ABSTRACT

BODENHAMER, AYSHA ALLISON. The Resurgence of Black Lung: A Critical Examination of Environmental Illness in Central Appalachia (Under the direction of Thomas Shriver).

Coal Workers’ Pneumoconiosis (CWP), commonly known as black lung, represents a classic case of contested environmental illness. Following the institutionalization of the Coal Mine Health and Safety Act in 1969, the prevalence of black lung declined greatly over the first three decades. However, in recent years miners have experienced a more deadly resurgence of the disease in central Appalachia. Drawing from theoretical literature on risk, treadmill of production, contested illness, and environmental health movements, this study seeks to broaden our understanding of the trajectory of a contested environmental illness. This research utilizes a qualitative approach and relies on several forms of data including: semi-structured interviews, direct observation, newspaper coverage, and government data and reports. Major findings suggest that the “coal crisis” (i.e. depleted seams, mechanization, competition from natural gas, and deunionization) have intensified the resurgence of black lung in central Appalachia and has contributed to a “culture of fear” among active coal miners.

This research elucidates multiple issues faced by coal miners and the coal industry in general. As the coal industry has expanded production, it has generated greater environmental externalities and increased environmental health risks for miners. This problem is further complicated and intensified by the vast economic problems in Appalachia. The lack of alternative employment opportunities and protection in the workplace has created a “culture of fear” which leaves employed miners fearful of job loss and retaliation from speaking out. Furthermore, miners postpone black lung screening and diagnosis, fearing
being stigmatized as sick and unable to work. This serves to further exacerbate the impacts of the disease. While black lung is a federally recognized and compensable disease, miners become mired in bureaucracy as they seek diagnosis, treatment, and compensation. In this regard, the bureaucracy encompassing the Black Lung Program has become *obstructive* rather than beneficial. The industry continues to prioritize production over health and safety of the miners, as well as exploit the bureaucracy to contest black lung on multiple fronts. The industry contests nearly all individual black lung compensation claims in order to avoid financial responsibility and to dissuade others from seeking compensation. Finally, the industry engages in lobbying efforts aimed at limiting its liability and responsibility for black lung disease, shifting the burden to the federal government.

Compared to the historic black lung movement, active miners today are no longer willing to engage in black lung advocacy work. However, findings point to an active advocacy campaign from other stakeholder groups, including the National Coalition of Black Lung and Respiratory Disease Clinics (National Coalition), black lung clinics, the Black Lung Association, black lung attorneys, the United Mine Workers of America, lay advocates, and retired miners. The high-profile case of a Johns Hopkins University School of Medicine scandal uncovered evidence of corporate malfeasance in which the industry was influencing patterns of black lung diagnoses among sick coal miners. As noted throughout this study, black lung is a *preventable* disease, yet the disease persists as employers continue to sacrifice the wellbeing of their workers in an effort to secure more profit.
DEDICATION

To coal miners everywhere who suffer from black lung, and in memory of Ken Hechler, former West Virginia Congressman and Secretary of State, and Dr. Donald Rasmussen, champions of coal miners in West Virginia.
BIOGRAPHY

Bodenhamer grew up in Mount Airy, North Carolina and found her love for Sociology and Appalachian Studies during her undergraduate work at Radford University. Following the completion of her Bachelor of Arts degree at Radford, she began her graduate studies at North Carolina State University in pursuit of her Masters and PhD. She graduated with her Master of Science degree from North Carolina State University in 2013 and with her PhD in 2017. Bodenhamer’s research is situated within the intersection of environment, rural, and occupational hazards. Much of her work centers on the environmental and health impacts of extractive industries, in particular, coal mining in central Appalachia.
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### TABLE OF CONTENTS

**LIST OF FIGURES** ........................................................................................................ viii  
**CHAPTER 1: INTRODUCTION AND CASE BACKGROUND** ....................................... 1  
  Case Background: Coal Mining and Black Lung in Appalachia ...................................... 3  
    Mechanization and the Accumulation of Disease .............................................................. 3  
    Research Roadmap .................................................................................................. 10  
**CHAPTER 2: THEORETICAL FRAMEWORK** ................................................................. 12  
  Treadmill of Production, Risk, and Contested Environmental Illness ............................... 12  
  Environmental Health Advocacy .................................................................................. 20  
  The Contestation of Environmental Illness Claims ...................................................... 25  
**CHAPTER 3: METHODOLOGY** ................................................................................... 31  
  Guiding Research Questions ....................................................................................... 31  
  Data Sources ............................................................................................................ 31  
  Data Analysis ............................................................................................................. 35  
**CHAPTER 4: LEGISLATIVE CHANGES AND BUREAUCRATIC HURDLES:  
ENVIRONMENTAL HEALTH AND THE COAL CRISIS** ............................................ 37  
  Legislative Backdrop of Black Lung ............................................................................. 37  
    Coal Mine Health and Safety Act ........................................................................... 39  
    Black Lung Benefits Act ....................................................................................... 42  
    Current Prevalence and Hot Spots in Central Appalachia ......................................... 48  
  Economic Factors and Production Expansion: The “Coal Crisis” .................................. 57  
    Depleted Seams, Mechanization, and Increasing Toxicity ........................................ 58  
    Competition from Natural Gas ............................................................................... 71  
    Bankruptcy in the Midst of Persistent Poverty ........................................................... 73  
    Union and the Impact on Work Hours and Overexposure ........................................ 78  
  Bureaucratic Challenges of the Black Lung Program .................................................. 83  
    Regulatory Enforcement Failures: The Bureaucratic Structure of Prevention ............ 83
A Failed System: The Bureaucratic Struggles Associated with Black Lung Treatment and Benefits.................................................................................................................. 92

Recent Changes to Black Lung Litigation ........................................................................ 101

CHAPTER 5: THE BLACK LUNG EXPERIENCE ................................................................. 108

Challenges with Diagnosis of Black Lung ........................................................................ 109

Contested Definitions and Complicated Classifications...................................................... 109

Problems with Testing and Screening................................................................................ 116

The Mining Experience: Declining Representation and Silence in the Mines .............. 127

Declining Voice in the Workplace ...................................................................................... 128

Fear and Intimidation ......................................................................................................... 132

Living with Black Lung: Challenges with Treatment ......................................................... 135

Benefits of Treatment and Experiences with Black Lung Clinics ...................................... 136

Expense and Avoidance of Care ......................................................................................... 138

Extreme Interventions ......................................................................................................... 140

Beyond Diagnosis and Treatment: Life with Black Lung ................................................. 146

Coal Miner Pride and Identity ............................................................................................. 146

Masculinity Issues and Mental Health Impacts .................................................................. 150

CHAPTER 6: ADVOCACY & INDUSTRY OBSTRUCTION ............................................... 161

Black Lung Activism and Obstacles for Change ............................................................... 161

Contextualizing Black Lung Activism: The Historical Black Lung Movement ............... 162

The Limited Role of Coal Miners in Black Lung Activism Today ....................................... 165

Black Lung Advocacy and Collaboration between Lay Advocates and Experts .............. 173

The National Coalition of Black Lung ................................................................................ 174

Political Advocacy and Legislative Changes ...................................................................... 182

Attorneys and Lay Advocates: Fighting for Miners and Their Right to Compensation .......................................................................................................................... 184

Industry Obstruction and Contestation of Black Lung Prevention Efforts ....................... 189

Misinformation and Silence of the Industry Regarding Dust and Surveillance ............... 194

Dust Fraud—The Willing Subjection of Miners to Unsafe Dust Exposure ....................... 197
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry Contestation of New Regulations</td>
<td>201</td>
</tr>
<tr>
<td>Industry Obstruction and the Contestation of Black Lung Benefits</td>
<td>204</td>
</tr>
<tr>
<td>Industry Contestation of Black Lung Benefits Claims</td>
<td>205</td>
</tr>
<tr>
<td>Charges of Industry Influence and Corruption</td>
<td>211</td>
</tr>
<tr>
<td>The Use of Bankruptcies to Offload Financial Responsibility</td>
<td>214</td>
</tr>
<tr>
<td>Coal Industry Political Influence and Black Lung</td>
<td>217</td>
</tr>
<tr>
<td>CHAPTER 7: DISCUSSION AND CONCLUSIONS</td>
<td>221</td>
</tr>
<tr>
<td>Summary of Key Findings</td>
<td>224</td>
</tr>
<tr>
<td>Implications and Future Research</td>
<td>232</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>249</td>
</tr>
<tr>
<td>Appendix A: Interview Guide: Regulatory Agency Representatives</td>
<td>250</td>
</tr>
<tr>
<td>Appendix B: Interview Guide: Coal Miners and Families</td>
<td>253</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

Figure 1: Prevalence of progressive massive fibrosis among working underground coal miners with 25 or more years of underground mining tenure (1974-2012) in Kentucky, Virginia, and West Virginia................................................................. 54

Figure 2: Coal Production Hot Spot Map 2014 ........................................................................ 55

Figure 3: Proportion of evaluated miners with rapidly progressive coal workers’ pneumoconiosis by county (not shown are counties with fewer than five miners evaluated) 1999-2002 ............................................................................................................. Error! Bookmark not defined.

Figure 4: U.S. Net Electricity Generation .................................................................................. 72

Figure 5: Family Households Living Below the Poverty Level, Percent by County 2010-2014 ................................................................................................................................................................................................. 75

Figure 6: Unemployment Rate by County 2016 .................................................................... 76

Figure 7: NIOSH’s "Mobile Unit" parked outside at the West Virginia Black Lung Conference at Pipestem 2016 ......................................................................................................................................................... 87

Figure 8: NIOSH advertises free black lung screening for miners at West Virginia Black Lung Conference at Pipestem 2016 ......................................................................................................................................................... 88

Figure 9: Applying for Federal Black Lung Benefits Flow Chart ............................................. 96

Figure 10: Amount Paid by Black Lung Disabilities Trust Fund in 2015 ................................... 99

Figure 11: Total Black Lung Claims Received Since 1973, by State ...................................... 101

Figure 12: Number of Miners Tested and Percent of Miners with Black Lung in West Virginia (1970-2014) ......................................................................................................................................................... 118

Figure 13: West Virginia Coal Mining Industry Employment 2014 ........................................ 119

Figure 14: Explanted Lungs of West Virginia Coal Miner after 35 Years in the Mines ....... 142

Figure 15: Explanted Lungs of West Virginia Coal Miner after 35 Years in the Mines ....... 143

Figure 16: Bilateral lung transplant (left) and explanted left lung (right) ................................. 145
CHAPTER 1: INTRODUCTION AND CASE BACKGROUND

Coal Workers’ Pneumoconiosis (CWP), commonly known as black lung, represents a classic case of how environmental illnesses are contested by powerful actors. Striking miners and a few sympathetic medical and political figures fought for the recognition of black lung as a legitimate illness, and as a result, the Coal Mine Health and Safety Act was signed into law in 1969. Following the institutionalization of the Coal Act, the prevalence of the disease declined greatly over the first three decades. However, in recent years miners have experienced a more deadly resurgence of the disease in central Appalachia. Despite its history as a federally recognized and institutionalized illness, the disease is still heavily contested by coal operators. Thus, this case offers a unique opportunity to study the trajectory of a federally recognized contested environmental illness including its institutionalization and continued contestation, as well as the experiences of miners, lay advocates, and medical and legal experts involved with the disease.

The historic success of the black lung movement that led to the passage of the Coal Mine Health and Safety Act of 1969, offers a unique opportunity to follow up on how the institutionalization process affects the disease experience. Through the institutionalization of black lung, the condition shifted from an illegitimate disease to one with a clear etiology linked to coal dust. Importantly, the institutionalization of the disease also led to a federal benefits and compensation program. The case of black lung, and specifically its resurgence in recent years, provides a unique opportunity for additional study. Drawing from theoretical literature on risk, treadmill of production, contested illness, and environmental health movements, this study seeks to broaden our understanding of the life cycle of a contested
environmental illness. This research seeks to answer the following questions: 1) How have broader economic challenges and coal mining practices impacted resurgent black lung? And how has formal recognition of black lung affected prevention of the disease? 2) How has the formal recognition of black lung influenced the lived experiences of those suffering from the disease, particularly in terms of diagnosis, treatment and compensation? And in what ways does living with a contested disease such as black lung affect other aspects of miners’ lives beyond health status? 3) How do those suffering from black lung and their supporters mobilize to seek redress for the illness? And what roles does environmental health advocacy play in addressing black lung issues? 4) How does the coal industry continue to contest the claims of black lung sufferers, despite the formal recognition of the disease? And what role does the industry play in shaping institutional responses to black lung?

Given the concentration and resurgence of black lung in central Appalachia, this research focuses on eastern Kentucky, southwest Virginia and West Virginia. Data come from in-depth interviews, direct observation, newspaper articles, and government documents. In-depth interviews were conducted with regulatory officials, black lung clinic workers, attorneys, medical professionals, lay advocates, miners and their families. Direct observation took place at two National Coalition of Black Lung and Respiratory Disease Clinics Conferences held in 2015 and 2016, as well as a regional West Virginia Black Lung Conference in 2016. Document analysis includes newspaper articles, government, corporate, and community organizational reports and blogs.
Case Background: Coal Mining and Black Lung in Appalachia

Appalachian coal has a centuries-long history. It fueled the American industrial revolution, and has a notable history of control and domination in the region. Coal was first discovered in West Virginia, Kentucky, Pennsylvania, and Ohio in the early 1700s, where it quickly became a primary fuel source for American development (Hibbard 1979). By 1830, coal was the primary fuel for railroads, and by the end of World War I, coal was used to create 70% of energy in the United States (Hibbard 1979). Today, coal provides about 30% of energy in the United States (U.S. Energy Information Administration 2015). Southern Appalachian coal became the primary source of coal in the U.S. following World War I, which propelled the region into a new state of economic importance (Smith 1981). Due to the vast expansion of the coal industry during this time, coal operators recruited workers from the Appalachian Mountains, the Deep South, and southern Europe. Thousands migrated to the coalfields during this time where they primarily lived in company-owned coal towns (Eller 1982).

Mechanization and the Accumulation of Disease

Coal is ranked based on its composition, or its ability to produce the most heat. These elements include the amount of fixed carbon, volatile matter, and moisture (Naeye 1994). Based on these criteria, coal is ranked using four categories: lignite, subbituminous, bituminous, and anthracite (Levy 1975). Anthracite is the hardest coal and has the highest heat value, followed by bituminous (Castranova and Vallyathan 2000; Huang et al. 2005). Continuous and longwall mining are the most commonly used underground mining methods (Weeks 1991). A great deal of mining in Appalachia, however, utilizes mountaintop removal,
a form of surface mining (Epstein et al. 2011). Prior to heavy mechanization, mining required
a large number of employees, as most of the work was done by hand. Work in the mines was
very physical during the early 1900s and all operations such as picking, drilling, blasting, and
loading were performed by hand (Payne 2010). Mechanization, however, greatly changed the
dynamics of the industry. Mechanization was first introduced in the mines as early as 1876;
however, it did not become commonplace until the 1930s. Following World War II,
technological innovation continued to transform the mines as the continuous miner, a
machine using rotating blades to claw coal from the seams, was first introduced (Smith
1981). Technological innovation such as continuous and longwall mining drastically
reshaped the craft of coal mining as it led to the mass production of coal unlike ever before

Technological innovation and mechanization of the mines had three major impacts on
the industry: 1) increased productivity, 2) decreased the number of required workers, and 3)
increased exposure to coal dust (Derickson 1998; Smith 1981; 1987). Coal employment has
steadily declined in West Virginia since the 1940s as coal operators began to replace workers
with machines. Due to mechanization, the same amount of coal could be extracted in the 21st
century with one-sixth of the workers required in the mid-20th century (Bell and York 2010).
Thus, technological change and mechanization led to precipitous declines in the need for coal
miners from the 1940s and this trend continues today. The development of mountaintop
removal, however, intensified this relationship. Starting in the mid-1980s there were
additional changes in the industry, with major shifts toward mountaintop removal and other
surface mining operations (Epstein et al. 2011). Between 1985 and 2005 this shift led to a
massive 56% decline in employment in the Appalachian coalfields. Seeing as how surface miners are not confined underground, surface miners were once thought to be exempt from black lung. Yet today, surface miners who now make up 48% of the coal mining workforce show rapidly progressive cases of black lung (Centers for Disease Control and Prevention 2012). The mechanization found in both underground and surface mining has dramatically increased the amount of dust in mining operations, consequently leading to more cases of black lung (Derickson 1991; Petsonk, Rose, and Cohen 2013).

Coal Worker’s Pneumoconiosis (CWP), or black lung, is a preventable chronic lung disease caused by the inhalation of dust in coal mining operations (Levy 1975). Coal dust has corrosive qualities that cause inflammation of the alveoli, which leads to permanent lung damage and premature death (Antao et al. 2005; Centers for Disease Control 2012; Ross and Murray 2004). The disease causes scarring and thickening of the lung tissue (Hendryx et al. 2013), and is both incurable and irreversible (Freidel 1982; Weeks 1991). Over 200,000 miners have died from CWP in the United States since 1900, and over 10,000 of these cases have occurred since the 1990s (Epstein et al. 2011). Corporate control over the health care system and a blatant class structure were largely to blame for delayed medicalization of black lung in central Appalachia (Smith 1981; 1987). In 1932, however, the governor of Pennsylvania called for an examination of the then called “miners’ asthma” (Naeye 1994).

