlates to increased asthma risk factors.



ASTHMA PREVALENCE AND TRIBAL LANDS – NORTH DAKOTA

Discussion

Forms of air pollution (PM-particulate matter), oil and gas flaring, dry climate, wildfire smoke, and behavioral influences put AI/AN populations at further risk for youth asthma prevalence and for poor respiratory health.

- Limitation: difficulty in finding specific data to AI/AN communities. AI/AN was listed as ‘Other’ for race/ethnicity, or for ‘insufficient data.’
- Unavailability of data suggests that there is a gap in data collection and may represent a larger gap in prevalence data.
- Correlates to the surveillance of air quality data on reservations
- Lack ‘local’ of air quality monitors puts tribal communities' health at risk.

The Institute for Tribal Environmental Professionals (ITEP) has established trainings for tribes to equip themselves with adequate resources to monitor their air quality.

- Useful to tribes to develop resources and communication channels for tribal members to be more educated about the health implications of poor air quality.



ITEP Tribal Air Quality

Conclusions

The disparities in AI/AN respiratory health are reflected in the lack of data in asthma prevalence and air quality monitoring.

- Need for improved air quality monitoring reflects tribes being able to monitor their own air quality.
- The land, air, and water are essential in Indigenous values and culture.
- Respect, honor, and cherish the earth
- The disproportionate impacts of natural resources development may determine the need for further research.

The findings of this study presents data and a lack of data that points towards the need for increased distribution of funding and allocation of resources.

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