

Black Lung: Rising Rates, Troubled Funding

Introduction

- Black lung, the disabling and sometimes fatal diseases caused by long-term exposure to coal mine dust, has been increasing over the past 20 years, especially among younger Appalachian miners.
- More stringent federal standards do not sufficiently protect miners who are working longer hours, extracting harder-to-obtain coal, and whose operators may be providing inaccurate data.
- Enacted in 1969 to provide workers' compensation benefits in the event that miners' employers cannot do so, the federal Black Lung Program has struggled from the start due to excessive rates of exposure to coal mine dust, inadequate taxation of mine owners, and lack of consistent federal oversight to keep the fund solvent and healthy.

This Issue Spotlight explores several important questions with potentially broader implications for financing public compensation programs. For example:

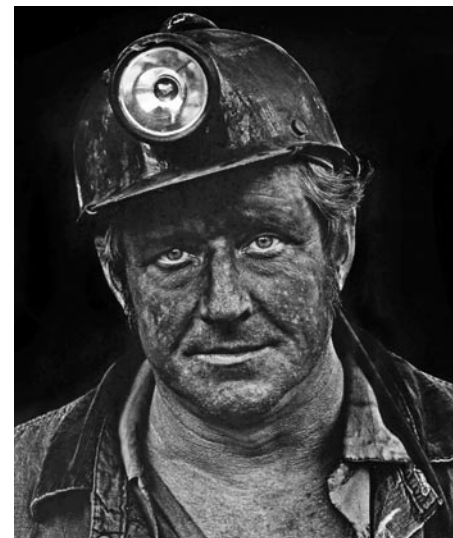
1. How can exposures be increasing substantially in the face of stringent exposure standards?
2. With the rates of both overall black lung and the most severe cases rising, why have total benefit payments been declining?
3. Why are interest payments and deferred costs for the Program so large, and why have they been rising?

If black lung cases increase in the future, the fiscal situation will continue to deteriorate. Although coal miners will most likely continue to receive benefits, the Program will probably need another federal bailout.

A history of black lung disease: 1977-2022

Black lung is a term encompassing a variety of lung diseases caused by exposure to coal mine dust, including coal workers pneumoconiosis (CWP), silicosis, emphysema, and chronic obstructive pulmonary disease. These progressive diseases often continue to get worse for many years after exposure has ended. In its advanced stages – progressive massive fibrosis (PMF) or advanced emphysema – black lung is totally disabling and often fatal. Even breathing is hard. NPR quoted Mackie Brangham, only 39 years old but with black lung so bad that – “The more I talk, the more I get out of breath. It's like I ain't got no capacity” (Berkes, 2016).

From 1977-2016, the Mine Safety and Health Administration (MSHA) standard for respirable coal mine dust was 2.0 milligrams of respirable dust per cubic meter of air (mg/m³). A 2014 rule lowered the standard to 1.5 mg/m³, effective January 1, 2016.



Lee Hipshire, at the end of his shift. He developed black lung and died at age 57.
Photo © Earl Dotter.*

'History' box continued on p.2

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A history of black lung disease: 1977-2022 *continued*

Many hoped the standards would virtually eliminate black lung. They did not. Rather, although the proportion of miners developing black lung declined substantially between 1975 and the late 1990s, it then started to increase, especially in West Virginia, Virginia, and Kentucky (Blackley et al., 2018). In those states, researchers from the National Institute for Occupational Safety and Health (NIOSH) estimate that, as of 2017, one in five underground miners with at least 25 years of experience have CWP, and 1 in 20 have PMF. Moreover, a recent report suggests that these numbers underestimate the number of miners with PMF, which is now frequently diagnosed among miners with less than 25 years of experience (Almberg et al., 2018).

Rising rates of black lung disease

How can exposures be increasing substantially in the face of stringent exposure standards?