CWP is divided into five categories (0, 1, 2, 3, PMF) ranging from simple to complicated cases based on the severity of the disease. As described by Naeye (1994:372), “Simple CWP is diagnosed when anthracotic pulmonary lesions are less than 2.0 cm in diameter by direct tissue measurement or less than 1.0 cm in diameter on an x-ray film.”
Simple CWP can eventually turn into pulmonary massive fibrosis (PMF), the most severe development of black lung, which is characterized by having pneumoconiotic opacities at least 1 cm in diameter (Attfield 1992). Black lung is a progressive disease, and while it cannot be reversed, it can be delayed if a miner is moved to a low-dust environment (Attfield 1992). The mandated dust restriction of 2 mg/m$^3$ was deemed the scientific threshold for keeping miners from progressing to category two CWP and never developing PMF. However, there is ongoing scientific and political debate regarding the legal respirable dust limit.

Contestation over black lung has a long history in the United States. Coal operators controlled every aspect of miners’ lives by governing housing, living expenses, law enforcement, and railroad access. Miners mostly lived in company-owned coal camps which were poor, dirty, and disheveled (Payne 2010). Pay, in the form of scrip, was meager and only redeemable at the company-owned store. Deaths, explosions, and “accidents” were also rampant during this time (Smith 1987). Due to these deplorable conditions, miners fought for the right to unionize beginning in the late 19$^{th}$ century. The United Mine Workers of America (UMWA) formed in 1890, but the union was initially small and ineffective. However, as miners became more frustrated with their exploitation, additional miners joined and in 1897 over 100,000 workers protested to shut down the mines nationwide in pursuit of better wages and working conditions. Between 1900-1921, the struggle for unionization turned the coalfields into a violent battlefield (Eller 1982). By 1904, the UMWA had grown to over 250,000 members (Smith 1987). The UMWA offered the miners a new form of protection in
the coalfields as they brought public attention to black lung and worker’s compensation (Derickson 1991). The UMWA played an important role in establishing the occupational reform movement that ensued in the late 1960s (Derickson 1991; Smith 1987). As a result, union mines took greater precautions. Importantly, miners could refuse to work in unsafe conditions and parts of mines could be shut down if danger was imminent. In addition, occupational safety and health inspections were more frequent and thorough (Weeks 1991).

Black lung has a long history of contestation stemming from denial and problems with diagnosis. The first reported case of CWP was found in a British coal miner in 1831 (Castranova and Vallyathan 2000). Yet despite the legitimation of coal workers’ pneumoconiosis in the early 1940s in Great Britain (Kerr 1970), it took many decades before black lung was recognized as a legitimate occupational disease in the United States. In fact, in the United States miners were often told by their employers that coal dust was “good for them.” As evidence for such claims, coal operators argued that miners had fewer cases of lung cancer and tuberculosis (Naeye 1994; Smith 1981). The uncertainty surrounding black lung in the early 1900s complicated diagnosis and created an avenue for denial and contestation. Diagnosing black lung continues to be a complicated process, but the lack of advanced medical technology and the general misunderstanding of the disease in its early etiology created a number of barriers for miners. Black lung was often confused with other respiratory diseases such as emphysema and bronchitis (Davies 1974), making it difficult to diagnose and treat. Coal operators also had a tendency to blame the victim and deny, or contest claims of illness. For instance, miners who smoked or had poor dietary habits were blamed for either causing or complicating black lung (Lapp, Morgan, and Zaldivar 1994).
Having the power to both define and manipulate the illness, coal operators treated lung disease as normative among coal miners (Smith 1987). Thus, they did not take preventative action until they were required to do so by law (Dawson et al. 1998). Coal operators also denied the seriousness of black lung for fear of miners seeking retribution (Derickson 1991). Consequently, black lung has long been contested on several fronts, including industry denial, complications with medical diagnoses, and blaming the victim.

Despite these contesting factors, the black lung movement was crystalized on November 20, 1968 when 78 miners died in the Farmington mine disaster in West Virginia (Barth 2005; Hechler 2011; Smith 1981). In many ways, the movement was not only about black lung, but about the long history of exploitation experienced by miners: “Black lung disease in a sense became a metaphor for the exploitative social relations that had always characterized the coalfields...The goal of black lung compensation represented, in part, a demand for retribution from the industry for the devastating human effects of its economic transformation” (Smith 1981:351). Even though the disaster was not directly related to black lung, the mine disaster provided a political platform for the discussion and implementation of greater safety standards in the mines. Former Congressman and West Virginia Secretary of State, Ken Hechler, made it his personal campaign to achieve better occupational health for Appalachian coal miners (Hechler 2011). In February of 1969, over 40,000 miners went on strike, shutting down the majority of coal production in West Virginia. These actions, coupled with the death of 78 miners in the Farmington disaster, created national attention and political debate over health and safety in the mines (Smith 1981; 1987). In December of 1969, a little under a year after the Farmington disaster, Congress passed the Coal Mine
The Federal Coal Mine Health and Safety Act of 1969 represented a significant increase in government regulatory intervention. The Coal Act created comprehensive safety and health standards, provided for mandatory inspections (four times each year for underground mines and twice each year for surface mines) and established a variety of sanctions, including mine closure, that could be imposed for noncompliance. The Mine Safety and Health Act of 1977, which supersedes the 1969 Act, consolidated coal and other mining enforcement activities in a new agency, the Mine Safety and Health Administration (MSHA) located in the US Department of Labor, and retained the basic structure and regulations formed in response to the 1969 Act (Weeks and Fox 1983:1278).

The 1969 Coal Act also provided healthcare benefits and compensation to miners with black lung (Dawson et al. 1998). Upon the passing of the Coal Mine Health and Safety Act of 1969, many thought the disease would disappear; however, in recent years, cases of black lung are once again on the rise.

The Coal Mine Health and Safety Act was a significant step forward for occupational health in the United States, and showed great success for the first few decades (Weeks 1991). Fatal injuries decreased significantly, dust exposure was lowered greatly, and subsequently, prevalence of black lung also decreased (Weeks 1991). After the 1969 Coal Mine Health and Safety Act, prevalence of CWP declined from 30% of miners to 10% in roughly a 25-year
period (Attfield et al. 2011). Between 1995 and 1999, prevalence of black lung declined to about 3% (Laney and Attfield 2013). James Weeks, Senior Scientist with the Mine Safety and Health Administration argued that: “Regulation works—when standards are set and conscientiously enforced, hazards can be controlled” (Weeks 1991:195). With this downward trend in prevalence, many thought the disease would completely disappear.

However, trends in black lung started to increase once again starting around the turn of the 21st century. Medical researchers and health advocacy groups have been alarmed by the increasing prevalence of black lung, as have many miners and their families. Given the institutionalization of the disease and its known etiology, it is surprising that cases of black lung continue to rise. This research seeks to understand the trends in black lung prevalence through sociological analysis of the factors undergirding the disease.

*Research Roadmap*

In Chapter Two, I discuss the theoretical framework that guides the study. Specifically, I draw upon theoretical literature on risk and treadmill of production, contested environmental illnesses, and environmental health movements. In Chapter Three I discuss the research methods for the project, spelling out the data and analytic strategy employed. In Chapter Four I analyze the legislative changes and bureaucratic hurdles associated with black lung. I pay particular attention to how economic problems associated with the coal crisis have exacerbated miners’ efforts to seek redress for their illnesses. In Chapter Five I focus on the lived experiences associated with black lung, including the miners’ challenges associated with receiving diagnosis, treatment and compensation, as well as the broader impacts the disease has on their identity and personal lives. In Chapter Six I analyze environmental
health activism aimed at addressing the broader problems associated with black lung, including issues accompanying enforcement of existing laws. I also examine the industry’s efforts to contest ongoing claims of environmental illness. In Chapter Seven I discuss the conclusions of the study, highlighting both the theoretical and practical implications of this research. I address the utility of the theoretical perspectives employed in the study and make suggestions for further research on black lung and other contested environmental illnesses.
CHAPTER 2: THEORETICAL FRAMEWORK

The theoretical issues addressed in this project are situated within the broader literature of environmental sociology. I begin with a discussion of treadmill of production and risk society theories, which provide the underlying arguments for environmental disruptions. I then turn to theoretical work on contested environmental illness, outlining the primary arguments in this literature. Finally, I discuss environmental health movements and the industry’s contestation to environmental illness claims. Taken together, these theoretical concerns within environmental sociology shape the broader analytic framework for this study of black lung in the 21st century.

Treadmill of Production, Risk, and Contested Environmental Illness

Treadmill of production and risk society theories represent two of the most significant perspectives in environmental sociology and both provide the broad theoretical scaffolding for my analysis of black lung as a contested environmental illness. Treadmill of production theory was developed by Alan Schnaiberg in the early 1980s. In his seminal book, The Environment: From Surplus to Scarcity, Schnaiberg (1980) analyzed production expansion and environmental degradation in the United States after World War II. Schnaiberg and other treadmill scholars argue that production activities involve a series of environmental withdrawals (i.e., mining of resources such as coal) and environmental additions (i.e., unwanted byproducts of production such as coal dust and other pollutants). Taken together, these environmental withdrawals and additions create environmental disruptions and also have significant social consequences.
In capitalist economies, the primary goal is to continually expand production and increase profits, which in turn, inevitably increases environmental disruptions (Gould, Pellow and Schnaiberg 2004; Schnaiberg 1980; Schnaiberg and Gould 1994). Importantly, treadmill scholars argue that technological developments serve to further exacerbate these patterns of disruptions and allow for the extraction of natural resources at ever-increasing rates (Gould, Weinberg, and Schnaiberg 1995; Gould, Pellow and Schnaiberg 2004; Schnaiberg 1980). As a result, the process of ever-increasing production expansion serves to accelerate the depletion of natural resources and generate even more environmental additions via increased pollution, hence the metaphor, “treadmill of production.” Moreover, technological developments often reduce the need for human labor, thus contributing to the displacement of workers.

Environmental degradation is further exacerbated by the failure of government regulation. Government agencies at the state and federal levels are charged with regulating industries and protecting the public and the workforce. Yet, as James O’Conner (1973) pointed out nearly fifty years ago, the state faces an inherent contradiction that undermines its efforts. In his book, The Fiscal Crisis of the State, O’Conner argues that the state has two primary functions: accumulation and legitimization. Through its accumulation function, the state is charged with ensuring that industries such as coal mining continue to remain productive and profitable for the economy. Yet, through its legitimation function, the state must simultaneously protect workers and citizens from these same production processes. According to O’Conner, these two primary functions are inherently contradictory and the state continually errs on the side of accumulation at the expense of protecting the public.
Notably, these contradictory functions have explicit implications for social class as business elites are generally protected, while the working class suffer the consequences of regulatory failures through increased environmental exposures (see also Cable and Cable 1995).

Thus, as a result of both continually expanding production and regulatory oversight, environmental additions in the form of air and water pollution become externalized to the broader population. These negative externalities take many forms, ranging from localized pollution to global systemic impacts such as climate change (Epstein et al. 2011). Notably, these externalities have disparate impacts on certain populations. The externalization of the environmental costs of production disproportionately affect the poor and working class (Brulle and Pellow 2006; Gould et al. 2004; Pellow 2000).

The negative externalities of production are further exacerbated by riskier technological developments, which not only intensify production but also increases both the type and scope of environmental exposures. Thus, the continuous drive for production expansion (i.e., the treadmill of production) leads to the development of technologies that may increase risk for both workers and the population at large. Technological innovation intended to increase capital accumulation in modern industrial production have created what Beck (1992; 1996) calls the “risk society” (see also Cable, Shriver, and Mix 2008). Ulrich Beck (1992:4) defines risks as, “the probabilities of physical harm due to given technological or other processes.” Risk and hazards are always present. However, Beck (1992) pays particular attention to modern scientific and industrial developments. We live in an expansive, high-tech world where concerns over environmental degradation, public health, and occupational health and safety have come to characterize modern society. These
environmental risks are viewed by some as genuine threats to their health and safety, whereas others see such claims as exaggerated and impediments to economic development and profit accumulation.

As noted by Beck (1992), technological innovation has created new risks that have made us more susceptible to toxic exposures and environmental catastrophes. In this context, risk experts have the power to control scientific knowledge, including the accepted definitions of risk (Cable, Shriver, and Mix 2008). Risk, then, is a power game (Beck 2006; Cable, Shriver, and Mix 2008), where laypersons are disadvantaged with inadequate information and resources. As a result, workers and community members are susceptible to disparate environmental exposures and related health problems. Erikson (1995:147-148) characterizes these risks as a “new species of trouble,” where disasters are inevitable:

We generally use the word ‘disaster’ in everyday conversation to refer to a distinct event that interrupts the accustomed flow of everyday life…Toxic disasters, however, violate all the rules of plot. Some of them have clearly defined beginnings, such as the explosion that signaled the emergency at Chernobyl or the sudden moment of realization that opened the drama of Bhopal; others begin years before anyone senses that something is wrong, as was the case at Love Canal. But they never end. Invisible contaminants remain a part of the surroundings, absorbed into the grain of the landscape, the tissues of the body, and worst of all, the genetic material of the survivors. An all clear is never sounded.
An important aspect of the modern, risk society is that environmental disasters and catastrophic events have become what Perrow (1999) refers to as “normal accidents.” For example, the BP Deepwater Horizon oil spill in 2010 produced feelings of helplessness and anger among the general population. While corporate entities were initially called out for their actions, these moral outcries were short-lived (Farrell 2014). In a study comparing government action in the Exxon Valdez and Deepwater Horizon oil spills, Sylves and Comfort (2012) argue that oil companies find ways to conform to new regulations, while maintaining business as usual. Furthermore, business and government are often tightly coupled. Governments tend to waiver between “stringency and cooptation,” which is often tied to the need to produce profit (Sylves and Comfort 2012:98). Therefore, governments often overlook environmental and workplace hazards (Sylves and Comfort 2012).

In a risk society, the public is increasingly desensitized by the increasing frequency of disasters. Given the high-tech nature of modern technology, disasters such as the BP oil spill and the Fukushima nuclear disaster are now considered to be part of normal production activities in modern society. For instance, despite the destruction caused by the Fukushima nuclear meltdown, Szarka (2013:660) argues that “nuclear lock-in—the need to exploit existing facilities” leads to the continued use of dangerous establishments. Perrow (1999) notes that these disasters are perceived as one-time errors or accidents. However, in reality, they have become a normalized part of production. These human-created disasters such as the Exxon Valdez oil spill dramatically reshape the social structure (Picou, Marshall, and Gill 2004), yet little is done to remedy these risky technologies. In an industrial society where environmental regulation is being dismantled and environmental degradation is increasingly
prevalent, public concern and action has increased substantially (Brown and Zavestoski 2004). Unsurprisingly, the increasing prevalence of environmental risk has been inextricably linked to claims of illness, which have received considerable attention in recent years.

While much of the work around Beck’s (1992a; 1992b; 1996) risk society thesis has been attributed to modern high-technological developments, I argue that the increased risk associated with technological developments and change within traditional industrial sectors also reflect these trends. For example, technological developments in the extraction of natural gas through hydraulic fracturing (“fracking”) have generated new forms of risks not traditionally associated with the industry (Wright, Muma, Radebaugh 2016). Similarly, new developments in coal mining have exacerbated the risks associated with coal mining as operators have developed new, and riskier, ways to mine coal. Specifically, technological developments in the industry have created new risks associated with silica exposures and have exacerbated traditional forms of black lung disease. Ultimately, the continual drive for increased production (i.e., treadmill of production) and the related risks associated with the technological developments undergirding these trends has direct impacts on human health.

The burgeoning body of literature on environmental illness has developed to examine the myriad forms of contestation to environmental exposures and illness claims. The literature on contested environmental illnesses focuses on both the study of illnesses that are caused by factors in one’s surrounding environment and by the inherently contested nature of such illness claims. Contested environmental illness refers to “diseases and conditions that engender major scientific disputes and extensive public debates over environmental causes. By environmental, we mean toxic substances in people’s immediate or proximate
surroundings, which have health impacts” (Brown et al. 2003:214). Expanding on the notion of causation, these environmental factors and causes may include contact with chemicals, air pollution, radiation, or other toxic exposures (see Brown et al. 2001). While the literature on contested environmental illness is quite vast, there are three major aspects of this work that are particularly relevant for this research on black lung. The first centers on themes related to ambiguity and uncertainty, which are core considerations in cases of environmental hazards and illness claims. The second centers on the issue of diagnosis, which provides the pathway to treatment protocols and compensation. The third focuses on the important distinction between “presumptive” versus “known” environmental illnesses.

The very nature of environmental illness is enmeshed in a climate of uncertainty and ambiguity. Modernization and technological innovation frequently create consequences which are unforeseen or unpredicted. However, creating a climate of uncertainty may also be intentional. Private and public institutions can restrict access to information, consequently, creating an ambiguous climate (Cable, Shriver, and Mix 2008). For instance, coal company physicians argued for years that black lung was actually asthma and emphysema caused by smoking tobacco (Smith 1987). By claiming that causes of illness are uncertain, or simply denying illness claims leads to individual blame (Vyner 1988). By attempting to blur the causes of disease, powerful actors are able to skirt responsibility. This often lets business elites off the hook, where they are free to operate as usual without suffering critical consequences.

