



**FOR RELEASE**

**Embargoed Until May 22, 2:15 p.m. PST**

**FOR MORE INFORMATION, CONTACT:**

Dacia Morris  
dmorris@thoracic.org  
ATS Office 212-315-8620 (until May 17)  
Cell Phone 917-561-6545

**Session:** C106 Occupation Lung Epidemiology

**Abstract Presentation Time:** Tuesday, May 22, 2:15 p.m. (PT)

**Location:** Marriott Marquis San Diego Marina, Pacific Ballroom 15-17 (North Tower, First Floor)

**Worst Form of Black Lung Disease Appears Resurgent Among Coal Miners**

ATS 2018, San Diego, CA – Progressive massive fibrosis (PMF), the most debilitating and deadly form of black lung disease, is increasing among U.S. coal miners despite the implementation of dust controls decades ago, according to new research presented at the ATS 2018 International Conference.

Researchers analyzed U.S. Department of Labor data collected from former coal miners applying for benefits under the Federal Black Lung Program since the program began in 1970 until 2016. The start of the program coincides with the adoption of modern dust control measures in mines.

Over those 46 years, 4,679 coal miners were determined to have PMF. Half of those cases come from miners applying for benefits since 2000.

Kirsten S. Almberg, PhD, lead author and assistant professor at the University of Illinois at Chicago said the study findings “were not completely surprising”. The National Institute of Occupational Safety and Health (NIOSH) published surveillance data of active coal miners in 2014 that showed an increase in PMF after reaching a low around 2000. She added that black lung clinics nationally were also reporting increased numbers of cases.

“We were, however, surprised by the magnitude of the problem and are astounded by the fact that this disease appears to be resurging despite modern dust control regulations,” Dr. Almberg said. “This is history going in the wrong direction.”

The study found that most of the miners with PMF last worked in mines in West Virginia (28.4 percent), Kentucky (20.2 percent), Pennsylvania (20 percent) and Virginia (15.3 percent). West Virginia, Kentucky and Virginia also experienced the largest increases, from 9 to 12 percent, in PMF diagnoses over the past four decades. During that time period, Tennessee reported a 10 percent increase in claims—a trend that had not been recognized in previous studies.

Dr. AlMBERG said that several theories have been proposed to explain the resurgent PMF epidemic. The miners affected appear to be working in smaller operations that may have invested less in dust reduction systems. Mines operational today likely produce higher levels of crystalline silica, which is more damaging to the lungs than coal dust, during coal extraction. And miners appear to be working longer hours and more days per week, leaving less time for their lungs to clear the dust that has been inhaled.

Black lung disease, medically known as coal workers' pneumoconiosis, literally turns a person's lung from pink to black. In the early stages, the disease may go unnoticed. NIOSH's Coal Workers' Health Surveillance Program offers periodic chest X-rays to increase early detection, but not all miners participate. If the disease progresses to PMF, nodules may form in the lungs, along with a type of emphysema and fibrosis, or lung scarring. Together, these conditions lead to airway obstruction, shortness of breath and often premature death.

According to Dr. AlMBERG, miners who have worked 10 or more years in a mine are at greater risk for developing black lung disease and PMF. "In general, the higher concentration of dust, the more days worked per week, and the more years worked, the greater the risk," she said. "It's a classic dose-response relationship."

Study limitations include the fact that filing for black lung health benefits is voluntary and the proportion of eligible coal miners who do file is unknown.

The authors said that new, recently enacted Mine Safety and Administration dust regulations should help reduce dust exposure in U.S. coal mines. They added that coal mine operators and coal miners should continually be educated about the harmful effects of coal mine dust exposure. And the advent of continuous personal dust monitors may provide an opportunity for miners to participate in real-time monitoring and reduce excessive exposures proactively.

**Contact for Media:** Kirsten S. AlMBERG, PhD

[alMBERG@uic.edu](mailto:alMBERG@uic.edu)

773-656-3819

Sharon Parmet

Office of Public Affairs, University of Illinois at Chicago

[spamret@uic.edu](mailto:spamret@uic.edu)

