Proposal to Research Asbestosis In Northeastern Mining Communities

Date: November 10, 2024
To: University of Minnesota
From: Blythe Williams, University of Minnesota

Introduction

Asbestosis is an incurable lung disease caused by inhaling small fibers of asbestos or asbestiform rock. The mineral fibers settle in the lungs, leading to an inflammatory response that severely damages the lung's connective tissue (Harbut, 2009., Bhandari, 2022). Asbestosis frequently leads to mesothelioma, a cancer known for killing parents within one to four years of diagnosis.

The United States regulates asbestos mining to minimize the chance of asbestosis; however, it does not regulate non-asbestos mining operations, which frequently mine close to naturally occurring asbestiform deposits. As a result, mine workers and nearby water sources are exposed to asbestos dust (Lee, 2008., Minnesota Department of Health, 2022). Considering the offending mining operations are located in the counties with some of the country's highest asbestosis death rates (see Figure 1.), it is important to examine asbestos regulations to understand where they have failed.

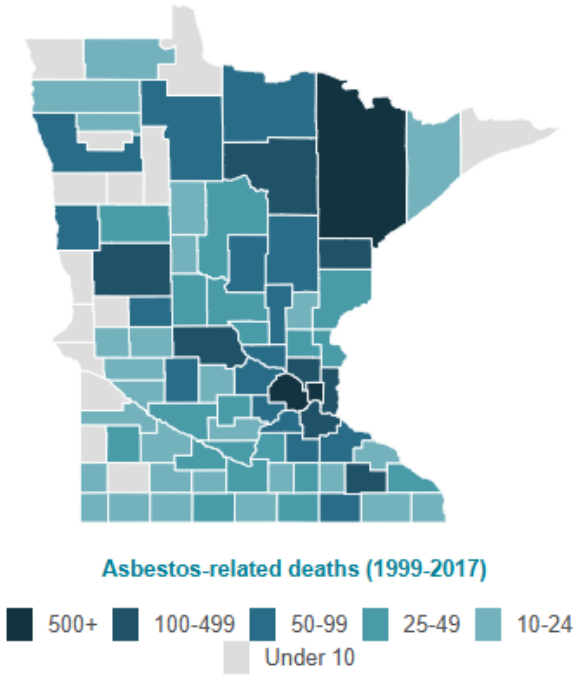

Figure 1. County breakdown of asbestos-related illness (Asbestos Nation, 2024)

I am proposing a research project to investigate asbestos-related policy decisions and determine the significance of their impact on asbestosis rates among commercial miners in Minnesota. The research project will help policymakers reevaluate the effectiveness of asbestos regulation in protecting miners' safety. The reevaluation could save the lives of northeastern miners and the members of the general public who drink from asbestiform-contaminated water (Lee, 2008) or have daily contact with miners (Harbut, 2009). Furthermore, reevaluating asbestos regulation could help relieve state governments of the financial burden of legal actions against Minnesota due to ineffective regulation and disability costs for long-term asbestosis care. (Pearce, 2024)

Current Situation

Across the United States, rates of asbestosis-related deaths have risen 20.2% between 1990 and 2019 (Brunner, 2008). Minnesota has not been helping these metrics. In 1997, Minnesota scored 81% higher than the national average for asbestos-related deaths (Brunner, 2008). By 2009, Minnesota ranked eleventh in the country for mesothelioma and asbestos rates, primarily due to two counties with predominant commercial mining operations in the northeast (Minnesota Department of Health, 2022).