The issue of uncertainty and ambiguity exacerbates the contestation of the disease, as does the complicated issue of diagnosis. Medical diagnosis authenticates illness through the
official sanctioning of a disease, and this labeling serves as the critical first step in disease recognition (see Shriver and Waskul 2006; see also Brown et al. 2012). As noted by Zavestoski et al. (2004:162), diagnosis “provides a gateway to health services, welfare benefits, unemployment certification, worker’s compensation claims, and pensions.” Diagnosis is certainly critical to the recognition and treatment of all forms of illness, but it is particularly important in cases where conditions are contested. For medical professionals, disease is central to the clinical practice of medicine, giving direction to a menu of treatment options (see Zavestoski et al. 2004). For those suffering from illness, diagnosis anchors their illness experiences and helps them make sense of their situation. Without proper diagnosis, one’s understanding of their condition is often misguided by “confusion, doubt, and different appraisals of risk” (Brown, Kroll-Smith, and Gunter 2000:16).

Environmental illnesses are categorized as either known or presumptive diseases (Zavestoski et al. 2002). Known diseases are confirmed by medical professionals and are accepted by important institutions such as government, scientists, and medical professionals (Shriver, Cable, and Kennedy 2008). These diseases clearly exist, but may have varying degrees of agreement on etiology or diagnosis (Brown et al. 2001). In contrast, presumptive diseases are disputed as illegitimate diseases (Brown et al. 2001). In these cases, a clear etiology has not been established by medical, scientific, or governmental institutions (Shriver, Cable, and Kennedy 2008). Breast cancer, for example, is a known disease, as it is widely accepted as a legitimate disease. In contrast, Gulf War-related illness represents a presumptive disease as those who suffer with the illness struggle to have it recognized as a real and legitimate ailment (Shriver, Chasteen, and Adams 2002; Zavestoski et al. 2002). The
distinction between known and presumptive conditions speaks directly to the issue of legitimization. As noted by Shriver et al. (2008:573), “Without legitimation, individual illness is typically perceived as a personal problem.”

The literatures on risk and contested environmental illness provide the backdrop for analyzing black lung disease. The increasing complexity of technological innovation for production purposes increases environmental degradation and exposure to risk and hazards. Black lung is one such instance where the culmination of technology and power expose workers to unnecessary hazards in the workplace. Importantly, black lung was one of the first noted cases of environmental illness. Moreover, black lung represents a “known” form of environmental illness, whereby both the environmental causation and the illness itself have been firmly validated by medical professionals, regulatory agencies, and scientists. Given the history of black lung disease and its importance to the broader research on environmental health and illness, why is black lung disease still being contested in the 21st century? How are the victims of black lung and their supporters reacting to the resurgence of black lung, and what role does the industry play in the ongoing contestation? In order to address these broad questions I turn to the literature on environmental health activism and elite resistance.

Environmental Health Advocacy

The increasing risk characterizing society, along with the related claims of environmental illness, have raised public awareness of various public health controversies. This public awareness undergirds the emergence of environmental health movements, efforts that seek to address the connection between environmental degradation and health. The coupling of environmental and social movements has created a powerful new avenue for
environmental, public, and occupational health movements. As noted above, environmental health problems include “the totality of hazards and health effects found in our living and working conditions” (Brown 2013:1). These might include bacteria and viruses, air or water pollution, chemical spills, explosions, or disasters (Brown 2013). The environmental health movement encompasses concerns related to toxic exposures and environmental justice with a specific focus on collaboration between laypersons and experts (Brown 2013). More generally, health social movements (HSM) focus on the political avenues of access and quality of health care as well as larger social change (Brown and Zavestoski 2004). Brown and Zavestoski (2004:679) define health social movements as:

Collective challenges to medical policy, public health policy and politics, belief systems, research and practice which include an array of formal and informal organizations, supporters, networks of cooperation and media. HSMs make many challenges to political power, professional authority and personal and collective identity. These movements address (a) access to, or provision of, health-care services; (b) disease, illness experience, disability and contested illness; and (c) health inequality and inequity based on race, ethnicity, gender, class and/or sexuality.

Thus, health social movements challenge authoritative institutions such as medical professionals and public policy, inform the public about illness experiences, and help lift the veil that often obscures health inequality. Studying health social movements provides the opportunity to analyze the transformative power of political action centering on health care,
illness experiences, and broadening the understanding of the social determinants of health (Brown and Zavestoski 2004).

Health social movements are generally categorized into three ideal types: health access movements, constituency-based health movements, and embodied health movements. Health access movements focus on creating equal and improved access to health care. Constituency-based health movements focus on health inequality based on race, ethnicity, gender, class, and sexuality. And embodied health movements address disease and illness experience. An important aspect of embodied health movements is that they are often utilized to challenge experts on etiology, diagnosis, treatment, and prevention of disease (Brown and Zavestoski 2004). While this typology is important for characterizing the totality of health movement types, embodied health movements most closely represent the struggle over black lung. Embodied health movements (EHMs) are unique in that they 1) use the personal body as a vehicle for social action, 2) they challenge medical and scientific knowledge, and 3) they involve collaborations between laypersons with medical and scientific experts (Brown et al. 2004). Essentially, EHMs highlight the illness experience of those affected by environmental illness in order to increase public awareness, challenge medical and scientific authorities, and change research practices to include laypersons. By understanding one’s own disease experience, they are able to critique the systems and institutions that have created this experience (Brown et al. 2004). In this regard, highlighting one’s personal illness experience is an invaluable tool for exposing power relations and inequality.

The victims of environmental illness can have their lives altered forever (Kroll-Smith and Couch 1993). Victims are often blamed for their own negligence, and are even ostracized
or stigmatized (Edelstein 1993). Some communities become divided in cases of environmental hazards, as opposing groups attempt to discredit or disassociate from others claiming illness connected to environmental exposures (Shriver and Kennedy 2005). Lacking legitimacy for their claims and fighting against powerful actors for acknowledgement often leaves victims feeling distrustful of regulatory institutions such as the Environmental Protection Agency (Adams et al. 2011). Consequently, those exposed to hazardous substances, “report feelings or loss of control, helplessness, and powerlessness” (Lebovitz, Baum and Singer 1986:XII). Extant literature indicates that victims of environmental illness seek validation and legitimation of their claims.

An important component of embodied health movements is to challenge the Dominant Epidemiological Paradigm (DEP). The DEP, “is the codification of beliefs about a disease and its causation that are held by science, government, and the private sector” (Brown, Morello-Frosch, and Zavestoski 2011:24). In other words, the DEP represents the public and private perception and understanding of a disease, its etiology, and treatment of the disease. It can also be thought of as both a model and a process in that it helps us understand how diseases are acknowledged and classified (Brown et al. 2001). The DEP suggests several stages: identification, collective engagement, search for treatment, causation, and prevention, attributing responsibility, and political determination (Brown et al. 2001). These stages, however, can be simplified into three categories: prediscovery, discovery, and postdiscovery. The prediscovery phase is when the disease is new or not fully understood (Brown, Morello-Frosch, and Zavestoski 2011). This stage is often marked by extensive contestation and denial in an effort to avoid responsibility. The discovery phase
signifies efforts by government agencies, scientific organizations, and public actors to define the disease, its etiology, treatment, and health outcomes (Brown, Morello-Frosch, and Zavestoski 2011). Lastly, in the postdiscovery phase disease sufferers either challenge the newly developed DEP or accept it (Brown, Morello-Frosch, and Zavestoski 2011). An important component of embodied health movements is for the individual to use one’s disease experience to challenge the DEP. For example, a disease sufferer may oppose claims of individual negligence and blame. Instead, by challenging the DEP, health problems are cast as “social problems” rather than “personal troubles” (Brown, Morello-Frosch, and Zavestoski 2011).

Lay involvement, or what some refer to as “citizen science” or “popular epidemiology,” is also a major component of embodied health movements and contested environmental illness. Popular epidemiology is noted for its “commitment to the sharing of power with the people with and for whom researchers work” (Sebastian and Hurtig 2005:799). Popular epidemiology seeks to engage laypersons by sharing the knowledge creation process with community residents which allows for its definition and research to be grounded in affected communities (Sebastian and Hurtig 2005). However, bridging the gap between professionals, scientists, medical experts, and laypersons is sometimes difficult to accomplish. First, professionals are often socialized to remove themselves from laypersons or from their involvement. Second, small samples and uncertain scientific practices make it difficult for research conducted by laypersons to be accepted as legitimate research. Third, even upon legitimation of claims, professionals may not take as drastic of actions as activists
may like (Masterson-Allen and Brown 1990). Thus, while lay involvement is a great way to ground the research in everyday life of disease sufferers, it is often difficult to accomplish.

**The Contestation of Environmental Illness Claims**

Those affected by environmental illnesses often find they have little support and are “embroiled in public conflict” (Cable, Shriver, and Mix 2008:381). This conflict is fueled by several prominent factors: 1) issues of uncertainty, 2) disproportionate impacts on poor and minority communities, and 3) corporate and governmental deceit in an effort to maintain a reputable public presence (Brown, Kroll-Smith, and Gunter 2000). Importantly, extant research reveals disparate environmental impacts on disenfranchised populations, including low-income and minority communities (Brulle and Pellow 2006). Brulle and Pellow (2006) argue that health and environmental inequality are unfortunate consequences of the organization of society in that the poor and people of color are disproportionately exposed to environmental hazards. Despite spending more money on health per capita than any other industrialized nation, health outcomes in the United States are polarized by the ability to avoid hazardous exposures and afford adequate healthcare (Brulle and Pellow 2006). This unequal divide places disenfranchised groups in vulnerable situations at the discretion of the powerful.

Powerful actors attempt to contest claims of environmental exposure in order to protect their vested interests, while simultaneously creating an uncertain climate in order to deflect responsibility or blame. These actors fall into several broad categories, including: medical professionals, scientists, regulatory agency representatives, and corporate decision makers. Medical professionals and scientists hold the power to either legitimate or deny
environmental exposures and claims of illness and disease. In some cases, experts are criticized and even vilified for speaking out in support of community residents in cases of toxic exposures (Freudenberg 1984; Paigen 1982). This can have a silencing effect on experts, who fear retribution or ostracism (Cable et al. 2008). Interestingly, when studying infectious diseases, epidemiologists incorporate political, economic, and social factors; however, when studying environmental toxins and exposures, these factors tend to be dismissed (Brown, Kroll-Smith and Gunter 2000). Additionally, many medical professionals have been poorly trained to identify and treat environmental illnesses (Brown and Kelley 2000). For these reasons, physicians fear they may be perceived as whistleblowers if they are involved in contested illness claims and suffer consequences accordingly. (Brown and Kelley 1996), For example, in their research on nuclear weapons workers at the Oak Ridge Nuclear Reservation, Cable et al. (2008) found that a prominent oncologist was vilified and literally forced out of town after speaking up about environmental health impacts. Thus, in many cases, the very experts who can serve to legitimate health concerns in cases of environmental exposures remain quiescent.

In addition to medical professionals and scientific experts, environmental illnesses are also contested by the very social institutions that benefit most directly from the social arrangement of our economic system (Cable, Shriver, and Mix 2008). Indeed, government agencies are often at the forefront of contesting environmental illnesses. The state is often in precarious situations as they must be perceived as effective regulators; however, industry profits could decline if they did in fact regulate as they are intended (Cable and Cable 1995; Shriver, White, and Kebede 1998). As noted above, O’Connor (1973) summarizes the
challenge of government regulation through his delineation of the state’s contradictory functions. Through its accumulation function, the state must ensure and facilitate economic growth and corporate profits. Thus, the state nearly always falls on the side of capital accumulation over the protection of the public.

As a result, in order to bolster economic growth government regulators have a tendency to downplay and minimize risk and environmental illnesses when possible. At the very least, environmental threats are given the “benefit of the doubt.” Since risk is a power game (Beck 2006), those with less power are subject to the decisions of those in powerful positions. Therefore, regulation that would theoretically decrease environmental exposures and related instances of disease might decrease industry profits and therefore threaten the state’s accumulation function (Cable and Cable 1995). Thus, powerful actors benefit from denying environmental illness (Shriver, White, and Kebede 1998), as it allows them to externalize some cost of doing business.

In addition to medical professionals, scientists, and government officials, companies and their representative agents are often keen to contest claims of illness, especially when their business operations are being implicated. Corporations often go to great lengths to preserve their public images and they utilize a variety of tactics to deter or deny environmental health concerns. For example, companies can use economic measures aimed to silence workers (Bodenhamer 2016; Shriver, Adams and Messer 2014). In her study about the use of mountaintop removal in West Virginia, Bodenhamer (2016) finds that coal elites construct a normative culture of coal by celebrating the longevity of coal and the jobs and
energy security it provides. Lacking union protection and having limited economic opportunities, miners remain silent about workplace hazards for fear of losing their jobs.

In some cases, corporations and their related industries launch social movements to do their bidding. Conservative think tanks launch counter-movements to combat claims of environmental risk (Jacques, Dunlap, and Freeman 2008). These so-called astroturf organizations work to present “good neighbor” campaigns to encourage quiescence and passivity (Shriver, Adams, and Messer 2014). Astroturf organizations draw on a variety of strategies to promote corporate and business interests by coopting oppositional grassroots movements and presenting anti-environmental propaganda as scientific fact (Austin 2002). In doing so, these corporate organizations are often successful at seducing environmental organizations to collaborate with them (Austin 2002).

In other cases, corporations attempt to create goodwill in the communities where they are housed in order to foster support and deter public criticism. For instance, in their research on toxic shantytowns in Argentina, Auyero and Swistun (2008) found that Shell Oil frequently gave funds to local schools, donated t-shirts to children’s sport teams, and implemented nutritional programs for poor mothers all in hopes of promoting a positive self-image. Similarly, in her research on a Conoco oil refinery in Ponca City, Oklahoma, Adams (2014) found that the company routinely funded public outreach activities and even spearheaded a pro-Conoco “good neighbor” campaign. The organization promoted a successful campaign with the moniker, “Conoco: Ponca City’s Best Neighbor.” Company elites staged public protests supporting the company, and even allowed workers to leave early to attend public meetings. In some cases, the line between elite-manufactured and elite-
inspired support is blurred. Such is the case when employees and other supportive residents organize to support companies responsible for environmental contamination. In these cases, employees and other supporters fear that environmental health claims will have detrimental effects on current and future economic opportunities.

Business elites have a vast array of tactics that can be used against those claiming environmental illness. They can blame the victim and engage in economic retribution (Shriver, Adams, and Messer 2014), or utilize greenwashing and cooptation (Shriver and Adams 2010). In their research on environmental contamination in Oklahoma, Shriver, et al. (2014) developed a typology for the ways in which residents are silenced. Specifically, they argued there are two types of mechanisms for maintaining quiescence—proactive and coercive. Proactive mechanisms serve to maintain elite legitimacy by reshaping perceptions, including the creation of positive counter frames or public discourse, controlling data and assessments, and other diversionary tactics (Shriver, Adams, and Messer 2014). Essentially, these tactics are used to divert attention away from the source of contamination. The second type, coercive mechanisms, is directed more specifically towards agitators. For instance, in their case study of contamination from a decommissioned zinc smelter, the researchers found that vocal community members were ostracized, harassed, and threatened (Shriver, Adams, and Messer 2014). Collectively, these elite strategies and tactics serve to silence those in contaminated environments. In rural communities, this silence tends to be even more pervasive as employment opportunities are few, and residents may defend a polluting industry simply because it impacts their own or loved ones’ financial wellbeing (Brown and Kelley 1996; Freudenburg and Davidson 2007).
In summary, the literature on environmental sociology outlined above provides the theoretical scaffolding for this project. I argue that both treadmill of production and risk society theories provide the important theoretical backdrop for understanding how environmental disruptions are created. The constant drive for expansion prompts industries to rely on new, and sometimes riskier, technologies to increase production. This is certainly the case in the coal industry, where technologies have increased the type and scope of risks faced by coal miners. Importantly, the regulatory failures of the state have further exacerbated these patterns of disruptions and increased risks to worker health and safety.

Theoretical work on contested environmental illness provides insight into the contestation of coal miners’ health claims. Specifically, it sheds light on the challenges associated with diagnosis, treatment and compensation of the disease. Theoretical literature on environmental health advocacy informs the ways in which black lung victims interpret their illness experiences and organize around their common illness experiences to seek redress. It also informs the broader coalition organized around black lung advocacy. Finally, related theoretical literature on contestation informs the analysis of how various industry actors continue to contest black lung illness claims. Using this literature as a foundation, this project seeks to understand the underlying causes and consequences of black lung disease in the 21st Century.
CHAPTER 3: METHODOLOGY

In this section, I outline the guiding research questions for this study. I then discuss the primary sources of data, followed by a detailed discussion of the strategy for analyzing the data for the project.

Guiding Research Questions

The objectives of this study, in conjunction with the theoretical framework outlined above, leads to a number of research questions that guide this proposed study:

1) How have broader economic challenges and coal mining practices impacted resurgent black lung? And how has formal recognition of black lung affected prevention of the disease?