Given that black lung is caused by exposure to coal-mine dust, the increased prevalence implies increased exposure. One possible reason for this is that, in recent years, underground mines have been mining coal faster and drawing it from increasingly thinner seams. As a result, ever more powerful mining machines have been cutting into rock with a high silica content, generating more dust. Silica dust causes irreversible lung damage and is even more harmful to the lungs than coal dust, so increased silica exposure may have contributed to the rise in disease (Cohen et al., 2016), Cohen et al., 2022).



*Miners protest on the steps of U.S. Capitol. 1975.
Photo © Earl Dotter.**

Another possible explanation is that miners have been working much longer hours, increasing their exposure to coal-mine dust.

A third explanation points to the Mine Safety and Health Administration (MSHA) program that monitors coal-mine dust to ensure that it is kept within the standard. The agency requires coal-mine operators to take samples of the air that coal miners breathe and send them to MSHA for analysis, to ensure that the level stays below the permissible exposure limit. There is evidence, however, that some operators have provided MSHA with unrepresentative samples that were collected in locations with known low dust levels, during times of unusually low production, or when dust controls are functioning optimally (Boden & Gold, 1984, and Weeks, 2003). This has prevented MSHA from identifying exposures above the legal limit and from penalizing the mine owners who are responsible. As a result, these illegal and harmful exposures have gone unchecked.

Moreover, MSHA's regulation of silica exposure has been insufficient to prevent miners from getting sick. As early as 1995, NIOSH recommended exposure limits of 1 mg/m³ for coal mine dust and a separate limit of 0.05 mg/m³ for silica dust (NIOSH, 1995). A

* These photos appear in: Barbara E. Smith's *Digging our Own Graves: Coal Miners and The Struggle Over Black Lung Disease*. Chicago: Haymarket Books; 2020.

2020 report produced by the Department of Labor's Office of the Inspector General pointed out that MSHA still does not have a separate silica exposure limit (OIG, 2020). Instead, its silica limit is part of its coal mine dust standard. As a result, if silica levels are high but the overall standard is not violated, MSHA cannot cite or fine mine owners.

Federal Black Lung Program compensation: benefits and costs

The increase in black lung highlights the continued need for a federal program that compensates miners who are disabled by or who die from this disease and their surviving family members. It also shines a light on the Program's persistent challenges and weaknesses and the need for further research to understand why exposures are increasing.

Congress enacted the Black Lung Benefits Act (the Act) as part of the Coal Mine Health and Safety Act of 1969, in response to a lack of adequate coverage for the disease from state workers' compensation programs. The Act provides monthly compensation and medical treatment benefits to coal miners who are totally disabled from black lung, as well as compensation to eligible survivors of those it kills. Liability for compensation generally rests

Table B3 in *Workers' Compensation: Benefits, Costs, and Coverage* (2019 data)

Black Lung Benefits Act, Benefits and Costs, 2015–2019 (in thousands of dollars)

	2015	2016	2017	2018	2019
Benefits					
Part B Compensation	112,651	98,651	82,646	72,297	63,477
Part C Compensation	141,290	143,212	136,508	129,674	126,664
Part C Medical Benefits	33,900	36,733	46,320	45,000	39,896
Total Benefits	287,841	278,596	265,474	246,972	230,037
Costs of Past Benefits					
Interest Payments on Past Advances ^a	1,037,392	1,335,288	2,015,732	2,890,135	3,785,000
Bond Payments ^b	498,739	523,262	545,554	449,888	117,929
Total Current Costs of Past Benefits	1,536,131	1,858,550	2,561,286	3,340,022	3,902,929
Administrative Costs					
Part B (SSA)	4,822	4,964	5,093	5,040	4,924
Part C (DOL)	31,198	33,236	35,472	35,590	35,785
Indirect Administrative Costs ^c	28,972	29,430	30,608	30,681	23,047
Total Administrative Costs	64,991	67,630	71,172	71,311	63,756
Employer Assessments					
Coal Tax Paid by Employers	524,230	436,889	417,628	342,443	237,848
Deferred Costs					
Trust Fund Advances from U.S. Treasury ^d	666,250	1,003,750	1,438,750	1,892,500	1,983,150
Costs borne by Private Employers^e	524,230	436,889	417,628	342,443	237,848
Costs borne by General Revenues^f	812,695	1,136,795	1,557,097	2,000,518	2,074,598
Costs borne by the Black Lung Trust Fund^g	1,742,519	2,071,731	2,779,585	3,550,287	4,105,274

