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Comment from Dangol, Babita

## Submitter Information

**Name:** Babita Dangol
**Address:**
GRAND PRAIRIE, TX, 75050
**Email:** babitadangol94@gmail.com
**Phone:** 5806659168

## General Comment

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**Respirable Coal Mine Dust Rule**

MSHA published a final rule on May 1, 2014, which strives to “Lowering Miners' Exposure to Respirable Coal Mine Dust, Including Continuous Personal Dust Monitors (CPDM) (79 FR 24814)”, this rule is also known as the Dust Rule (Regulations.gov, n.d.). The RFI was initially published on July 9, 2018, MSHA extended the comment period from July 9, 2019, to July 9, 2022, to ensure that MSHA receives expertise from stakeholders on the framework that is currently assessing the impact of the Dust Rule. MSHA is seeking expert knowledge with “information and data on engineering controls and best practices that lower miners' exposure to respirable coal mine dust” (Regulations.gov, n.d.). MSHA also seeks “additional information and data on engineering controls that enable safe practices and lowers miners’ exposure to respirable coal mine dust” (United States Department of Labor, n.d.).

During the introduction of the Dust Rule, MSHA declared that it would conduct a retrospective study commencing February 1, 2017 (79 FR 24867) but did not mention a completion date because there is a high latency period between exposure to the coal mine dust and diseases being clinically apparent (Apostle et al., 2011; Regulations.gov, n.d.). MSHA has examined over “250,000 respirable dust samples taken by mine operators” using the CPDM and MSHA inspectors using the gravimetric sampler since the Dust Rule went into effect (Regulations.gov, n.d.). According to MSHA's study, over 99 percent of the samples met MSHA's respirable coal mine dust requirements, therefore, MSHA can use the sample data to assess the “effectiveness of mine dust controls” and if the rule results in lower levels of respirable coal dust. However, there is a limitation to the study, due to the higher latency period, it might take MSHA more than a decade or two to evaluate the complete health effects of the Dust Rule.

**Public Health Impact**

Research has shown that working in underground mines and exposure to respirable coal mine dust causes respiratory illnesses and lung diseases leading to “permanent disability and death” (Apostle et al., 2011). Exposure to airborne respirable dust puts miners at a higher risk of acquiring pneumoconiosis, a type of lung disease, this sort of dust has extremely small particles that can be inhaled into the lungs (Centers for Disease Control and Prevention [CDC], 2021). Workers who are exposed daily to coal and silica dust lead to “silicosis, pneumoconiosis (black lung disease), and interstitial and obstructive pulmonary disease” (Apostle et al., 2011). Coal workers' pneumoconiosis (CWP) and silicosis are the two most common pneumoconiosis that plague miners, the National Institute of Occupational Safety and Health (NIOSH) conducted research and found that 6,279 coal miners died of pneumoconiosis between 1996 and 2004, compared to 230 fatalities due to mining accidents (Apostle et al., 2011; CDC, 2021). Studies have also shown that miners are also at a higher risk of developing lung cancer as chronic effects progress due to the exposure to coal mine dust, moreover, when miners are exposed to diesel engine exhaust for five years or longer, their risk increases (CDC, 2021).

In the early 1970s, 33 percent of miners who spent 25 years or more in the mining sites had CWP, by the late 1990s, the incidence had declined to fewer than 5% (CDC, 2021). However, since then, the prevalence of CWP has risen to moreover 10% among the longest-

serving miners as shown in Appendix A (Hall et al., 2019). While trying to understand the cause of the peak after the 2000s, it was discovered that NIOSF had administered the “Coal Workers’ Health Surveillance Program (CWHSP) from January 1980 to September 2018 (Hall et al., 2019). The program collected demographic information, occupational history of the mineworkers, and chest radiography data for each miner which provided additional data on the miners’ exposure to coal dust and silica (Hall et al., 2019). A “lung pathology research” has shown how silica has been found to progress cases of CWP significantly, therefore, this skewed the cases compared to previous years in Appendix A (Hall et al., 2019). CWP was the underlying or contributing cause of mortality for 4,118 miners between 2007 and 2016, 75,178 miners between 1970 and 2016, and nearly $47.168 billion in federal benefits have been provided to miners and their families from 1971 to 2019 (CDC, 2021).

**Health Inequity & Health Justice**

While there has not been much research done on the effects of mining focusing on health equity and health justice, there is evidence that suggests that certain regions of the United States are significantly affected by coal mining. With over 154 tons of coal produced annually, West Virginia is the second-largest coal producer in the United States. Furthermore, West Virginia accounts for half of all coal exports from the United States, and coal mining has the highest concentration of jobs in the Appalachian region (Apostle et al., 2011). The Appalachian underground coal mining business employed more than 50,000 people in 2009, and more than 60,000 families in West Virginia rely on coal mining for their livelihood (Apostle et al., 2011). West Virginia is mostly comprised of “White (93.08%), followed by Black or African American (3.69%), two or more races (1.77%), and Asian (0.80%)” (World Population Review, n.d.). According to the CWHSP program, most miners were “men (97.3%) and white (96.2%), and 46.2 percent (almost half of the mineworkers) worked in central Appalachia” at the time the radiograph was taken, and the median age was 37 (Hall et al., 2019). According to the United States Geological Survey (USGS), West Virginia has 176 recorded mines, in addition to the huge number of coal miners, residents living near coal mines are also experiencing negative health effects, “fewer days of good physical and mental health” have been reported by residents in Appalachian coal mining communities (Apostle et al., 2011; Diggings, n.d.).