2) How has the formal recognition of black lung influenced the lived experiences of those suffering from the disease, particularly in terms of diagnosis, treatment and compensation? And in what ways does living with a contested disease such as black lung affect other aspects of miners’ lives beyond health status?

3) How do those suffering from black lung and their supporters mobilize to seek redress for the illness? And what roles does environmental health advocacy play in addressing black lung issues?

4) How does the coal industry continue to contest the claims of black lung sufferers, despite the formal recognition of the disease? And what role does the industry play in shaping institutional responses to black lung?

This research on black lung offers a unique opportunity to study the trajectory of a federally recognized contested environmental illness, including its institutionalization, contestation, and experiences of miners, lay advocates, and medical and legal experts.

Data Sources

Several forms of data were collected for this project: 1) semi-structured interviews, 2) direct observation, 3) newspaper coverage, and 4) government data and reports. Semi-
structured interviews are the primary source of data, but these are supplemented with observation, newspaper coverage, and government reports, which provide further context for the analysis and serve as a means of triangulating the data. Semi-structured interviews were conducted with key informants involved in black lung issues including retired coal miners, black lung attorneys, medical professionals, government researchers and employees, lay advocates, and black lung clinic workers. These interviews provided insight into the experience of black lung and the process of its institutionalization. Additionally, it broadened my understanding of how coal operators and disease sufferers shape the institutionalization of contested illnesses. Below I describe each of these data sources.

Semi-structured interviews were conducted with a total of 35 respondents involved with black lung issues. Respondents were largely recruited from the annual conferences of the National Coalition of Black Lung and Respiratory Disease Clinics, Inc. I utilized purposive sampling (Teddlie and Yu 2007) to identify key respondents in order to gather a variety of perspectives from black lung experts. Respondents include miners, physicians, clinic workers, federal employees (Department of Labor, Mine Safety and Health Administration, Centers for Disease Control), UMWA representatives, attorneys, benefits counselors, and lay advocates. Snowball sampling was used to identify additional participants.

An interview schedule (see Appendix) was used to prompt respondents with open-ended questions. These questions allowed participants to expand on their background, perceptions, and experiences with black lung. Respondents were asked about their work and involvement with black lung issues both currently and in the past. Additionally, participants
were asked about their perceptions of prevention efforts, and community and government responses to black lung. By sampling a broad range of respondents, I captured the experiences of not only black lung victims, but also of attorneys, medical professionals, clinic workers, lay advocates, and miners and their families. The culmination of these interviews created a broad array of perspectives on the resurgence of black lung.

In addition to conducting in-depth interviews, I also utilized participant observation at three significant black lung conferences to gain insights into the challenges and issues facing those working on issues related to the disease. The National Coalition of Black Lung and Respiratory Disease Clinics (National Coalition) sponsored the first conference. It was held in Bristol, Virginia in September 2015. The National Coalition represents a conglomeration of the Black Lung Clinic Program in fourteen states, as well as others involved in black lung efforts such as black lung attorneys, pulmonologists, federal employees, and miners. The Black Lung Clinic Program is a Health Resources and Services Administration (HRSA) initiative as part of the black lung program. These black lung clinics are dedicated to quality comprehensive care for workers with black lung and other respiratory illnesses. The primary goals of the National Coalition are to: 1) build a stronger unified national voice, 2) create a stronger public voice for respiratory disease, and 3) strengthen individual clinics, and broaden the scope of the knowledge of the National Coalition. This three day conference targeted a broad audience of anyone involved in occupational respiratory issues and includes several panels of experts in the field including: pulmonary researchers and other medical experts, government officials from NIOSH, DOL, CDC, and MSHA, UMWA representatives, black lung attorneys, and benefits counselors.
The second conference was a smaller, regional West Virginia Black Lung Conference at Pipestem, West Virginia in June 2016. This conference was similar to the National Conferences, but more focused on the geographic region. The third conference was also a National Coalition Conference, which was held in September 2016 in Lexington, Kentucky. I presented preliminary results of my research at this conference, as a way to engage with various stakeholder groups involved in the issue (Brown, Morello-Frosch, and Zavestoski 2011). This gave me an opportunity to share my own work and get feedback from those working directly in the area. This experience was invaluable in helping me identify and sharpen my data collection and analysis. During each of the conferences, I took extensive field notes and conducted numerous informal interviews with leading experts studying the disease, as well as with miners suffering from black lung. These field notes allowed me to identify additional gaps in my knowledge that could be addressed in subsequent formal interviews. Importantly, it also allowed me to triangulate my results by checking the validity of the data I had previously gathered (Brisbois 2016).

To provide further context for issues related to black lung disease, I also collected newspaper data and other government documents. I identified news stories and government documents using LexisNexis as well as individual agency websites such as MSHA, NIOSH, and DOL. Newspaper coverage from local, regional, and national newspaper sources, such as The Charleston Gazette, The New York Times, and NPR, which have covered black lung in recent years were analyzed. Furthermore, I reviewed blogs such as Coal Tattoo (a subsection of The Charleston Gazette) and Devil in the Dust (maintained by the Appalachian Citizens’ Law Center). These online forums host discussions and provide specific resources for issues
related to black lung. Finally, using LexisNexis, I located several state and federal court
cases related to black lung. Taken together, these documents provide important context for
analyzing the primary interview data. Additionally, drawing on secondary sources was a great
way to triangulate the interview and observational data.

Data Analysis

Qualitative data analysis was utilized to examine the underlying factors related to the
resurgence of black lung as a contested environmental illness. I began with an extensive
review of all of the data, including observation field notes, interview transcripts, and
secondary source material. The interview data was then uploaded into NVivo 11 and analysis
proceeded in several waves. To begin this process, I used a line-by-line coding method
(Strauss 1987; Charmaz 2006). Based on this initial coding, I developed a codebook in
NVivo 11, which I used to help guide the more focused coding of the data. While most of the
codes were informed from the theoretical concept identified in the literature review,
additional themes emerged in the data and were subsequently incorporated into the codebook
for further analysis. After several successive waves of analysis, the data coalesced around a
series of salient themes, such as: the bureaucratic web surrounding black lung compensation,
the difficulties of proving total disability, coal operators’ negligence in controlling coal and
silica dust, and the ruthless contestation of black lung illness claims. These themes were then
used in the development of the analysis chapters.

I also analyzed the secondary source material using a systematic analytic approach. I
collected hundreds of news articles, government documents and research studies related to
black lung disease. Once these data were collected, I uploaded the secondary source
materials into NVivo 11 and ran a series of query searches to identify relevant themes. The findings from the secondary source material helped bolster the interview data. Finally, the interview and secondary source data were further supplemented with my direct participation in national and regional conferences on black lung and my own observational field notes.

By utilizing a variety of data sources, I was able to triangulate and substantiate the data collected through in-depth interviews. Ultimately, this triangulation of data sources increases the validity of the study (Maxwell 2004). While I focused primarily on in-depth interviews and observation as the primary sources of data, the use of secondary source material such as media coverage and government documents provided additional important material which contributed to my study findings. Specifically, government reports from various federal agencies provided important detail on the legislation, trends, and patterns of black lung disease over time. Various materials related to treatment and compensation of black lung provided critical insights into understanding the complexities that miners suffering from the disease face in seeking redress for their illness. Finally, materials provided from various medical professional and benefits counselors helped me document the bureaucratic maze that they face in their advocacy work related to black lung.
CHAPTER 4: LEGISLATIVE CHANGES AND BUREAUCRATIC HURDLES:
ENVIRONMENTAL HEALTH AND THE COAL CRISIS

While the institutionalization of black lung was initially celebrated as one of the most effective pieces of legislation in occupational health history, resurgent black lung challenges these premature celebrations. The resurgence of black lung raises important questions related to the illness. How has the bureaucratization of black lung affected prevention, treatment, and compensation for miners? And how have broader economic challenges and coal mining practices impacted these complex processes? In the first section of this chapter, I discuss black lung legislation and analyze how it has changed over time. I also discuss the prevalence of the disease, including particular “hot spots.” Drawing insights from both treadmill of production and risk society theories, I discuss how the “coal crisis” is exacerbating black lung illness today. Finally, I discuss the bureaucratic challenges related to both black lung prevention and its compensation.

Legislative Backdrop of Black Lung

In many regards, the initial black lung legislation, the Coal Act of 1969, was an amazing accomplishment. Prior to this legislation, black lung was not recognized as a legitimate disease (Smith 1987), and most certainly was not considered worthy of regulating and preventing. However, due to the massive presence of 40,000 striking miners following the death of 78 miners in the Farmington mine disaster, the coalfields of Appalachia became the focus of national attention and political debate (Smith 1981; 1987). In December of 1969, a little under a year after the Farmington disaster, Congress passed the Coal Mine Health and Safety Act (CMHSA) (Smith 1981; 1987). Today, the legislation is still celebrated as a
regulatory breakthrough for coal miners. Several respondents noted how impactful the legislation on black lung was for miners. One respondent offered this summary of its importance:

> It really was fairly unparalleled in the history of that type of legislation, and certainly in this country. I don’t know if there’s anything like it, in terms of what it did. In one swoop, they established science-based exposure limits for the mines. They established an agency whose mission it was to assure that safety and health standards were promulgated and enforced in the coal mines. They gave that agency the power to fine and even shut down mines that were failing to adhere, and they started a research program and a worker-monitoring program, and provided for ongoing surveillance or tracking of the health of miners. And they compensated those who could prove that the lung disease was due to the occupational dust exposure. That’s a pretty remarkable thing. And over 30 years, the rates of disease dropped basically 90 percent, which was really an amazing public health success. So that is pretty remarkable.

While many remain supportive of the Coal Act and what it does for coal miner protection, they also identified major flaws in the legislation that have become abundantly clear over time. Most importantly, respondents were skeptical, and even hopeless, regarding the actual practices of the coal industry including their incompliance with the legislation. One former coal miner exclaimed, “The black lung laws are almost a joke!”

> While there are issues with the black lung legislation, federal employees view it as certainly better than not having any protection at all. A federal employee notes:
It’s always easy to see the flaws, but I think getting any type of protection from the types of dangers that these individuals are exposed to is just an incredible triumph. I’m so glad that they got protection. Could it be better? Yes, there are always things that could make it better, but…I’m so glad to see that there were some protections enacted for those individuals.

The Coal Mine Health and Safety Act has undergone numerous amendments, and each iteration reflects the changing political landscape of the period. Some changes in the legislation and enforcement have favored miners, while others have focused on protecting the interests of the coal mine operators. As a result, the experiences of those filing for compensation have varied dramatically depending on the political and economic landscape. Despite some variability of experiences, miners often find themselves embroiled in personal and economic conflicts with the coal industry and government actors.

Coal Mine Health and Safety Act

“The Black Lung Program,” is a cumbersome web of government agencies that includes the Department of Labor (DOL), the Mine Safety and Health Administration (MSHA), the National Institute of Occupational Safety and Health (NIOSH), and black lung clinics funded by Health Resources and Services Administration (HRSA). These federal agencies work together to prevent and treat black lung, as well as compensate those who are disabled from the disease. Regulations for U.S. coal mines started in 1952 with the Federal Coal Mine Safety Act. This Act was further amended by the Federal Metal and Nonmetallic Mine Safety Act of 1966, the Federal Coal Mine Health and Safety Act of 1969, the Federal Mine Safety and Health Act of 1977, and finally, the Mine Improvement and New
Emergency Response Act of 2006. However, the most notable regulations were those set forth by the 1969 Coal Act and the Mine Act of 1977. The Black Lung Benefits Act, which establishes compensation protocol for miners disabled by black lung, was initially created under Title IV of the Coal Act of 1969. The Black Lung Benefits Act has also been amended several times, in 1972, 1978, 1981, and most recently, the Black Lung Benefits Improvement Act of 2015. I will discuss the major legislative changes and impacts of these changes, followed by a discussion of the status of the coal industry today.

According to a CDC brochure (n.d.) titled, “Black Lung: Don’t Become a Victim,” the purpose of the Coal Act is to protect the health and safety of coal miners by studying the causes and impact of black lung and to provide early detection and prevention of black lung disease. The 1969 Coal Act created the most stringent dust regulations in the world at that time (Smith 1987). It established several federal mandates. First, it established four annual, required inspections for underground mines, and two annual inspections for surface mines. Second, it enabled federal agencies to fine for violations and criminal penalties for “knowing and willful violations.” Third, it strengthened safety and health standards in the mines. Fourth, it established a training program for miners. Fifth, it provides miners with the right to request federal inspections. Sixth, it established a respirable dust limit of 2.0 mg/m³. Seventh, it created a surveillance program for underground miners offered through NIOSH (Antao, Petsonk, and Attfield 2006). Furthermore, the Coal Act created a benefits program for disabled miners known as the “Black Lung Benefits Program.” This program established a federal compensation system for miners who are totally disabled from black lung (MSHA 2017).
The Coal Act was amended in 1977 and became known as the “Mine Act.” The Mine Act transferred enforcement from the Department of the Interior to the Department of Labor, and established a new agency known as the Mine Safety and Health Administration (MSHA). This amendment also consolidated all federal health and safety regulations for the mining industry, including coal and metal/nonmetal. Furthermore, it increased whistleblower protections for miners (MSHA 2017). Those working on black lung issues are generally pleased with the improvements in regulation as noted by this attorney:

There have been stronger black lung protections in place since the 1970s. At first, they were fighting for recognition of the disease. This is widely accepted today, however, that black lung exists. The law has changed dramatically over the years, with modifications in 1977…The regulations have changed, and the law, and interpretation changes.

Prevention is a major facet of the legislation. Notably, respirators are not considered a “first line of defense.” A coal operator is required to offer a respirator to an employee if he/she asks for one, but it is not a requirement for miners to wear them. Instead, mechanical controls, such as water sprays, ventilation, and rock dust, are the preferred and suggested means of limiting the amount of respirable dust in the mines (Hechler 2011). The stringency of the legislation and regulatory efforts has changed dramatically over the years, making it more or less difficult for coal operators to comply with the regulations. The Black Lung Benefits Act has followed a similar trajectory.
As mentioned previously, the Black Lung Benefits Act falls under Title IV of the Coal Act of 1969. Section 401 of Title IV asserts that the Black Lung Benefits Act serves to:

Provide benefits, in cooperation with the States, to coal miners who are totally disabled due to pneumoconiosis and to the surviving dependents of miners whose death was due to such disease; and to ensure that in the future adequate benefits are provided to coal miners and their dependents in the event of their death or total disability due to pneumoconiosis” [30 U.S.C. §§ 801 et seq.].

Those involved with black lung compensation claims note how truly unique this program is. An administrative law judge explains:

You know, I think Federal black lung claims are pretty unique. The beginnings of this program originate from the Federal Coal Mine Health and Safety Act of 1969...The Act has been amended several times since then 1972, 1977, 1981 and then most recently 2010 as part of the Patient Protection Affordable Care Act. I think it is pretty unique that the Federal Government is involved in this type of Worker’s Compensation Program.

The Black Lung Program is one of the few workers’ compensation programs that require federal litigation. Notable exceptions include the Division of Longshore and Harbor Workers’ Compensation (DLHWC) and the Division of Energy Employees Occupational Illness Compensation (DEEOIC). The Federal Treasury funded the initial set up for the black lung benefits program. The program was incredibly expensive and cost the federal budget $1
billion dollars a year (Smith 1987). The system was deemed to be economically unsustainable, and thus the legislation quickly changed.

Congress liberalized the BLBA in 1972. This change expanded the legal definition of “total disability,” extended benefits to surface miners, expanded the definition of “dependents,” protected miners from being denied benefits solely based on chest x-rays, and adding a 15 year presumption (Department of Labor n.d.). The 15-year presumption asserts that if a miner has worked in the mines for 15 or more years, and is totally disabled, it is assumed that their disability was caused by employment in the coal industry. In action, this shifts the burden of proof from the coal miner to the employer during litigation.

One major change from 1969 to 1977 was shifting the cost burden from the Social Security Administration to the coal operators via the Black Lung Disability Trust Fund. A federal employee explained how changes in legislation have set up an adversarial program:

Back in ‘69, when Nixon signed this into law as the Social Security Administration…it was really just a straight up benefits program. Then I think the sense of Congress was along the way, ‘Well geez, we should have the coal companies have some skin in the game. And they should be paying their way.’ Well, that’s fine, but when you do that, they have constitutional rights to defend themselves and that’s kind of where we are. Since this moved over from SSA to [the Department of] Labor, it’s been an adversarial program.