“Liability for compensation generally rests with the miner’s coal-mine employers or their insurance carriers.

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with the miner’s coal-mine employers or their insurance carriers. However, if a self-insured employer becomes bankrupt or goes out of business, the Federal Black Lung Program, which also administers the Act, pays any benefits due. Since 1970, the Program has paid over forty-seven billion dollars of cash and medical benefits, and at the end of fiscal year 2021, there were over 30,000 individuals receiving benefits, including miners and their survivors and eligible dependents (OWCP, 2021).

The Table on p.3, taken from the Academy’s annual report: *Workers’ Compensation: Benefits, Costs, and Coverage (2019 data)*, shows that black lung benefit payments fell by 21 percent between 2015 and 2019, while total costs more than doubled (Murphy et al., 2021).

Black lung rates are on the rise, so why are benefit payments declining?

Many of the miners who enrolled in the early years of the program and their survivors have died. And employment in coal mining, particularly underground coal mining, has declined substantially in recent decades –

170,000 people worked in the industry in 1985, down to 74,000 (less than 44% of that number) in 2000, and just 47,000 in 2020, according to the Bureau of Labor Statistics (BLS, 2021).

Both trends reduce benefit payouts, but the decline in employment has been largely offset by the increase in the prevalence of black lung among current and former miners. As a result, benefit payments have only declined slightly. Moreover, the decline in cases may not continue. Indeed, if the proportion of current and former miners developing disabling black lung continues to increase, case numbers may rise.

In addition, mine operators frequently contest claims for black lung benefits, causing long delays, with many miners dying before their cases are resolved. There is, however, no evidence that owners are contesting cases more or less frequently now than they did in the 1990s, so it is not clear how that issue might affect declines in benefit payments.

Funding challenges facing the Black Lung Program

Why are interest payments and deferred costs so large, and why have they been rising?

The Black Lung Program compensation system was designed so that benefits would come primarily from a per-ton tax on coal mined and sold in the U.S. If revenues fell short of benefit payments, the Program could receive repayable advances from the U.S. Treasury’s general fund.

The first blow to excise tax revenues came in 1998 with the Ranger Fuel Corp. v. U.S. decision (*Ranger Fuel Corp. v. U.S.*, 1998). Before that decision, the coal excise tax was collected on all U.S.-mined coal when it was sold. However, the court decided that it was unconstitutional to levy the tax on exported coal. The court ordered that the Black Lung Program refund taxes that had been collected on exported coal and that future taxes be collected only on coal sold in the U.S. Congress did not increase the tax rate on U.S.-sold coal to make up the difference.

Coal taxes were inadequate to cover benefit payments during the 1990s and early 2000s, when the Black Lung Program incurred a debt to the Treasury of over \$10 billion. Congress forgave much of that debt in 2009, and it looked like the Program would be able to pay down the rest of its debt. However, although taxes on coal mining companies now cover current benefit costs, the Program’s debt continues to grow; it must thus continue to make interest and principal payments on its debt to the Treasury.

Compounding this challenge, Congress cut the black lung tax rate in half in 2019, which the U.S. Government Accountability Office estimates increased projected 2050 debt from \$4.5 billion to \$15.4 billion (GAO, 2018).