When Healthy People 2020 goals were declared, it stated that the overall goal is to “eliminate health disparities in the United States” but had a specific objective that focused on reducing health disparities amongst coal mine workers (Apostle et al., 2011, p. 312). Healthy People 2020 objectives were to reduce the “incidences of pneumoconiosis deaths, lung cancer, chronic kidney disease, heart disease, deaths from work-related injuries, and toxic emissions” (Apostle et al., 2011, p. 312). Healthy People focused on reducing the incidences of work-related injuries keeping in mind the events that had happened in the past years.

**Legal Evidence**

On January 31, 2000, Joseph Olson and Javier Vargas were injured while working at the Mission Mine in Arizona. If we were to visit the case of *United States v. Olson,* Olson in his lawsuit, claimed that the federal agency in charge of his safety, the Federal Mine Safety and Health Administration, was irresponsible in inspecting the mine and was to blame for his injuries

(Legal Information Institute, n.d.). In its defense, the federal government claimed that under the Federal Tort Claims Act, it can only be held accountable under state law in the same way that a private person, not a government entity, can (Legal Information Institute, n.d.). This case presents us with ample evidence that because individuals do not have the legal authority to sue these entities, protective measures must be implemented to ensure worker safety.

**Mining Regulations**

The Occupational Safety and Health Act established Occupational Safety and Health Administration (OSHA) and NIOSH in the 1970s, NIOSH became part of the CDC and focused on research and education in occupational safety and health (Apostle et al., 2011). These organizations were forward-thinking in their efforts to improve occupational health and safety, but their activities were not limited to underground coal mining, they focused on a wide range of industries. The Federal Mine Safety and Health Act of 1977 were passed around this period, therefore this Act gave NIOSH particular power over coal mining research, allowing them to collect data and give significant research findings on the industry (Apostle et al., 2011). The Act also established a new agency MSHA, which, unlike OSHA or NIOSH, was dedicated solely to mining. MSHA's main responsibilities include creating safety standards, establishing grants, and developing educational programs, it also coordinates with states on safety regulations, inspects mines and mining equipment, and imposes penalties on mines that do not comply with standards (Apostle et al., 2011).

**Policy Recommendations/Alternatives**

Although the Dust Rule has had a substantial impact on reducing coal dust exposure, there are few other policy recommendations that MSHA could incorporate and implement, such as 1) incorporating mobile health clinics at coal mines, 2) enacting legislation that requires occupational health nurses to be on-site for providing immediate care, and 3) including a requirement for coal mining companies to conduct a survey to obtain (baseline) data on the health services that the employees receive through the mobile health clinic (Apostle at al., 2011; Prall & Ross, 2019). Evidence from literature revealed that “ergonomic training, workplace safety, and education, on-site physical therapy treatments” such as exercise and manual therapy and return to work programs are beneficial for employees and employers by reducing injuries, increasing productivity, lowering absenteeism, and allowing injured workers to return to work sooner (Prall & Ross, 2019). Therefore, a similar approach could be implemented by MSHA to incorporate mobile health clinics and occupational health nurses in the mining industries. Occupational health nurses can help in identifying health care needs and cluster health patterns and develop preventive health care plans to protect workers' health (Apostle et al., 2011). Baseline data collection on the response from employees’ experience with the health care services will help the facilities to improve the services that they provide. Instead, of focusing solely on safety, legislation should now focus on incorporating health programs into federal standards.

**Opposing Arguments**

Historically, there has been a huge emphasis on safety and protection acts only. If we were to look back a few years, in 2010, two bills were introduced: 1) Miner Safety Health Act

and 2) Robert C. Byrd Mine Safety Protection Act, the purpose of these bills was to “enhance whistleblower protection and victims’ right” (Apostle et al., 2011). Both bills were not passed by Congress because the parties were unable to come to a conclusive decision, moreover, large coal mining corporations who did not want the bills to pass were providing “monetary contributions” to the political parties (Apostle et al., 2011). If we were to introduce the above-mentioned policy recommendations, the emphasis shifts away from "safety acts" and moves toward incorporating health measures into federal laws, therefore, opposing arguments are certain to occur. As a public health professional, the opposing arguments from coal mining industries regarding the health initiatives will be responded to by providing evidence of how CPDM monitors are an expensive option as compared to providing immediate health care services to the workers.