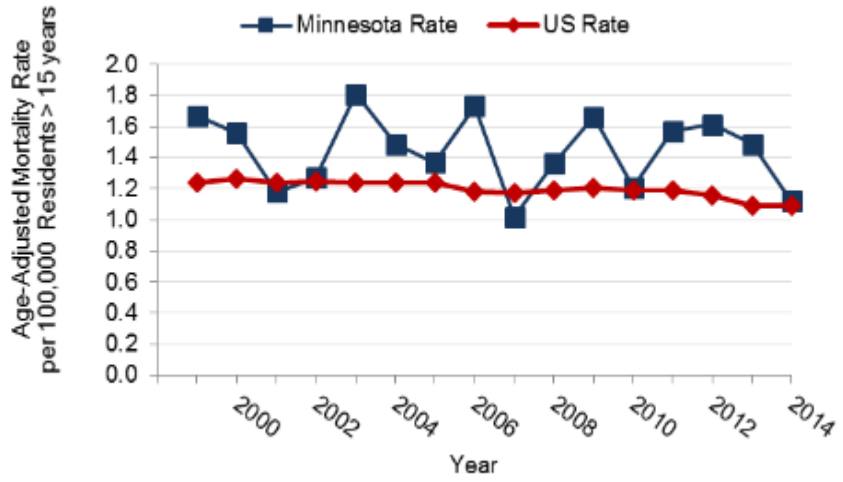

Figure 2. The rate of deaths per year from mesothelioma in Minnesota compared to the United States average from 2000 to 2014. (Minnesota Health Department, 2022)

The impact of asbestiform deposits on public health is extremely difficult to study and expensive to undertake. As a result, there are ongoing policy disputes concerning the necessity of regulating naturally occurring asbestiform deposits versus the danger to public health. (Lee, 2008) Furthermore, most people who contract asbestos-related diseases are diagnosed 20 years after infection. (Bhandari, 2022) As a result, policymakers have only recently seen the effects of the asbestiform regulations made into law from 2003 to 2014.

Project Plan

My research will include a literature review of academic writings on asbestos in mining communities from electronic sources. I will also analyze Minnesota and federal policies and programs relating to asbestos. If given the opportunity, I would like to interview a researcher in the Minnesota Taconite Workers Health Study performed by the University of Minnesota.

1. **Empirical Research:** My empirical research will be based on the 2008 landmark study conducted by researchers at the University of Minnesota on mesothelioma rates in taconite miners. I will attempt to contact and interview Bruce Alexander, a professor at the University of Minnesota School of Public Health and researcher in the Minnesota

Taconite Miners Study, on the outcomes and impact of asbestosis in northeastern Minnesota. If I cannot interview Professor Alexander, I will use the Minnesota Public Radio (MPR) interview with Bob Skiba. Bob Skiba is a zinc miner who campaigned for awareness of asbestosis for miners in northeastern Minnesota. (Hemphill, 2007).

2. **Policy Research:** My policy research will be based on asbestos regulation from 1980 to 2009 cross-referenced with current asbestosis rates. I cannot use newer regulations because asbestosis has a 10 to 20-year latency period, and delayed disease onset means policy effects on asbestosis from 2014 onwards will only start appearing now. However, I intend to analyze the potential effectiveness of modern regulation based on the discovered trends.
3. **Academic Research:** My academic research will be based on a literature review of asbestosis and mesothelioma studies published between 1972 and 2020. The literature review will provide readers with adequate background to understand asbestos and the research behind policy decisions.

Intended Project Timeline

Table 1. A calendar for units 3 and 4 provides cells for final and interim due dates plus space to indicate when you plan to perform required tasks.

Activity	**Completion date**
Project Proposal	November 17th, 2024
Academic research	November 18th, 2024
Policy research	November 20th, 2024
Empirical research	[TBD]
Report Draft	November 23rd, 2024
Report Revision	November 25th, 2024
Final Report	November 27th, 2024

Conclusion

Through my research project, I want to investigate Minnesota's policy decisions regarding asbestos through policy and empirical research from 1980 to 2009, relate them to current asbestosis rates, and analyze how they have changed. My project will help Minnesota's northwestern communities get the necessary regulations to prevent more asbestosis deaths.