Initially, the coal industry was not financially responsible for the very disease they were causing among miners. However, this all changed when Congress shifted the cost burden from the Social Security Administration to the Department of Labor in 1973. While
shifting the cost burden was an important move in making coal operators more financially responsible, the unintended consequence was the creation of an adversarial process that continues to consume miners today. Based on personal communication at the National Coalition Black Lung Conference in 2016, a benefits counselor claimed that mine companies argue that having to pay black lung compensation without formal litigation is a violation of due process under the Fifth Amendment. Essentially, this argument suggests that coal operators are being deprived of property and profit, and are therefore legally entitled to defend themselves. As a respondent explained, “For due process reasons, they [coal operators] are entitled to that hearing.” The second major amendment of the Black Lung Benefits Reform Act in 1977 expanded the definition of “miner” from anyone employed in a coal mine to anyone who works in or around a coal mine or preparation plant. The Amendment also set up an adjudication process for compensation claims. In addition, it prohibited rereading of chest x-rays; and changed the 15-year presumption to a 25 year presumption (Department of Labor n.d.). During the same period, the Black Lung Revenue Act of 1977 also passed, creating the Black Lung Disability Trust Fund (Department of Labor n.d.). The Black Lung Disability Trust Fund utilized an excise tax paid by coal operators at a rate of $1.10 per ton of underground coal mined, and $.55 per ton of surface-mined coal (Department of Labor 2009). The Trust Fund is used to pay for claimants in three different scenarios: 1) those who worked prior to January 1, 1970, 2) cases where there is no identifiable responsible operator, or 3) in cases where the coal operator has defaulted on payments to the miner (Department of Labor 2009). The Trust Fund remains a contentious and political issue, especially in light of recent coal company bankruptcies, which I will
discuss in detail in Chapter Six. According to O’Connor (1973), class conflicts become bureaucratized, which is problematic given that corporate interests overwhelmingly influence the political system in the United States. Black lung represents a perfect example of this tension. In one sense, miners won a victory with the passage of the 1969 Coal Act, yet its dysfunction is indicative of the displacement of class conflicts. In other words, the bureaucracy surrounding black lung will remain ineffective because of the tension between state bureaucracy and corporate interests. In this regard, the issue of black lung is deflected from the source of production to the bureaucratic maze.

The Black Lung Benefits Act has been a contentious political issue for decades. Black lung compensation in the 1970s was thought to be too liberal and expensive, as noted by this attorney: “It actually became too easy to get black lung benefits during this time [1970s], which was reversed during the Reagan Administration in the 1980s.” The Reagan Administration dramatically decreased eligibility for black lung benefits by repealing the previous 10-year, 15-year, and 25-year presumptions, removing entitlement to survivor benefits by requiring that survivors prove the miner’s death was caused by pneumoconiosis, and dismantling the DOL B-reader program (Department of Labor n.d.). These legislative changes had dramatic implications for miners fighting for compensation. A miner explained how difficult these legislative changes were for miners:

When Ronald Reagan had it changed under his reign, they changed the law to where it was ridiculously hard. We had some comebacks on the rules since then, but it was terrible what they did to it in the 1980s.
The Black Lung Benefits Act changed again in 2001. According to a regional attorney, this change, “allowed for the expansion of black lung disease disability to also include such illnesses such as COPD.” By expanding the definition of black lung to include other respiratory diseases caused by the inhalation of coal dust, it opened up eligibility for miners to receive compensation again. However, this changed again with the Affordable Care Act, which reinstated the 15-year presumption and dependent benefits nearly 30 years after Reagan dismantled the entitlement benefits for miners and surviving dependents. These changes, known as the Byrd Amendments, reshaped the benefits process for miners, thus making it easier for miners to obtain federal compensation for black lung. A respondent explained how these changes once again shifted the responsibility back to the coal operators, “The recent 15-year presumption which places the burden on the coal company, and it makes it dramatically easier to get federal black lung benefits.” While the Byrd Amendments theoretically made it much easier for miners to receive compensation since the passage of the ACA in 2010, the trajectory of black lung legislation continues to evolve and the condition remains a heavily contested issue.

In 2015, Congress introduced the Black Lung Benefits Improvement Act. This legislation, “aims to prevent coal companies from unfairly denying benefits to deserving miners and families” (Smith September 30, 2015) and includes two major changes. First, it aims to improve access to medical evidence by helping miners review or rebut biased expert opinions and to reopen cases that used discredited evidence. It also introduced a pilot program with NIOSH to provide unbiased evidence. Second, it attempts to help miners access better and more timely benefits. Specifically, it adjusts the compensation for cost of
living increases, introducing interim pay for attorneys, and develops a strategy to decreasing the backlog of black lung benefits claims.

The Black Lung Benefits Program remains an incredibly expensive and contentious program. From 1970 to the late 1990s, over 1 million miners and widows filed claims for compensation (Dawson et al. 1998:766). According to MSHA, federal compensation for black lung has surpassed $45 billion since 1968 (MSHA 2017). There is no doubt that the surging cases of black lung will increase the money spent on CWP in the future.

The Coal Mine Health and Safety Act and the Black Lung Benefits Act were significant steps forward for occupational health in the United States, and they showed great success for the first few decades. Weeks (1991:195) explained the positive changes associated the Mine Act:

Following the passage of the Mine Act, the rate of fatal injuries in the coal mining industry decreased significantly. Exposure to respirable coal mine dust, the cause of coal workers’ pneumoconiosis (CWP) and other chronic lung diseases, also decreased. This historical record is consistent with the proposition that regulation works when standards are set and conscientiously enforced, hazards can be controlled.

The success of the legislation was reflected in the prevalence of the disease. During the first twenty-five years following the 1969 Coal Mine Health and Safety Act, prevalence of CWP declined from 30% to 10% (Attfield et al. 2011). Between 1995 and 1999, prevalence of black lung continued to decline to about 3% (Laney and Attfield 2013). Many believed that this downward trend would continue and that the disease would completely disappear.
However, beginning in the early 2000s the prevalence of black lung began to increase again (Laney and Attfield 2013).

**Current Prevalence and Hot Spots in Central Appalachia**

Coal workers’ pneumoconiosis takes on a range of simple or complicated forms, which is divided into five categories (0-PMF) based on the severity of the disease. The simple form of CWP is diagnosed when lesions in the lungs are measured to be less than 2.0 cm in diameter, or less than 1.0 cm on x-ray. The most severe form of black lung is called, “progressive massive fibrosis,” or PMF, which is diagnosed when the opacities in the lungs are greater than 1 cm (Naeye 1994). Miners suffering from simple CWP are at a much higher risk of developing the more complicated PMF, especially if they do not limit their exposure to coal dust (Attfield 1992). Thus, black lung develops in stages, and while the disease cannot be reversed, it can be *delayed significantly* if a miner is moved to a low-dust environment (Attfield 1992). The mandated dust restriction of 2 mg/m^3^ was the initial scientific understanding of the threshold for keeping miners from progressing to category two CWP and never developing PMF. The Coal Workers’ X-ray Surveillance Program was a backup prevention plan (Attfield 1992). This all changed, however, starting in the early 2000s.

In the year 2000, surveillance evidence showed an unexpected increase in the prevalence of CWP (Petsonk, Rose, and Cohen 2013). Between 2005-2009, evidence showed that the prevalence of CWP was as high as 17% in some counties in West Virginia.

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1 Prevalence “represents the disease burden in a population, at a specific time” (Kamangar, Dores, and Anderson 2006:2137). Incidence is defined as the number of new cases occurring within a particular population within a specific amount of time (Kamangar, Dores, and Anderson 2006).
There are a number of other startling trends regarding the resurgence of black lung. The first trend is that small mines (those employing less than 50 employees) are five times more likely to show x-ray evidence of PMF \([p<0.0001]\) compared to larger mines. (Laney and Attfield 2010). Blackley et al. (2014:690) also find that when compared with large mines, small mines in Kentucky, Virginia, and West Virginia are associated with a “higher prevalence of abnormal lung function and CWP.”

Respondents to this research discussed the issue of mine size and disease prevalence. A federal employee expanded on the issue as it relates to mine size:

Appalachia notoriously has the small mines like the old miners used to call the ‘dog-hole mines’ you know, where you would crawl in and out of…Part of it probably has to do with resources in that maybe the operators that are running the small mines don’t have the extra capital to put into training and the safety features that they should have in place.

A second worrisome trend is that coal miners are developing severe CWP at younger ages (less than 50 years of age). It is important to note that these miners have only worked under the conditions of the Coal Mine Health and Safety Act (Antao et al. 2005; Attfield et al. 2011). The trend of younger miners developing severe CWP at a young age provides evidence that the respirable dust limit is either inadequate or coal operators are out of compliance. The third troubling trend is that the increasing prevalence of CWP is concentrated in the central Appalachian region: southern West Virginia, eastern Kentucky, and western Virginia (Attfield et al. 2011). These central Appalachian regions have more frequent and severe cases of CWP compared to other coal mining regions in the U.S.
(Hendryx et al. 2013). One of the most striking research findings was the examination of the lungs of miners killed in the Upper Big Branch (UBB) mine disaster in 2010. Medical examiners obtained enough lung tissue from 24 of the 29 victims for a post mortem examination. Researchers found that 71% (17 of 24) showed evidence of CWP. To make matters worse, the 17 miners with evidence of CWP ranged in age from 25 to 61 years. Five of the miners had less than 10 years in the mines; nine had more than 30 years mining tenure (Petsonk, Rose, and Cohen 2013). Thus, the UBB mine disaster proved a new phenomenon within the mines. CWP was evident in young miners and among miners with limited time in the mines. Furthermore, surface coal miners in central Appalachia now have greater frequency of CWP and PMF compared to other regions as well (Centers for Disease Control 2012).

A Centers for Disease Control Morbidity and Mortality Weekly Report (2007), hypothesizes a number of reasons for the resurgence. One, there is a failure to comply with or adequately enforce regulations. There may also be inadequacies in the mandated coal mine dust regulations (Centers for Disease Control 2007). There were recent efforts to reduce the respirable coal dust limit to 1 mg/m³ to avoid future cases of black lung (Attfield et al. 2011). Second, there is a lack of disease prevention to accommodate mining thin-seams, brought about by the depletion of richer coal reserves and leading to excessive crystalline silica exposure. Third, there have been missed opportunities for miners to be screened for early evidence of disease. In addition to these possible explanations, research studies have identified a number of trends related to miner health and safety. Notably, research by Attfield et al. (2011) shows that miners are working longer hours with fewer breaks for fresh air.
They also find that there is a general lack of resources for dust control and miner education, especially in smaller mines.

The resurgence of black lung is alarming to many and has federal employees, researchers, and physicians searching for answers. For example, an epidemiologist interviewed for this study explained:

After decades of being on a decline, black lung is resurgent, and not only simple disease, but also quite advanced disease we’re seeing. So we work closely with NIOSH who have done a lot of work to show in recent decades there’s been a pretty significant increase in progressive massive fibrosis, and rapidly progressive pneumoconiosis, as well as just, you know, kind of the black lung we’ve always seen, in the last couple of decades. And that’s where the discussion led afterwards…what are some of the possible explanations? Because at least historical trends would suggest that dust regulations helped, that black lung was on the decline.

As illustrated in this quote, it is important to emphasize that the worst forms of disease are increasing significantly. Some respondents argued that that the earlier “success” of the legislation may have paradoxically contributed to the resurgence, as government agencies and coal operators became more relaxed in terms of surveillance and prevention measures. A respondent summarizes this argument:

Maybe it could be [that] the reason for this resurgence is that black lung cases were declining precipitously, so people thought it was no longer a problem. And they became more relaxed in their practices. It’s possible it could be an impact factor.
While lax practices may be a significant factor in the resurgence of black lung, there are many issues with surveillance of the disease as well.

The true prevalence of black lung is not easily recognized for a number of reasons. The voluntary surveillance system is particularly problematic. The Coal Workers’ Health Surveillance Program (CWHSP) data, as of February 16, 2017, show a 2.8% prevalence among the 21,063 miners tested in the United States between 2011 and 2015 for all forms of CWP (stages 1, 2, 3, and PMF). This figure makes black lung seem like a moot issue. In fact, many cite this figure as evidence for the perceived insignificance of the black lung problem. However, based on more nuanced studies, this figure is grossly misleading. Recent studies show that cases of PMF are not easily identified with the federal surveillance system (Blackley et al. 2016). Between January 1, 2015 and August 17, 2016, a radiologist identified 60 patients with PMF at a single radiologist’s practice in Kentucky (Blackley et al. 2016). A recent *NPR* article reveals similar findings: “Across Appalachia, coal miners are suffering from the most serious form of the deadly mining disease black lung in numbers more than 10 times what federal regulators report” (Berkes December 15, 2016). *National Public Radio* retrieved data from 11 black lung clinics in Virginia, West Virginia, Pennsylvania, and Ohio and revealed 962 cases of PMF so far this decade. And this is still an incomplete number (Berkes December 15, 2016). These results are frightening, as the national surveillance data illustrate that only 108 miners showed evidence of PMF in the United States between 2011-2015. Thus, the question remains, just how bad is the resurgence of black lung, especially in central Appalachia?
These findings suggest a “black lung crisis” in the coalfields of Appalachia which is only now being uncovered. A respondent described the urgency of the black lung problem and how parts of Appalachia have been hit particularly hard:

Certainly central Appalachia has taken the brunt of this resurgence in black lung, and it has been borne out by a number of studies. It’s really an epidemic of PMF in Appalachia—southern West Virginia, southwest Virginia as well as eastern Kentucky. We hear about some of our clinical colleagues who are diagnosing cases or identifying cases routinely, and it’s not a rarity. And it’s a tragedy, considering that the Coal Mine Health and Safety Act of ‘69 was meant to prevent cases like this. And there are clearly violations of respirable dust rules that are escaping notice, or escaping attention here.

Below is an oft-cited depiction of the disturbing resurgence of PMF. As shown in Figure 1, Blackley et al. (2014) show the prevalence of PMF among working underground coal miners who have 25 or more years of mining tenure among tested miners in Kentucky, Virginia, and West Virginia. Figure 1 shows the decline of PMF following the institutionalization of the Coal Mine Health and Safety Act in 1969. However, starting in 1999 there is a dramatic increase in PMF, which is now on par with pre-1969 prevalence of PMF (~3.5%), the most advanced stages of black lung. This graph provides the supporting evidence for what professionals call the “resurgence of black lung.” Communications with government researchers as part of this research further confirm that prevalence continues to increase. These researchers found that between 2011-2015, the examined prevalence of CWP and PMF in central Appalachia increased to approximately 12% for 25+ tenure group, 5% for 20-
24 tenure group, and 2% for 0-14 tenure groups. These findings provide further evidence for the unsettling resurgence of black lung in central Appalachia.

Studies report the importance of resurgent black lung in “hot spots” which are primarily located in central Appalachia. It is not surprising that the areas with the highest coal production are also the areas where the resurgence of black lung is also concentrated (Figure 2). Wyoming, however, is a notable exception. Figure 2 shows a hot spot analysis of coal production in the United States in 2014 created for this study. As shown, the red, yellow, and white areas depict areas with the highest coal production in 2014; blue areas denote less production. According to the U.S. Energy Information Administration (2016), West Virginia was the largest coal producer east of the Mississippi in 2014, and the second largest producer after Wyoming. The box outlines the central Appalachian region, the focal point of this study.
Antao et al. (2005) conducted the original hot spot analysis showing the concentration of resurgent black lung in central Appalachia. Using the Coal Workers’ X-ray Surveillance Program (CWXSP) data, Antao et al. (2005) found that the resurgence of black lung was concentrated in central Appalachia (Figure 3). These “hot spots” are located in Virginia, West Virginia, and Kentucky and have the highest identified prevalence for rapidly progressive coal workers’ pneumoconiosis, but do not include counties where fewer than five miners were evaluated (Antao et al. 2005). Again, the box outlines the focal point of this project. The top ten counties with the highest prevalence of rapidly progressive black lung according to Antao et al. (2005) are as follows in order from highest to lowest prevalence by state—West Virginia counties: Randolph (17.6%), Grant (14.3%), Raleigh (10.9%), and
Preston (8%); Virginia counties: Dickenson (10.3%), Tazewell (9.9%), Buchanan (8.6%), and Wise (6%); Kentucky: Pike (6.8%). The prevalence shown in these counties is striking compared to the perceived national prevalence of 2.8%. These figures are also dated back to 2005. Black lung is irreversible, thus, these figures are likely to have only gotten worse with time. NIOSH is currently working to reexamine the original hotspot analysis conducted in 2005.

Figure 3: Proportion of evaluated miners with rapidly progressive coal workers’ pneumoconiosis by county (not shown are counties with fewer than five miners evaluated) 1999-2002
Source: Antao et al. (2005:671)

Other studies echo the significance of the hot spots first identified by Antao et al. (2005). For instance, Cohen (2010) argues that rapidly progressive pneumoconiosis and advanced pneumoconiosis have been identified in young miners in areas of eastern Kentucky, southwest Virginia, and West Virginia. A study of surface miners also shows
concentration of disease among miners in central Appalachia. Results show that crude prevalence of CWP (3.7%) and PMF (1.2%) among central Appalachian miners is much higher than non-central Appalachian miners (CWP 1.1%; PMF 0.1%) (Laney et al. 2012). Another study shows observed prevalence of CWP exceeds predicted prevalence by 2 to 4 fold in central Appalachia, whereas other regions have lower prevalence than predicted (Suarthana et al. 2011). These findings raise questions regarding the concentration of resurgent black lung: Why is black lung concentrated in central Appalachia? What makes it unique? Researchers have attempted to answer these questions. Some suggest that the geology of coal seams in central Appalachia may be unique compared to other coal regions in the United States (Cohen 2010). Others point to inadequate dust control and regulation enforcement, and the significance of smaller and sub-contracted operations.