According to the findings, the average operating costs for a mobile clinic range from $300,000 to $2.5 million, depending on the services provided (Dorcoo et al., 2020). “The cost per patient visit for all mobile clinic service types ranged from $65 to $529”, which appears to be significantly lower than those reported in the literature for fixed clinic services (Dorcoo et al., 2020, para. 3). In the United States (US), there are approximately 1500 to 2000 mobile clinics that serve over 5 million people. When compared to emergency hospital visits, economic studies suggest that mobile clinic programs can save up to $36 for every $1 invested (Dorcoo et al., 2020). While the clinics are financially sustainable options, CPDM monitors are expensive and do not last more than five years. Each monitor costs about $18,000, while they are an excellent tool for gathering information on the dust exposure level, it is highly “prone to error and battery does not last for an eight-hour shift” (Regulations.gov, n.d.). Therefore, MSHA could incorporate legislation requiring industries to have mobile health clinics that are financially sound alternatives compared to CPDM.

**Conclusion**

As a public health professional, I support the proposed rule by MSHA on the request for information. However, I believe that additional legal measures need to be included in upcoming bills to ensure the safety of mine workers and regulate mining industries in their capability to respond to adverse events immediately.

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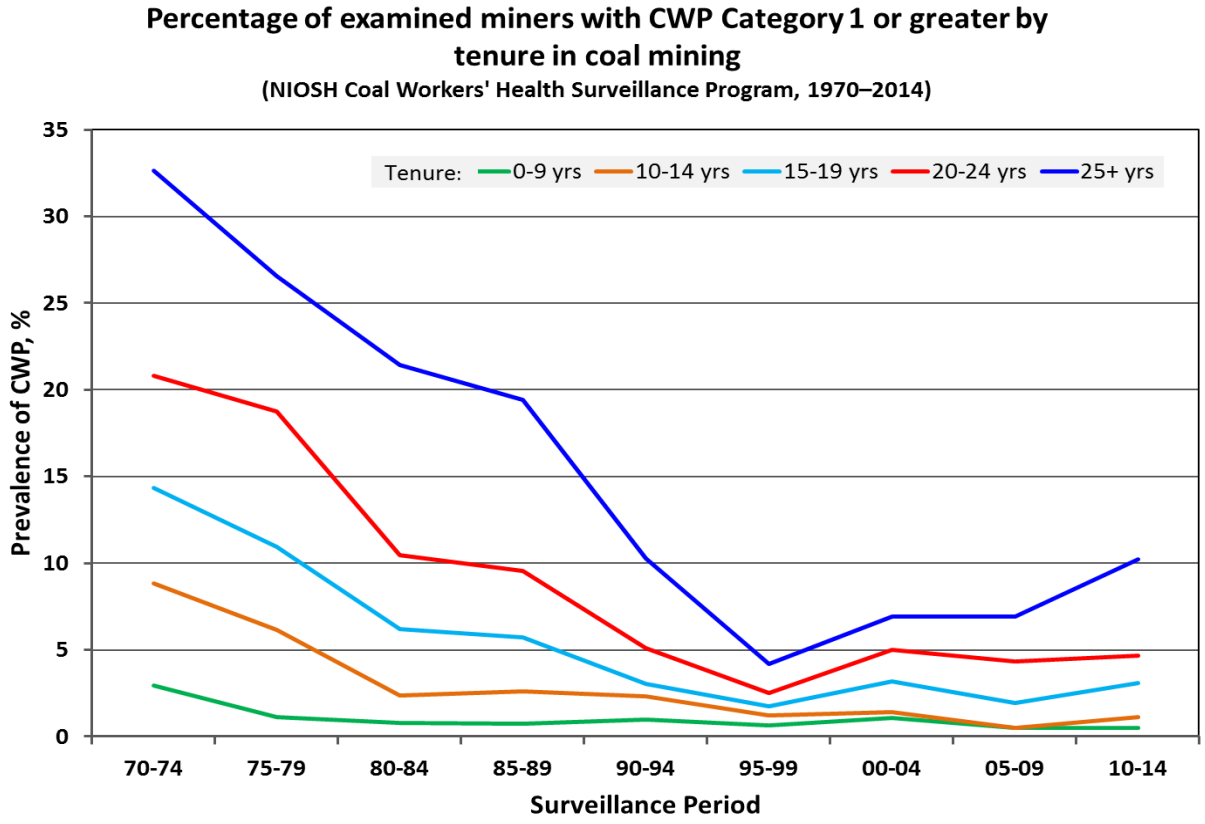
## Appendix


Percentage of examined miners with CWP Category 1 or greater by tenure in coal mining
(NIOSH Coal Workers' Health Surveillance Program, 1970–2014)
Tenure:
0-9 yrs
10-14 yrs
15-19 yrs
20-24 yrs
25+ yrs
Prevalence of CWP, %
35
30
25
20
15
10
5
0
70-74
75-79
80-84
85-89
90-94
95-99
00-04
05-09
10-14
Surveillance Period