312-413-2695

###

## Abstract 10937

### Resurgence of Progressive Massive Fibrosis in U.S. Coal Miners Filing for Federal Black Lung Program Benefits

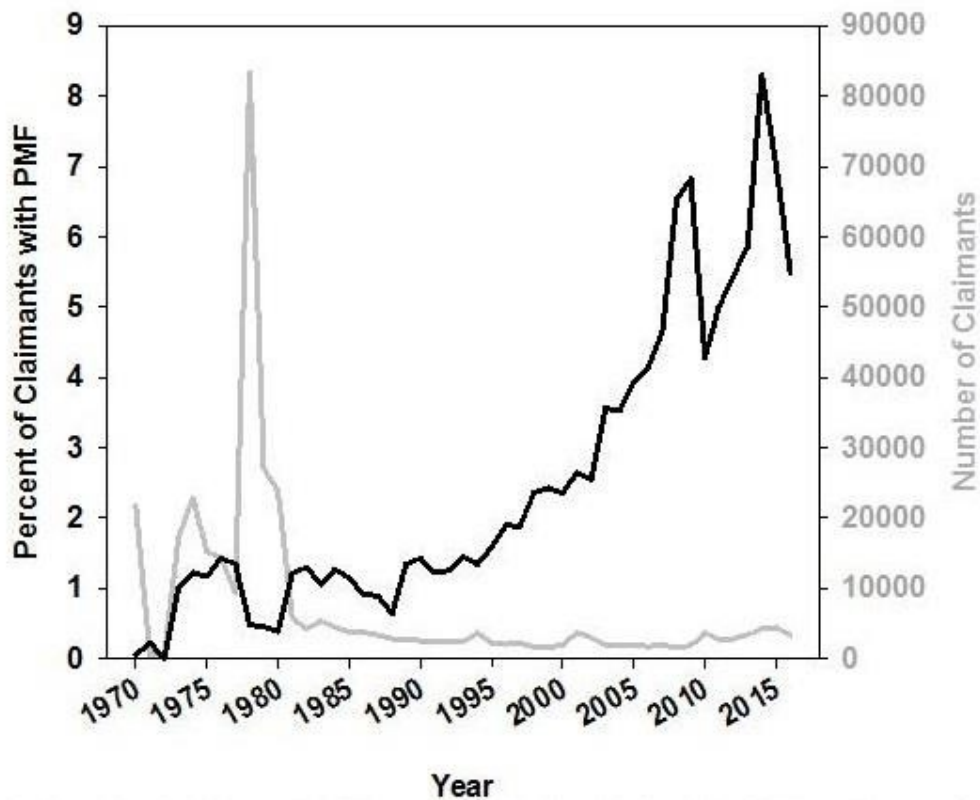
**Authors:** K. Almberg<sup>1</sup>, C. N. Halldin<sup>2</sup>, D. J. Blackley<sup>2</sup>, S. Laney<sup>2</sup>, E. Storey<sup>2</sup>, C. S. Rose<sup>3</sup>, L. Go<sup>1</sup>, R. A. Cohen<sup>1</sup>; <sup>1</sup>School of Public Health, Environmental and Occupational Health Sciences, University of Illinois at Chicago, Chicago, IL, United States, <sup>2</sup>Respiratory Health Division, NIOSH, Morgantown, WV, United States, <sup>3</sup>National Jewish Health, Denver, CO, United States.

**Rationale:** Mounting surveillance evidence shows a marked increase in the prevalence of progressive massive fibrosis (PMF) among active coal miners. The trend in PMF prevalence among former coal miners has not been investigated. The Department of Labor (DOL) collects data on former coal miners applying for Federal Black Lung Program benefits. We examined DOL data to characterize the trend of PMF among former U.S. coal miners since the program's inception in 1970.

**Methods:** Using administrative data from the DOL, we characterized the time-trend in the proportion of miners filing for black lung benefits who received a determination of PMF between 1970 and 2016, by tenure, age, and state of last mine employment. A case of PMF was defined as a miner receiving a determination of PMF by the DOL, based on clinical evidence submitted with their benefits claim.

**Results:** There were 4,679 PMF cases determined by the DOL between 1970 and 2016; most notably 50% of these cases (n = 2,318) have been identified since 2000. Nationally, the percentage of miners with a determination of PMF among those applying for Federal Black Lung Program benefits increased from 0% in 1972 to 8.3% in 2014 (Figure 1). Most miners with PMF last worked in West Virginia (28.4%), Kentucky (20.2%), Pennsylvania (20.0%), or Virginia (15.3%). States with the greatest increase in percentage of PMF determinations were Kentucky (0% in 1972, 9% in 2014), Tennessee (0% in 1970, 10% in 2016), West Virginia (0% in 1972, 11% 2016), and Virginia, where in 2015, 12% of claimants had a determination of PMF. The percentage of PMF for the rest of the U.S. remained under 2%.

**Conclusions:** Our analysis of Federal Black Lung Program benefits data provides evidence, independent of surveillance data, of a substantial increase in the number and percentage of former miner with PMF following the passage of modern dust controls in 1970. This study is consistent with surveillance reports indicating the highest rates of PMF are in the central Appalachian states of Virginia, West Virginia, and Kentucky, and identifies a previously unrecognized increase in percentage of PMF claims from Tennessee. The resurgence of this disabling but preventable disease points to the need for focused research on and implementation of primary prevention, such as reducing coal mine dust exposures, and for improved secondary prevention, including medical surveillance of working coal miners to identify early stages of disease and halt its progression.



**Figure 1.** Number of claimants for Department of Labor Federal Black Lung Program benefits and the percentage of these claimants that receive a determination of PMF during their claims process, 1970 – 2016. Data restricted to those miners with between 5 and 60 years of coal mine employment. Data source: U.S. Department of Labor, Office of Workers' Compensation, Division of Coal Mine Workers' Compensation.