A string of coal company bankruptcies has added to the program's fiscal woes. By law, these companies must either purchase insurance to cover their potential black-lung payments or self-insure. The Department of Labor's Office of Workers' Compensation Programs (OWCP) must approve requests to self-insure, which should be based on companies' ability to cover all future black-lung benefit payments. However, the OWCP may not have given applications adequate scrutiny. In 2014-2019, the trust fund absorbed \$310 million in black lung benefit liabilities from bankrupt coal companies that self-insured (GAO, 2019).

A cautionary tale

The history of the Federal Black Lung Program presents a cautionary tale about financing. It raises serious concerns about the Federal government's commitment to having coal mine owners foot the bill for the consequences of exposing miners to high levels of coal mine dust. The Act creating the Program financed disbursements with a coal excise tax. However, that tax was inadequate to cover Program expenditures from the outset, and borrowing costs, combined with a court ruling that decreased the tax base and a 2019 excise tax rate cut, exacerbated the Program's financial difficulties. Lax oversight of self-insurance, followed by substantial coal mining company bankruptcies, only made matters worse.

Final words

Coal miners in the United States are facing a resurgence of a disabling and often fatal disease – black lung. The 2014 MSHA rule not only tightened the standard for exposure to coal mine dust. It also improved the required coal mine dust sampling methods. These changes should, if successfully enforced, lead to better control of miner exposures and thereby reduced black lung disease. However, a separate silica exposure standard seems critical as well. Time will tell whether these changes reduce or, hopefully, eliminate black lung. Saving miners from this disabling and often fatal disease would be the ideal outcome. This would be by far the best way to resolve the financial issues bedeviling the Program.

Les Boden, author of this publication, is a Professor at Boston University School of Public Health and was Chair of the Academy's Study Panel on Workers' Compensation from 2018-2021. Thanks to Earl Dotter for the use of his exceptional photographs. The Academy gratefully acknowledges **Chris Godfrey, Scott Laney, Eileen Storey, Greg Wagner, Jim Weeks, and Elaine Weiss** for their contributions to this Spotlight. Of course, the content, including opinions and errors, are entirely the responsibility of the author.

The author of the publication would like to particularly credit Eileen Storey, MD, MPH, who helped him to understand black lung. Eileen was a remarkable public health physician who devoted her life to protecting the health of working people, including serving as Chief of the Surveillance Branch of the Respiratory Health Division at NIOSH from 2008-2017. Eileen passed away on September 26, 2021.

This brief is part of the Academy's Pathways to Economic Security campaign. The 50th anniversary of the Workers' Compensation Commission and the Future of Workers' Compensation are priority areas of the Pathways campaign. Learn more.

Table B3 in *Workers' Compensation: Benefits, Costs, and Coverage (2019 data)* notes

- a The amount shown is the repayment of one-year obligations of the Trust Fund, which include the previous year's advances from the U.S. Treasury and applicable interest due on those advances, as required under the EESA.
- b Repayment of bond principal and interest on principal debt as required by the Trust Fund debt restructuring portion of the EESA.
- c Includes legal and investigative support from the Office of the Solicitor and the Office of the Inspector General, services provided by the Department of the Treasury, and costs for the Office of Administrative Law Judges (OALJ) and the Benefits Review Board (BRB). OALJ and BRB costs are not included for any other program but cannot be separately identified for Coal Mine Workers' Compensation.
- d Advance of funds required when Trust Fund expenses exceed tax revenues received in a given year. Under the Emergency Economic Stabilization Act of 2008 (EESA), total Trust Fund debt (cumulative advances) at the end of 2008 was converted to zero coupon bonds that are repayable to the U.S. Treasury on an annual basis.
- e Equal to "Coal Tax Paid by Employers".
- f Includes Part B compensation, Part B administrative costs, indirect administrative costs, and trust fund advances from the U.S. treasury.
- g Includes "Part C Compensation", "Part C Medical Benefits", "Interest Payments on Past Advances", "Bond Payments", and "Part C" administrative costs.