While epidemiologists attempt to uncover the causes of resurgent black lung, important political and social dynamics are often overlooked in these studies. My research aims to address these factors. Specifically, I argue there are multiple social and economic drivers that are creating a “culture of fear” among coal workers, which has contributed to the resurgence of black lung. Treadmill of production theory offers salient insight into the “enduring conflict” between economic and environmental factors as they relate to production expansion and its negative impacts on health and the environment (Schnaiberg and Gould 1994).

**Economic Factors and Production Expansion: The “Coal Crisis”**

Central Appalachia is in a state of crisis for multiple reasons. Large coal seams have been depleted, thus making mining more dangerous and expensive. Mechanization has
increased productivity, but increases the toxicity of respirable dust and reduces the number of available jobs. Natural gas has also taken much of the attention away from coal as a major fuel source for the generation of electricity. Large-scale bankruptcies in an already impoverished region influences miners to remain silent in the midst of a decaying industry and worsening health conditions. Union membership has also diminished, and miners are working longer shifts and more hours than ever before. Findings for this study suggest that the weakened economy surrounding coal leads coal operators to subject workers to more dangerous levels of exposure. Simultaneously, these social conditions create a “culture of fear” among miners as they fear losing their jobs in a stagnant, decaying economy. Below I draw insights from both treadmill of production and risk society theories to analyze the increased reliance on riskier technologies to access coal.

*Depleted Seams, Mechanization, and Increasing Toxicity*

According to treadmill of production theory, production is in a perpetual cycle of expansion (Gould, Pellow and Schnaiberg 2004). Schnaiberg (1980) argues that production activities involve a series of environmental withdrawals (e.g., mining of resources such as coal) and environmental additions (i.e., unwanted byproducts of production such as coal dust and other pollutants). These additions and withdrawals, both contribute to environmental and social disruptions. In capitalist economies, the core goal of the treadmill is to increase production, expand consumer markets, and increase profits (Schnaiberg and Gould 1994). Technological developments serve to further exacerbate these patterns and extract natural resources at ever-increasing rates (Gould, Weinberg, and Schnaiberg 1995; Gould, Pellow
and Schnaiberg 2004; Schnaiberg 1980). Thus, the process of ever-increasing production expansion serves to accelerate the depletion of natural resources and generate more pollution.

These environmental additions in the form of pollution become externalized to the broader population in the form of broad systemic impacts such as climate change (Epstein et al. 2011). But these externalities have disparate impacts on certain populations. Notably, the externalization of the environmental costs of production disproportionately affect the poor and working class (Gould et al. 2004). The negative externalities of production are further exacerbated by technological developments, which not only intensify production but also increase environmental exposures. Beck (1992:4) defines risk as, “the probabilities of physical harm due to given technological or other processes.” Risk and hazards are always present. However, Beck (1992) pays particular attention to modern scientific and industrial development that creates new forms of risk. While much of the work around Beck’s (1992a; 1992b; 1996) risk society thesis has focused on modern technological developments, such as nuclear technology, I argue that the increased risk associated with technological developments and change within traditional industrial sectors such as coal also reflect these trends. For example, technological developments in the extraction of natural gas through hydraulic fracturing (“fracking”) have generated new forms of risks not traditionally associated with the industry (Wright, Muma, Radebaugh 2016). Similarly, new developments in coal mining have exacerbated the risks associated with coal mining as operators have developed new, and riskier ways to mine coal. Coal miners have been on the front lines of these technological developments and have also suffered the greatest harms.
The case of resurgent black lung illustrates the intersection of treadmill of production and risk society, as depleted resources force coal companies to rely on riskier forms of coal mining operations. Technological developments in the industry not only increase exposure to coal dust, but also increase silica exposure. Below I discuss increased toxicity associated with depleted seams and the increased reliance on mechanization.

Appalachia faces a unique problem in that much of the readily available, large coal seams have been depleted. This creates a number of economic and social issues, as coal operators attempt to keep up with production demands. As a result, miners are being exposed to more toxic respirable dust. A respondent described how the logic of the treadmill increases risks to miners:

A lot of the easy coal to mine has been mined, so the companies are having to go deeper and further to get to the coal seam. And I’m sure that cost a lot more money and you know, that puts the miner at higher risk, because to get to the deeper coal seams, you’re going through a lot more rock that can cause silicosis. And it’s a lot more expensive.

Thus, the respondent identifies the intersection of production expansion and risks, but suggests that the problem still stems from the companies not investing in appropriate environmental protections. She adds, “I’m not totally convinced that it’s an issue of coal is disappearing. I think there’s plenty of coal out there, but it’s a monetary thing.” In other words, the depletion of coal has created additional economic strain, which employers must rectify.
Depleted coal seams in central Appalachia are in stark contrast to the large, plentiful seams in Wyoming. A western-based physician and respondent in this study described the differences in resources and infrastructure and its relationship to black lung in Wyoming:

Wyoming is actually the number one producer of coal in the country, but most of the coal in Wyoming is pit mines, surface mining, not underground mining. So, I think the issue with regard to coal seam height and also smaller mines is not the problem here in the west as it is in the east. So the mines out here that are active tend to be larger companies, so they have more infrastructure to do health and safety kinds of things. And because they’re not underground, thin-seam mines, the exposures are not as high here are they are in the East. Plus, the rock out east, the coal is hard. It’s an anthracite coal, whereas out here we have bituminous coal and some lignite, so this is softer coal. So it’s got probably less fibrogenic dust, less dust that can cause coal workers’ pneumoconiosis.

Wyoming remains the largest coal producer in the United States, yet they do not have the resurgent CWP that plagues the Appalachian region. This physician points to differences in mine type and size of operation, capital investment and infrastructure, and natural geology as reasons for the regional differences. Given that the seams are much larger and are open pit mines, miners are not exposed to the same amount of respirable dust as they are underground. Furthermore, large companies tend to have more capital to invest in safety protocol, thus having an impact on the prevalence of CWP in this population. Lastly, geology dictates the very nature of the coal in each of these regions. The coal in the Appalachian Mountains is harder, anthracite coal, which produces more harmful dust. Thus, this
respondent points to geology, company structure, and mine structure as leading reasons for geographical differences in prevalence of black lung.

Other respondents noted other salient factors contributing to the resurgence of black lung in Appalachia. Some noted that Appalachia has an “outlaw operator” problem not found in other regions. Others pointed to the willingness of regulators to overlook problems in Appalachian mines. A federal employee explained that regulators do not enforce the same rules equally across coal regions in the United States:

I think that some of our regulations that are passed are enforced in different ways in different parts of the country. I don’t think that’s right. If it’s the law, it’s the law and I don’t care if you’re in Kentucky or Wyoming, it needs to be enforced the same way.

For example, an attorney argued that Appalachia has a history of flagrant violators in the coal industry:

The way I look at it is, you just have more outlaw operators here. You just do. More scofflaw. It’s been almost ten years ago, but I looked at companies that didn’t pay their federal fines. And a lot of operators, especially small operations in eastern Kentucky, they realized that not much would happen if they didn’t pay the fines. They [regulators] didn’t shut mines down. They would just send it to collections, then sent it to Treasury and then eventually Treasury would write it off that they couldn’t collect…There was a lot more of those in Appalachia than there was in the other parts of the country.

This attorney emphasized the lack of regulatory enforcement on small operations in Appalachia, adding that the coal operators “didn’t have anybody to answer to.” Illustrating
the logic of the treadmill of production, the respondent added that the coal operators in Appalachia “wanted to mine as much as they could, as fast as they could and maximize their profits.” Thus, this respondent attributes the resurgence of black lung and the overexposure of coal dust largely to the practices of the flagrant violators.

Regulatory oversight reflects what James O’Conner (1973) refers to as the contradictory functions of the state. In *The Fiscal Crisis of the State*, O’Conner (1973) argues that the state has two primary functions: accumulation and legitimization. Through its accumulation function, the state must regulate industries such as coal mining, yet through its legitimization function, it must also protect workers and citizens from these same production processes. O’Conner’s major thesis is that these functions come into certain conflict in which the state is most likely to err on the side of accumulation. O’Connor (1973) also argues that class conflicts tend to become bureaucratized. However, while one might assume that this implies “success,” in reality, the focus is simply shifted from the producers to the regulators. In other words, the problem is not solved, only shuffled around to a different agency, further indicating another contradiction of the state. Resurgent black lung is an excellent example of this issue. While O’Conner was referring to the state’s functions more generally, these dynamics clearly play out at the local and regional levels in extractive industries such as coal mining. Given the economic problems facing central Appalachia the pressure to overlook violations is particularly acute.

Respondents routinely emphasized the riskier production methods employed to expand output. A respondent and regional attorney emphasized the importance of the depleted seams and mechanization:
The reasons for the resurgence—there are hotspots in Appalachia essentially because these seams have been tapped out, the seams are smaller, which means miners are mining more rock which is more fibrogenic to the lungs. It is 50 times worse to breathe silica. Technology has allowed much of this to happen—to continue to mine small seams at a profit.

Again, these insights reflect the intersection of both treadmill of production and risk society frameworks. The increasing drive of the coal industry to expand production and thus profits (i.e. treadmill of production) leads to increased risks via environmental exposures (i.e. risk society). Thus, the combination of production expansion and increased risks have deleterious health impacts in the form of increased black lung disease.

Technological innovation provided the industry with the means to mine seams that were previously inaccessible, both economically and mechanically. New mining technologies have allowed miners to dig through solid rock in order to get to hard to reach seams. A regional physician and respondent offered this summary of recent technological developments: “We can just take a [continuous] miner, that’s this big machine with these claws and we can cut through all that hard rock to get to the seam. A respondent who works as a benefits counselor recounts a time she saw a continuous miner operate underground:

We were able to observe from a distance a continuous miner cut into a ball of coal. And it was amazing to see how there was very little dust at all in the area until they started cutting…And then as it increased and increased…You could see it totally increase from almost nothing to where it was. It was quite obvious that you were surrounded by coal dust.
Thus, miners power through rock with little regard for dust exposure. Certain jobs within the mines also have riskier working conditions, which can lead to greater incidence of the disease. Roof bolters and continuous miner operators have the greatest dust exposure. This increased risk ties directly to Beck’s notion of the “risk society” (Beck 1992). Beck argues that the development of modern industrial technologies increases environmental hazards, which in turn further threatens health (Beck 1992; Cable, Shriver, Mix 2008). Male subjection to risk and masculinity in the workplace is also a salient issue here. The division of labor tends to be gendered, thus exposing males to more hazardous work (Schulman et al. 1997). Gendered identities have a huge impact on risk-taking behaviors and the lack of health-seeking behaviors found among men (Stergiou-Kita et al. 2015). High-risk, male-dominated occupations also tend to perpetuate hegemonic masculinity as men are socialized to be tough, and accept and normalize risk and workplace illnesses and injuries (Neilson et al. 2015; Stergiou-Kita et al. 2015).

Mechanization is by no means a new phenomenon in the coalfields of Appalachia. Mechanization in the coal industry started during WWII as demand for coal soared (Straw 2006). However, it created an interesting paradox: productivity dramatically increased, but the demand for workers decreased. These findings are consistent with Schnaiberg’s (1980) argument that industries will utilize profits to invest in labor-savings technologies. As a result, workers would increasingly be removed from production processes. This trend in coal mining remains consistent today, and has only worsened with the use of mountaintop removal (Bell and York 2010). A respondent acknowledges the contradiction: “Everybody talks about this war on coal. Well, the industry itself has caused the depletion of the number
of jobs because of mechanization, because of mountaintop removal.” Another respondent who is a federal employee also highlighted the connection between mechanization and dust exposure, arguing that new technology increased the industry’s appetite for expansion.

Particularly because back in ‘08 when coal was more lucrative…they had the technology that they didn’t have before. They were able to go for seams of coal they hadn’t tried because it wasn’t economically feasible for them to go after. As a result, I think they were hitting a lot of rock and even with the best safety equipment available, people don’t always follow the procedures and it’s more likely that they can get ill.

The core argument of the treadmill of production is that industries invest in newer and more advanced technology in order to increase production, which consequently leads to greater environmental degradation (Gould, Pellow, and Schnaiburg 2004). In the case of black lung, technology has also increased the risks and has had a direct impact on workers’ health as well. Technological innovation has only exacerbated toxic environmental exposures in the workplace as it allows the miner to plow through overburden that was previously insurmountable.

As noted by treadmill scholars, technological changes in the coal mining industry have clearly had negative impacts on the workforce in central Appalachia. Specifically, mechanization has decreased the number of mining-related jobs in the region. A former miner who now directs a black lung clinic described these impacts on the available jobs:

I think miners are more afraid of their jobs today because they are limited to what it was back in the ‘60s and ‘70s. For example, when I worked in the coal mines, it took
as high as 25 to 30 people just to work one section of the coal mine. You had the miner operator, you had the roof bolter, you had the people who actually pulled the cables. You had people who hanged the curtains to channel the air. You had people who would rock dust. You had your supply man bringing supplies in. There were numerous jobs going on, but now, with the way that mining is with the machinery, you can take three people—the longwall operator, the shuttle car man and the belt man, and move five times more coal than 30 could back in the ‘70s.

The respondent also emphasized that miners are much more economically vulnerable today than they were decades ago, which increases their fear of job loss. These employment fears also make miners more susceptible to abuse in the workplace. Many miners reported being threatened in order to increase production. The scarcity of jobs and a toxic work environment made miners fearful of speaking out about safety concerns, getting tested for black lung, or even seeking medical care. Unjustified job loss and threats are indicative of a toxic and abusive work environment, which serves to silence workers (Hodson 2001).

Coal miners interviewed for this research confirm these trends in increased exposure. For example, a veteran coal miner explained, “I had 36 years [in the mines] and 28 of them I worked as a continuous miner operator in some of the awfulest conditions that you could ever think of.” He also described how the trend was worsened over time, “It just kept getting worse and worse and worse.” Other miners echoed similar experiences:

I was a coal miner for 35 years underground, a continuous miner operator. When I first started in the mines, the dust and stuff when you were at the face was so thick
you could hardly see. Companies would say, ‘Well, that ain’t gonna hurt you. Just go ahead and do your work and everything because they said it wasn’t gonna hurt you. Younger and more recent miners complained about the same conditions as well: “I can remember days in the mines when you could look across the section, and you couldn’t see from the float dust in the air because they weren’t ventilating correctly.” Thus, coal miners of all mining tenures described the dusty conditions they experienced firsthand.

The amount of respirable dust a miner is exposed to is a direct reflection of the mine operator’s decision to invest or divest in mechanical dust controls. Importantly, a coal operator chooses whether to hang the curtain and ventilate the mine properly, or ensure the use of water sprays on the equipment. Based on interviews with multiple respondents, mine operators are simply not taking the necessary steps to protect miners. A retired miner, offered his assessment of Don Blankenship, CEO of Massey Energy, and his flagrant disregard for health protocol:

Just like I said, Blankenship, he could care less if it [dust] was controlled or not. All he was after was the dollar. And he’d call in there every hour and see how much production they done. If they wasn’t producing, when they come outside, they chewed them boss’ hind ends out.

Thus, miners’ exposure is compounded by the employers’ production decisions, which often reflect negligence and even willful exposure of miners to toxic dust in an effort to increase production. The sentiment: “That ain’t gonna hurt you, just go ahead and do your work,” is indicative of this blatant disregard for human health. It is a common tactic for employers to gloss over risks such as silicosis, as noted in a study of South African gold miners.
(McCulloch 2015). The practice of “manufacturing ignorance of risks” through the falsification of data and manipulating legislation are also common tactics (McCulloch 2015:425). Similar to McCulloch’s (2015) research, the negligence of Appalachian coal operators was a reoccurring theme throughout this study.

As noted earlier, new technologies are creating new forms of toxicity in the coal mines today. Recent studies show that the dust may be more toxic today than in decades past because it contains higher levels of silica (Cohen 2010). Holmann (1999) argues that as large coal seams are depleted in Appalachia, miners are mining thinner seams, which means they are cutting through more rock. Laney and Attfield (2010) offer support for this argument by examining the size of lung opacities shown on x-rays of coal miners, which they find is on par with silicosis, consequently offering supporting evidence for exposure to higher levels of silica (Cohen 2010). As the large coal seams are depleted, miners are digging through more rock, which contains silica, consequently causing silicosis. This implies that miners are exposed to both coal and silica dust in the mines, thus creating more toxic exposure than before. A respondent described the different types of dust exposure:

Coal workers’ pneumoconiosis, or black lung, and silicosis are one of the pneumoconioses diseases. They’re clearly caused by two different things—black lung is caused by coal dust, and silica is caused by silica dust. Both coal dust and silica dust are inherent in a coal mine atmosphere…Silica tends to cut the lungs more and cause probably worse damage to the lungs than the coal molecules do. Both diseases, the miners kind of have the same symptoms, and kind of feel the same, but from what
I have seen in miners, silicosis can progress much faster and can cause death much quicker.