Predicted Project Benefits

My research will examine the effectiveness of asbestos regulation and its impact on mining communities. My proposal will aid future policy decisions by signaling what works and what does not. I want my proposal to positively impact Minnesota's northwestern communities, as asbestosis rates are often overlooked amid larger public health issues.

Appendix

Annotated Appendix

Brunner, M. W., Williams, A, N., Bender, A, P., (2008). Investigation of exposures to commercial asbestos in northeastern Minnesota iron miners who developed mesothelioma. *Regulatory Toxicology and Pharmacology,* 52(1), pp. 116-120. https://doi.org/10.1016/j.yrtph.2007.09.014
Investigation of exposures to commercial asbestos in northeastern Minnesota iron miners who developed mesothelioma is a peer-reviewed journal article based on the University of Minnesota taconite study and investigation by the Minnesota Department of Health about the rates of asbestosis and mesothelioma in northwestern Minnesota due to iron mining. The article notes the exceptionally high rate of asbestosis and mesothelioma in northeastern Minnesota and correlates it to asbestiform deposits in the area. *Investigation of exposures to commercial asbestos in northeastern Minnesota iron miners who developed mesothelioma* gives insight into the severity of the asbestosis crisis at the time asbestos regulation was being implemented.

Lee, R, J., Strohmeier, R, B., Bunker K, L., Orden Van, D, R., (2007). Naturally occurring asbestos—A recurring public policy challenge. *Journal Of Hazardous Materials.* 153(2), pp. 1-21. https://doi.org/10.1016/j.jhazmat.2007.11.079
Naturally occurring asbestos—A recurring public policy challenge is a peer-reviewed literature review of policy, landmark studies, and expert discourse surrounding asbestiform deposits in the United States. The study shows the potential hazards of asbestiform deposits alongside worries about the inherent difficulty of creating risk assessments for such a common material. Furthermore, the article notes policymakers' concerns about an overreaction from the public. *Naturally occurring asbestos—A recurring public policy challenge* is a useful article for studying the reactions to asbestiform deposits and some roadblocks policymakers faced when creating policy to regulate asbestos in mining.

Pearce, K. (2024, September 12). *What are the economic costs associated with the impact of asbestos on human health?* Supernova Asbestos Surveys. https://asbestos-surveys.org.uk/asbestos/the-impact-of-asbestos-on-human-heath/what-are-the-economic-costs-associated-with-the-impact-of-asbestos-on-human-health/
What are the economic costs associated with the impact of asbestos on human health? Is an online article from an asbestos survey company about the economic impacts of asbestos on workers, the government, and companies. *What are the economic costs associated with the impact of asbestos on human health?* focuses on legal and health costs associated with asbestos and provides insight into how organizations are affected by asbestos-related diseases.

Non-Annotated Appendix

Asbestos Nation. (2024). *Asbestos-Related Deaths in Minnesota.* EWG Action Fund. https://www.asbestosnation.org/facts/asbestos-deaths/mn/

Harbut, M. R., Endress, C., Graff, J. J., Weis, C., & Pass, H. (2009). Clinical presentation of asbestosis with intractable pleural pain in the adult child of a taconite miner and radiographic demonstration of the probable pathology causing the pain. *International journal of occupational and environmental health,* 15(3), 269–273. https://doi.org/10.1179/oeh.2009.15.3.269

Hemphill, S. (June 21, 2007). *Miners angered by Health Department delay.* Minnesota Public Radio News. https://www.mprnews.org/story/2007/06/21/angryminers

Li, X., Su, X., Wei, L., Zhang, J., Shi, D., & Wang, Z. (2024). Assessing trends and burden of occupational exposure to asbestos in the United States: a comprehensive analysis from 1990 to 2019. BMC Public Health, 24(1), 1404. https://doi.org/10.1186/s12889-024-18919-7

Minnesota Department of Health. (2022). *Incidence of Malignant Mesothelioma.* Minnesota Department of Health. https://www.health.state.mn.us/communities/occhealth/data/mesothelioma.html