References

- Almberg, Kirsten S, Cara N Halldin, David J Blackley, A Scott Laney, Eileen Storey, Cecile S Rose, Leonard HT Go, and Robert A Cohen. "Progressive Massive Fibrosis Resurgence Identified in Us Coal Miners Filing for Black Lung Benefits, 1970–2016." *Annals of the American Thoracic Society* 15, no. 12 (2018): 1420-26.
- Berkes, Howard. "Advanced Black Lung Cases Surge in Appalachia." *All Things Considered* (2016). National Public Radio. <https://www.npr.org/2016/12/15/505577680/advanced-black-lung-cases-surge-in-appalachia>
- Blackley, David J, Cara N Halldin, and A Scott Laney. "Continued Increase in Prevalence of Coal Workers' Pneumoconiosis in the United States, 1970–2017." *American Journal of Public Health* 108, no. 9 (2018): 1220-22.
- Boden, Leslie I., and Morris Gold. "The Accuracy of Self-Reported Regulatory Data - the Case of Coal-Mine Dust." *American Journal of Industrial Medicine* 6, no. 6 (1984): 427-40.
- Cohen, Robert A, Edward L Petsonk, Cecile Rose, Byron Young, Michael Regier, Asif Najmuddin, Jerrold L Abraham, Andrew Churg, and Francis HY Green. "Lung Pathology in US Coal Workers with Rapidly Progressive Pneumoconiosis Implicates Silica and Silicates." *American Journal of Respiratory and Critical Care Medicine* 193, no. 6 (2016): 673-80.
- Cohen, Robert A, Cecile S Rose, Leonard HT Go, Lauren M Zell-Baran, Kirsten S Almberg, Emily A Sarver, Heather A Lowers, Cayla Iwaniuk, Sidney M Clingerman, and Diana L Richardson. "Pathology and Mineralogy Demonstrate Respirable Crystalline Silica Is a Major Cause of Severe Pneumoconiosis in Us Coal Miners." *Annals of the American Thoracic Society*, (2022).
- Murphy, Griffin T., Jay Patel, Leslie I. Boden, and Jennifer Wolf. "Workers' Compensation: Benefits, Coverage, and Costs." ISBN: 978-1-7328883-4-0 (2021). National Academy of Social Insurance.
- Ranger Fuel Corp. v. U.S.*, 33 F. Supp. 2d 466 (E.D. Va. 1998).
- U.S. Bureau of Labor Statistics (BLS), All Employees, Coal Mining [CEU1021210001] (2021). Retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/CEU1021210001>, January 21, 2022. "
- U.S. Department of Health and Human Services, National Institute for Occupational Safety and Health (NIOSH). "Criteria for a Recommended Standard: Occupational Exposure to Respirable Coal Mine Dust." DHHS (NIOSH) Publication Number 95-106 (1995).
- U.S. Department of Labor, Office of Inspector General (OIG). "MSHA Needs to Improve Efforts to Protect Coal Miners from Respirable Crystalline Silica." No. 05-21-001-06-001 (2020).
- U.S. Department of Labor, Office of Workers' Compensation Programs (OWCP). "Black Lung Program Statistics." *Division of Coal Mine Workers' Compensation, Total Number of Black Lung Beneficiaries and Black Lung Program Benefit Payment Totals by Year (2021)*.
- U.S. Government Accountability Office (GAO). "Black Lung Benefits Program: Options for Improving Trust Fund Finances." *GAO-18-351* (2018).
- U.S. Government Accountability Office (GAO). "Black Lung Benefits Program: Financing and Oversight Challenges Are Adversely Affecting the Trust Fund." *GAO-19-622T* (2019).
- Weeks, James L. "The Fox Guarding the Chicken Coop: Monitoring Exposure to Respirable Coal Mine Dust, 1969–2000." *American Journal of Public Health* 93, no. 8 (2003): 1236-44.