Thus, the simultaneous exposures to both coal and silica dust can have detrimental synergistic effects on miners’ health. Indeed, scholars have long argued that the risks associated with modern production technologies are often the byproduct of multiple environmental factors and can rarely be understood on their own (Beck 1996; Freudenberg and Steinsapir 1991; Perrow 1999). Additionally, the synergistic effects of environmental exposures serve to exacerbate causal factors and undermines efforts of seeking redress (Cable, Shriver, and Mix 2008; Shriver, Webb, and Adams 2002). Compared to other contested environmental illnesses, environmental causation in black lung is considerably more straightforward. Yet, this condition is complicated by the combination of both coal and silica dust. Specifically, silica exposure in the mines interacts with coal dust and further complicates diagnoses and treatment for these related conditions.

Experts describe how silica cuts the lungs, which embeds the coal dust even further in the lungs. It is well known that silica is a “silent killer,” as evidenced by the Hawks Nest Tunnel disaster in West Virginia in the 1930s. The Hawks Nest Tunnel was an amazing engineering feat for its time, as the tunnel was intended to divert water from the New River to a hydroelectric dam located near Gauley Bridge through a three-mile tunnel that was bored out of the mountain. However, the tunnel became known as one of the worst industrial failures in American history: “Although impressive from an engineering perspective, the building of the tunnel resulted in hundreds of worker deaths from silicosis” (Crandall and Crandall 2002:261). The silica exposure in this tunnel killed hundreds, maybe even
thousands of workers. The exact number of deaths caused by this national industrial tragedy is debated, but different sources report death tolls ranging from 106 to an excess of 2,000 workers (Crandall and Crandall 2002). An attorney who works with miners to get their black lung benefits, notes the complication of silica:

The coal seams have gotten smaller. All the good, large seams of coal are gone, and in the process of mining coal, they’re also having to cut a lot of rock…and rock’s so deadly compared to the coal seams. You get that content of silica, and it develops like a silicosis and it also can kill quicker. And it seems that a lot of the guys—all I know is just from the cases that I see—a lot of the guys with the worst disease, they have these anecdotes about ‘Oh, yeah, the time we had to cut this much rock for this period of time.’

Thus, Appalachian miners are experiencing much more toxic exposure today than in years past simply because the large coal seams are gone.

*Competition from Natural Gas*

The “coal crisis” has been heavily influenced by the reduced reliance on coal. In just a few short years, the role of coal in U.S. electricity-generation has decreased dramatically. As recent as 2006, coal made up 50 percent of electricity generation in the United States. In 2015, coal and natural gas were both tied, each making up 33% of electricity generation (EIA 2016). Figure 4 shows the dramatic decline of coal and the rapid growth of natural gas and renewable sources. This change has huge implications for coal-dependent Appalachian regions that have few alternative economic opportunities. According to the EIA’s Annual Coal Report, coal hit record lows in 2015 for both production and employment. U.S. coal
production fell 10.3%, the lowest production level since 1986. Total mining employment also fell 12% to 65,971 employees, the lowest recorded since 1978 (EIA 2016).

During the National Coalition conference in Bristol, Virginia in 2015, natural gas was an increasing factor of concern. A spokesperson for the UMWA argued that the price of natural gas was a major driver in the declining demand for coal, and is considered to be cleaner than coal because it produces half the amount of carbon dioxide as coal. Despite the grim outlook for coal in the future, a pro-coal respondent offered this optimistic assessment for the near future:

You can replace most of this [coal] with natural gas, but the concern is that the natural gas prices over the years have really fluctuated a lot. They’ve not been steady. Coal has been a much more steady thing, so a lot of utilities are a little worried about the notion of replacing everything they’ve got with natural gas, at least in the near term. I’m talking in the next 15-20 years. Thirty to forty years is a different matter.
As reflected in recent trends, the future of coal in the United States is in a dramatic state of flux that has not occurred in many decades. The political landscape will continue to have a major impact on how these changes develop in the future. Based on the changing dynamic of coal, and the bleak prospects for the future, many major companies filed bankruptcy in 2015 and 2016.

**Bankruptcy in the Midst of Persistent Poverty**

Between 2015 and 2016, major coal companies filed bankruptcy in central Appalachia. The largest coal producer, Peabody Energy, the second largest producer, Arch Coal, and the fourth largest company, Alpha Natural Resources, all filed bankruptcy (Varnisky Dec 6, 2016). Cecil Roberts, UMWA President spoke out in 2016 about the depth and seriousness of the coal crisis in Appalachia:

> The coal industry is in a depression and more than 50 companies have filed for bankruptcy in the last few years. Thousands have been laid off. The pressures on those who are still working are tremendous and growing. (Ward, Jr. August 15, 2016)

The current economic and social conditions in central Appalachia are no doubt grim. Bankruptcy places incredible pressure on the Black Lung Disabilities Trust Fund, which is the fund that pays for claims that can no longer be administered by the responsible coal operator. A spokesperson for the Division of Coal Mine Workers’ Compensation at the 2016 National Coalition Conference argued that the Black Lung Disability Trust Fund inherited approximately 1,000 new claims due to bankruptcies between 2014 and 2016. Aside from these macro-economic effects, local economies in the region are also struggling. Coal has maintained a dominant foothold in central Appalachia for decades, and while extractive
industries often follow a “boom and bust” cycle, the resilience of the industry may be facing new barriers (Bodenhamer 2016). Depleted seams, increasing toxicity, a black lung epidemic, decreasing demand for workers, and competition from natural gas, imply that Appalachian coal is losing its competitive edge in a globalized economy. All of these features of the decline of the industry contribute to a “culture of fear.” As miners face limited economic opportunities in the coal industry, they have few alternative options in their surrounding communities. This tightening effect leads to a fearful workforce, one which is willing to accept poor working conditions for a paycheck. This economic tension is also a significant factor in the resurgence of black lung.

Appalachian communities are in a state of economic crisis. Central Appalachia has some of the worst concentrations of poverty in the United States (Figure 5). Figure 5 shows family households living below the poverty level at the county level from 2010-2014. As shown by the legend, red signifies that over 15 percent of the county population is below the poverty level, which in 2014 was $11,670 for one person, $15,730 for two, and $23,850 for a four-person household (U.S. Department of Health and Human Services 2014). Again, the box outlines the region of concern in this study.
Figure 5: Family Households Living Below the Poverty Level, Percent by County 2010-2014
Source: Data from American Community Survey (2010-2014). Graphic from Community Commons Accessed August 2016 (http://www.communitycommons.org/2016/08/mapping-poverty-in-the-appalachian-region/?km_Aug-10%20Email%20Campaign=Economy%2C%20General)

Unemployment is also exceptionally high in central Appalachia (Figure 6). Figure 6 shows the unemployment rate by county in 2016 according to the Bureau of Labor Statistics. Dark red denotes counties whose unemployment rate is more than 2 percent higher than the national rate. Lighter red signifies unemployment between 0.1—2.0 percent higher than the national average. Again, we see that central Appalachia is a distressed region. All counties within the black lung hotspots noted previously have higher unemployment than the national
average, with the exception of Wise county, Virginia, which has 0.1—2.0 percent lower unemployment than the national average.

As shown in this series of figures, central Appalachia is suffering for a number of reasons. Central Appalachian counties in eastern Kentucky, southern West Virginia, and southwest Virginia are experiencing the worst resurgence of black lung in the United States. They are also among the most impoverished counties and have some of the highest
unemployment rates in the United States. West Virginia also has a long history of disease among its miners, as the state has the second highest number of black lung claims filed since the beginning of the compensation program in 1973. Furthermore, in 2015, West Virginia received the highest amount of disbursements paid for black lung claims. My findings suggest that these social, environmental, and health factors are intricately linked.

These economically distressed areas create a “perfect storm” for the resurgence of black lung. The expansive and oppressive social conditions miners face forces them to remain silent and to subject themselves to additional exposures and harm in the workplace. The resurgence of black lung in central Appalachia appears to be a direct consequence of coal operators’ decisions to emphasize production over health in the midst of vast economic problems in the region and the changing role of coal in the United States. These factors place an incredible amount of strain on the coal industry, and consequently, the miner. Miners are squeezed from all sides—they are exposed to increasingly toxic dust, they are fearful of losing their job, and if they do develop black lung, they will spend years fighting the industry for compensation. There is literally nowhere for them to go to escape this injustice.

Furthermore, a starting salary for miners is between $60,000-70,000 on average, without an education (Dwyer April 7, 2010). Thus, miners are seduced by the lucrative appeal of mining coal. In doing so, miners are sacrificing their health and wellbeing for the sake of a paycheck. Coal operators are also pushing miners to work in unsafe and unhealthy environments in order to secure more profit. A miner succinctly summarized the situation, “It was insulting to me for them to ask me to do some of the things they did. It’s all in the name of money, ‘Let’s make more production,’ is a key thing.”
**Union and the Impact on Work Hours and Overexposure**

In the midst of other historical trends in the coal industry, the United Mine Workers of America membership in central Appalachian coal mines has dramatically decreased in recent years. Kentucky closed its last union mine in 2015. Many attribute the decline of the union to the resurgence of black lung. A former miner who now works as a black lung benefits counselor explained the relationship between the loss of the union and resurgent black lung:

> Once they got rid of the unions, now it’s [black lung] gone straight back up. So that proves, yeah, you can get it down. You can ask for their [NIOSH’s] charts. They can show you how much it went down and how much it’s gone up in the last ten, fifteen years. So that’s because you got so much non-union mines now and, like I say, you don’t have no protection, nobody to complain to. And they’ll find a reason to get rid of you.

A pulmonologist offered a similar argument based on his conversations with current miners. He noted that miners lack protection in the workplace because they no longer have the union:

> Anecdotally, people generally think that unionized mines, which tend to be larger mines, tend to have better outcomes, in terms of the non-development of black lung, probably because workers feel like they have a greater voice, I would assume.

As UMWA membership has diminished, miners are also working longer hours than ever before, which directly contributes to overexposure. Miners often report coal dust and silica exposure double or even triple the amount of dust one would normally experience. A
benefits counselor recounts his conversations with miners as he helps them with their black lung compensation claims:

Ask these guys, “Do you ever work a double shift?” “All the time.” That’s double exposure right there. It’s not 10 years, its 20 years! Because they’re working double shifts every day! “How many total days have you gone without a break?” These guys go two weeks before they take a day off because it’s pride and it’s money! Double shifts. It’s the time. It’s the exposure. It’s not so much the years, it’s the exposure in those double shifts. And working 14 days straight.

A recent publication in *Environmental Health Perspectives* summarizes the production pressures faced by miners today:

Pressure to increase productivity with fewer miners means increased mechanization, which results in smaller and thus more harmful dust particles than hand labor can produce. Coal miners have also been working longer hours—this means they not only are exposed for longer periods but also have less time between shifts to clear the dust from their lungs (Arnold 2016:A17).

Miners face a number of barriers, and these barriers force them to subject themselves to additional harmful exposures in the workplace, or to go without a job. These notable barriers, including depleted seams, mechanization, toxicity, natural gas, bankruptcy, poverty, and declining union membership all contribute to a broader “culture of fear” that is taking place in the coalfields of central Appalachia, which consequently ties into the resurgence of black lung that plagues the region. Respondents weighed in on this issue in various ways. A regional professor that has been involved in coal mining research for over a decade described
the deleterious effects of persistent poverty, the feelings of being trapped by an industry, and the lack of better opportunities:

I think that just in terms of general working conditions there is still a culture of fear that you cannot, you can’t speak out without repercussions… We see articles that talk about miners and whistleblowing. There’s just this fear that if you say something, you’re pointing out that something is not safe, you’re going to lose your job. Because there’s such a need for jobs there’s somebody else who can take your place.

These social conditions keep miners subservient today, just as they did when Gaventa (1980) conducted his seminal research on quiescence among miners in Tennessee and Kentucky. The mining industry in Appalachia is well aware of the economic conditions, which transfer into both subtle and not-so subtle threats to miners. Mine operators have made it clear that, “If you won’t do it, I’ll find someone else who will.”

My analysis does not aim to vilify all coal operators, but to point to a variety of broader trends that influence their operations. A renowned black lung expert suggests that the industry is in a catch 22, forced to compete with foreign competitors and maximize their own profits:

You know it’s really driven by economics. So, these companies if they are not forced to, will not invest money because it is subtracted from the bottom line of their profit, so if it is not profitable, they won’t do it unless they’re forced to do it. So those methods to force them are regulatory inspections and all that kind of stuff, so if that is done throughout the industry that would make it better. But then there’s competition from foreign coal and foreign production, where those same restrictions may not be
in place, so that puts huge pressure on the industry as well. So it’s a really tough one on that, but I think that, I don’t think it would be something that would happen just out of the goodness of the company’s heart.

Respondents routinely noted the frustration over the fact that black lung was a preventable disease, yet was limited by the industry’s desire to prioritize profits over safe practices. A respondent explained:

It is frustrating because it’s a disease that should be completely eradicated in the United States because we know how to stop it. You just limit the amount of dust that a miner breathes. It doesn’t have to be zero, but we know that there is a level that if a miner’s exposed to, he can work an entire career in an underground mine and never develop the disease, and we’ve never been able to enforce that, or demand that in a way that that miner never works above that level. That’s what’s so bad about it, because either there’s mining or there’s black lung—you have to stop mining to prevent black lung disease—that’s not true at all. You just have to limit exposures.

Others interviewed for this study echoed similar sentiments and frustrations. A respondent from a long lineage of coal miners explained: “My dad was a coal miner, and then one of my grandfathers and then all four of my great-grandfathers were coal miners. So it’s in the family.” He is all too familiar with the invasiveness of black lung, yet remains frustrated that the disease persists due to a lack of dust controls. Brown et al. (2012) clarification of “known” environmental illnesses is particularly notable in the case of black lung today. Known environmental illnesses are those in which both the environmental source of exposure and the illness itself have been readily identified and accepted by political and
medical institutions. This is certainly the case with black lung disease, which has been officially sanctioned since the late 1960s. Despite the long history of validation, however, the persistence of the disease raises additional political and economic questions. Coal miners, federal employees, and UMWA officials critique the common assumption held by many coal operators, that controlling the dust would limit production. Respondents argued that this is largely untrue based on a number of accounts from union miners who claim that, “A safe mine is a productive mine,” and federal researchers who argue the same. A federal employee further elaborates on how successful and safe mines can operate:

In the past ten or fifteen years they’ve shown that a lot of mines have been able to come into compliance with the respiratory dust standard. So there are mines that are running and they are running in compliance and they are doing it without affecting their production or safety of their people. So I think it’s possible, but people have to be diligent about doing that and everybody has to be held accountable for that to happen 365 days out of the year… I think we can always improve, but there are mines complying with the standards. It’s just do they comply 365 days a year? Who knows.

Research shows that dust controls work—both for coal operators whom are concerned about production and workers whom are concerned about their health. However, implementing and utilizing mechanical controls for dust control does add an extra expense, which is why many coal operators choose not to follow dust regulations. There has been a willingness to accept toxic exposure in the workplace, as noted by a professor and medical director:
I think a lot of the sense is “That things happen, and it’s the cost of doing business.”
So you know, without people being quite as uncaring as this sounds, there’s this sort of a willingness to accept some collateral damage.

To summarize, central Appalachia is in a state of crisis for many reasons. The region has the worst prevalence of CWP and PMF in the United States. Furthermore, depleted seams and mechanization are major factors creating increasingly toxic respirable coal and silica dust. All of this is occurring in the midst of large-scale bankruptcies, a diminished union, increasing competition from natural gas, and persistent poverty. Miners are stuck in a “culture of fear” as they attempt to maintain their standard of living amidst a decaying industry. For these reasons, I argue that the bureaucratic structure of the black lung program has become oppressive rather than productive, as it is ineffective, inefficient, and in dire need of modification.

**Bureaucratic Challenges of the Black Lung Program**

In this section, I further analyze the bureaucratic structure of the Black Lung Program to identify additional problems with the system of enforcement. The discussion is organized around two broad themes: the bureaucratic structure of “prevention” and the bureaucratic structure of “treatment and compensation.” Throughout this section I focus on the institutional factors impacting prevention, treatment, and compensation of black lung.

*Regulatory Enforcement Failures: The Bureaucratic Structure of Prevention*

The structure of the Black Lung Program utilizes three federal agencies to conduct research, enforce standards, and compensate disabled miners. The National Institute of Occupational Safety and Health (NIOSH) conducts surveillance of the disease and ensures
that coal companies comply with testing requirements as defined by the Coal Act. The Mine Safety and Health Administration enforces the regulations and has the authority to sanction infractions. The U.S. Department of Labor, and more specifically, the Division of Coal Mine Workers’ Compensation (DCMWC), a branch of the Office of Workers’ Compensation Program (OWCP) is in charge of administering black lung compensation claims for disabled miners.

The aims of the Black Lung Program are to protect miners from getting black lung by limiting exposure to toxic dust in the workplace and to compensate those who are disabled by black lung. An Administrative Law Judge summarized the aims of the program:

I think Congress back in the late ‘60s and early ‘70s recognized that coal miners served a really important function in terms of providing energy for all of us. They recognized that importance and wanted to compensate miners who ended up being totally disabled due to a disease that was arising out of that employment.

The Program requires the use of “engineering controls” to lower the concentration of respirable dust. These controls include, ventilation in underground mines, including the use of curtains to filter fresh air in and dusty air out; water sprays to reduce the amount of dust at the face where mining equipment is used; and rock dust, to control the amount of dust and prevent explosions. All mines must have an approved dust control plan before the mine can operate. A federal employee offered insight on the process a mine operator must follow:

They [coal operators] apply for vent [ventilation] plans. It’s based on the machinery they use and the type of mining they’re doing. They’re supposed to follow these vent plans. We have laws under this book right here, Part 75 falls under 32(4).
The respondent goes on to describe how the best of intentions sometimes fall short:

The question is, we’ve put these laws out there: Do companies follow them? The thing is we [MSHA Inspectors] can’t be there 24 hours a day. Some mines we have problems with. Not all companies follow the [requirements]. They don’t hang their curtains properly. They don’t maintain their air in the face. They don’t maintain their water and water sprays on their machines.

Another respondent added:

“It’s not rocket science! You get black lung disease from breathing too much coal dust. It’s very simple. And we know what causes it. We know how to prevent it. We know that the measures that are in place in law can prevent the majority of disease that’s out there, and the frustration for me is the fact that that is not upheld.”

Surveillance is an important part of the legislation, which allows for the early detection of black lung. As mentioned, black lung is an entirely preventable disease if the health and safety protocols are followed. Surveillance is an integral part of preventing black lung, as was noted by an epidemiologist interviewed for this project:

I think just the most important thing I think of, and I try to think of it from a public health perspective…is that black lung, as we mentioned, is entirely preventable…So the importance for setting up good systems to make sure we’re monitoring people’s health at work, making sure we can identify the problems early. But I think it’s a good model for other systems.

There are two systems in place for detecting black lung. One is the Coal Workers’ Health Surveillance Program (CWHSP) and the other is the Enhanced Coal Workers Health
Surveillance Program (ECWHSP). A respondent noted that the CWHSP started under the Coal Act in 1969, and was amended in 1977. The surveillance program allows the miner, “to receive a chest radiograph every couple of years and their mine has to pay for it.” The respondent described it as a “medical-screening program for coal miners.” The screening involves a number of diagnostic tests: “We collect and do chest x-rays, spirometry, pulmonary function test, and some blood pressure screening.” These results are analyzed by a certified B-reader, classified, and then disclosed to only the coal miner. B-readers are NIOSH-certified physicians whom have demonstrated they can correctly identify pneumoconiosis by x-ray. Importantly, this respondent added that, “nothing goes back to the company,” thus allowing the miner to choose what he or she wants to do with the information. She summarized the options available to the miner, “They can do nothing with it. They can take it to their personal physician. They can use their results if they’re putting together a packet for compensation.” NIOSH also keeps all of that information in a database, “So we’re able to assess prevalence and trends and maybe we’ll look at risk factors for the disease.”

NIOSH’s Enhanced Surveillance Program, otherwise known as the “mobile unit,” operates in much the same way. The mobile unit is a lab that they take to coal mining regions across the nation (Figure 7). A respondent described the function of the mobile unit:

The [mobile unit] is the Enhanced Program where we actually go out and perform radiographs and offer lung function testing in the community to miners. And we also get that data back and are able to analyze it. That’s really helpful data because we’re able to look at lung function…So we look at lung function and we also look at chest
radiograph determination and we look at risk factors like size of the mine the miner worked in, the area—the geography…So we look at all those factors and try to tease out what’s happening and report it to the public.

Figure 7: NIOSH’s "Mobile Unit" parked outside at the West Virginia Black Lung Conference at Pipestem 2016
Source: Author’s Personal Photo. June 9, 2016
The intent of the surveillance program is to detect early signs of disease so the miner can make an informed decision about his/her health status. If NIOSH finds evidence of CWP, they notify MSHA and they send the miner a Part 90 Letter. According to NIOSH, this letter legally entitles the miner to move to a less dusty job without discrimination:

If they [NIOSH] see that there’s any type of evidence of CWP in the screening…the miner gets a separate letter, which is referred to as a Part 90 Letter. Under that regulation, they can present that letter to the coal operator with the help of MSHA, and the coal company has to move that miner to a less-dusty area of the mine. That is to be done with no discrimination, no loss of pay.
Part 90 Rights of the Coal Act are a crucial, yet under-utilized provision of the Coal Act. The intent is for miners showing early signs of disease to move to a less-dusty location to delay the progression of black lung.

In addition to surveillance, NIOSH reports findings to MSHA so they can adjust controls as they are informed of issues that arise. For instance, following the resurgence of black lung in 2000, NIOSH notified MSHA of the trend and they examined the efficacy of the 2 mg/m\(^3\) respirable dust limit. A respondent who is a government researcher argues that the initial 2 mg/m\(^3\) dust standard was no longer effective: “There’s good data to show that that standard is not protective. It’s not adequately protective.” After much debate, MSHA changed the dust standard to 1.5 mg/m\(^3\) in 2014:

On August 1, 2014, MSHA’s landmark respirable dust rule went into effect, adding a number of increased protections for coal miners and closing several loopholes that masked their exposure to unhealthy coal mine dust. Respirable coal dust sampling results for the first year of the rule—containing those new protections—show that compliance is achievable and, most importantly, that the nation’s coal miners are now, more than ever before, better protected from the debilitating and deadly black lung disease (MSHA 2016).

On August 1, 2016, the third phase of MSHA’s respirable dust rule went into effect. This marked the first phase of enforcing the lower dust standard: “The concentration limits for respirable coal mine dust are lowered from 2.0 milligrams of dust per cubic meter of air (mg/m\(^3\)) to 1.5 mg/m\(^3\) at underground and surface coal mines.” Furthermore, the regulations changed for Part 90 miners as well: “The concentration limits for respirable coal mine dust
are lowered from 1.0 mg/m$^3$ to 0.5 mg/m$^3$ for intake air at underground mines and for Part 90 miners (coal miners who have evidence of the development of pneumoconiosis)” (MSHA 2016). A federal employee elaborated on these changes:

MSHA released a new dust rule and it lowered the amount of respirable coal dust in the mine and it did a lot of different things for sampling. It changed how dust is sampled in the mines and it really kind of exploded [the surveillance] program because it required [NIOSH] to include surface miners who were previously not included which is about an equal size population right now for coal miners. Underground and surface miners are about the same amount of people. It also required [NIOSH] to include contractors…A lot of mines will contract out specific jobs underground and even on the surface for kind of more dangerous jobs like roof bolting and drilling and things like that, so now they are also included in the program. These changes made huge impacts on how dust samples were taken, the amount of respirable dust a miner was exposed to, and extended these regulations to surface miners as well.

In addition to lowering the respirable dust limit in the mines, there have been a number of other changes made under the leadership of Joseph Main, Assistant Secretary of Labor for Mine Safety and Health. Main, a former UMWA miner, who made ending black lung MSHA’s primary initiative.

In 2009, he introduced the End Black Lung Act Now! Campaign, “A comprehensive strategy that includes rulemaking, enhanced enforcement, collaborative outreach and education and training” (MSHA 2016). Main increased fines in an attempt to crack down on habitual mine safety violators. According to a respondent, fines today, “Could be anywhere
from $5,000 to $30,000 to $100,000.” The respondent described how historically, it was cheaper to violate regulations and simply pay the modest fines. These patterns became the foundation for increasing fines:

They raised the penalties up on fines. They more than tripled because operators weren’t following [the rules]…When you’re only getting a $50.00 fine, and a $100.00 fine or $200.00 fine it’s like a slap on the wrist. It was cheaper. When I worked in the mines, I can remember a president [of the mine] one time we got fined. He actually threw them [citations] on the floor and laughed. It was cheaper to pay the fines and run wrong than run right. But now MSHA stepped in and started changing how the law was written and the fines more than increased 10 times on some of them. Some operators said they couldn’t afford to run wrong.

Main reported at the National Coalition Black Lung Conference in 2016 that habitual offenders, or those referred to as “Pattern of Violations” (POV), had dramatically decreased from 51 delinquent mines in 2010 to zero in 2016. Main also used public shaming methods to help wrangle “outlaw operators” by making this information publically available on MSHA’s website. In public statements at the Black Lung Conference in 2016 he offered this warning to operators: “We will track you down if you’re not operating correctly.”

One other important change was the implementation of the continuous personal dust monitors (CPDM). The purpose of the CPDMs is to decrease fraudulent dust sampling in the mines and to provide employees with a real-time representation of his/her dust exposure. The CPDM regulation went into effect on April 1, 2016. MSHA has reported better dust compliance in recent years, but enforcement remains a problem, as stated by multiple
participants: “You can’t regulate ethics.” Evidence suggests that mines run in accordance with the regulations when mine inspectors are there, but they return to unsafe practices once the inspector leaves. Main greatly improved mine regulations and enforcement. However, as history has shown, not all MSHA directors are as diligent as Main. Only time will tell the impacts of the current changing political landscape. One thing is for certain, compliance with the dust standards is imperative for reducing prevalence of CWP. A pulmonologist addressed this issue:

The second thing is to enforce the standards better; make sure that especially for some of the smaller mines where they may not have access to good engineering controls, or have safety people on staff; making sure that they’re really compliant with the standard is important.

A Failed System: The Bureaucratic Struggles Associated with Black Lung Treatment and Benefits

As outlined in the preceding section, considerable attention has been paid to the bureaucratic structures put in place aimed at black lung prevention. In this section, I outline factors related to black lung treatment and compensation. The process of getting diagnosed, treated, and compensated for black lung remains a cumbersome, and sometimes hopeless, process for many miners in Appalachia. Respondents offered a range of insights on what they see as a failed system. Retired and disabled miners were particularly critical and outspoken about the process, as illustrated in this exemplary comment: “Oh you can’t be sick enough for the company to want to pay you. It’s impossible!” Federal employees interviewed for this study echoed similar criticisms:
As far as the compensation part of it, that whole program is broken. I mean, I’m sorry, it just is...I think the whole compensation system needs to be revamped. I don’t like the fact that these cases can be tied up for years and years and years in court and either the miner gets frustrated and quits or dies before anything is decided.

Attorneys interviewed for this study echoed these concerns: “It has become a battle of the experts in some regards.” Thus, the theme of a “broken system” came up repeatedly.

To understand these dynamics I provide an overview of the institutions involved in black lung claims and outline the process. I then discuss the status of benefit disbursements today. As with the prevention program, the black lung benefits program involves numerous federal actors and layers of bureaucracy. The Department of Labor, and more specifically, the Division of Coal Mine Workers’ Compensation (DCMWC), a division of the Office of Worker Compensation Programs (OWCP), is in charge of administering black lung claims.

The Health Resources and Services Administration (HRSA) also allocates funding to 29 black lung clinics strategically placed across the United States. A federal employee interviewed for this study explained:

There are 15 grantees, and with those grantees…I think it’s like 29 clinics from grants…These clinics serve miners in 14 states. Last year [2015-2016]…the clinics, based on data reported by them through HRSA, they served 13,477 active and former coal miners.

This respondent goes on to discuss the important services offered by the clinics that are designed to serve health disparate populations such as coal miners and other rural populations:
Their services go way beyond medical care for miners. They have to provide primary health care. They have to provide chest [x-rays], lung function tests, and they have to provide benefits counseling at each location, including to miner’s families. We have to provide full DOL exams, and there’s several…smoking cessation and other things. So, they do a lot!

The role of the benefits counselor is to work within the black lung clinics system and help coal miners apply for black lung compensation. A benefits counselor explained his work:

I talk to people about the black lung. When they call, I help them set up appointments so I can help them figure out applications for them to get approved to take their black lung exams. I assist them with their black lung exams. If they got any interrogatories or any questions about the mail they get, I help them with it. So help them get lawyers if they need them.

Other independent actors involved with black lung compensation claims include: physicians, attorneys, DOL certified B-readers, the Black Lung Association, lay advocates, and the National Coalition of Black Lung and Respiratory Disease Clinics.

Despite the presence of a variety of independent actors, the process of seeking compensation for black lung is excruciatingly long and drawn out. To make matters worse, the process is often made more difficult by the responsible operator, or the company paying the bill. Figure 9 offers a rudimentary portrayal of the process miners must go through in order to receive benefits. First, the miner or family member must apply for benefits through the Division of Coal Mine Workers Compensation district office. Second, the district director collects medical and employment evidence to verify the miner’s eligibility for compensation.
If the miner does not have enough evidence, he or she may collect more evidence at this time. The miner must go through a DOL examination, otherwise called a 413b exam [not represented in Figure 9]. A respondent summarized the DOL exam, which includes: medical and work history, physical exam, chest x-ray, spirometry (breathing test), arterial blood gas test, and EKG. Once completed, the results, diagnosis, and opinion of the exam are turned over to a claims examiner.

In order to have a successful claim, the DOL exam must show: 1) evidence of black lung, 2) causation of the disease arose out of coal mine employment, 3) total disability, and 4) total disability is due to black lung. A regional pulmonologist and certified B-reader interviewed for this study notes that he has conducted between 10,000-11,000 DOL exams during his lifetime. He claims that the DOL exam “is a very thorough examination” and that, “if you went to a major university it would cost you around $2,000, and it’s free.” He added that, “they even pay for the gasoline.” This respondent also noted that a coal miner is entitled to this exam even if they only worked one day in the coal mines. More often than not, miners wait until after retirement to take advantage of testing.
Figure 9: Applying for Federal Black Lung Benefits Flow Chart
Following the period of discovery, the District Director makes a decision as to whether to award or deny the claim. There are three outcome scenarios: 1) the claim is awarded, but without a responsible operator, 2) the claim is awarded, with a responsible operator; they may accept or deny the claim, 3) the claim is denied. If the District Director awards the claim and the responsible operator is no longer operating, benefits are paid by the Black Lung Disabilities Trust Fund. “Trust Fund cases” as they are casually called, are often easier for miners to receive compensation simply because there is no one to contest the claim. A respondent described these cases, “And if a coal miner applies for black lung and is awarded, there’s no one to fight it. The Department of Treasury, your tax dollar, pays for it. [It’s] a billion dollars a year.” Recent bankruptcies of major coal companies, increasing numbers of disabled miners, and the reliance on the Trust Fund concerns many about its long-term stability.

Figure 10 shows the amount of financial stress on the Trust Fund. In 2015, the Trust Fund paid over $10 million dollars in income and medical benefits in each of the following five states: Kentucky, Ohio, Pennsylvania, Virginia, and West Virginia. This does not include the millions of dollars also paid in other states. In 2015 alone, the Trust Fund paid out $180,523,000 in disbursements of income and medical benefits. This total does not include benefits paid by responsible mine operators and insurers (DCMWC 2016). The highest amount of disbursements paid to miners was in West Virginia with a total of $39,277,190 in 2015 alone.

In cases where there is a responsible operator, the claimant likely faces a very difficult and often uphill battle to receive compensation. A respondent described the
challenge of seeking compensation from a responsible operator, in this case, an insurance company: “If the company files for bankruptcy, that insurance carrier is still responsible for that coal miner’s disability check and they will fight it.” In most instances, these cases are embroiled in years of contestation. According to a federal employee working on black lung, approximately 85 percent of claims are contested by the responsible companies:

- About 85 percent of the time when we do make an award, the coal company will object and take it to the ALJ [Administrative Law Judge], then the board [Benefits Review Board], and then often times, all the way to the Circuit Court, sometimes to the Supreme Court if they’ve got a constitutional argument.

Thus, cases can go back and forth between the miner and employer for years, even decades, depending on the particular case. One miner, claims that he has been fighting his black lung claim for 10 years: “It can go on a long time. They let the company appeal cases when they shouldn’t have no appeal. It’s clearly won, but they still let them [appeal].” The Director of a black lung clinic echoes similar concerns: “In a black lung claim, you’ve got so many different steps, that it goes up and down the ladder 20, 30 times over a period of 10, 15, 20 years.” The litigation process between disabled and disenfranchised miners and coal industry lawyers remains an unequal and unjust system of inequality.
If approved, single miners receive $651 a month, while a miner and one dependent receives $976 a month. Miners also receive a medical card, which covers all of their black lung-related medical expenses. An attorney working on black lung claims emphasized the importance of the medical card which allows the victim to seek medical care, “I think probably as far as their benefits go, the big thing for them is the medical card…When a lot of them sign up for benefits, they think they’re still just getting a check and that’s all it is.”

These are lifetime awards. Thus, if a miner receives compensation, a surviving dependent will also continue to receive benefits for the remainder of their lives as well. However, few miners and survivors receive benefits. In 2015, only 23.12% of Trust Fund cases were approved, and only 15.47% of Operator Liability claims were approved. Including both instances, 16.44% were approved (1,198 approved; 4,283 denied) (DCMWC 2016). A responded commented on disbursements: “Because of the Byrd Amendments,
we’ve been approving more claims. It’s getting better, but not a lot. Not very many get approved.”

From July 1, 1973 to 2015, 687,838 mine workers filed black lung claims for federal compensation. More than 100,000 claims have been filed in each of these states: Kentucky, Pennsylvania, and West Virginia alone since 1973 (Figure 11). As of September 30, 2015, 20,655 mine workers’ claims are in pay status. Pay status implies that the Department of Labor deems the claim worthy of compensation. However, even though a miner may be in pay status, they can still lose their benefits through the contestation of claims. If a miner ends up losing their compensation during the litigation process, it is considered an “overpayment” which must be paid back to the Trust Fund. The only exception is to prove a financial burden to pay it back. What is even more frightening is just how expensive this is, when the disease is preventable and should not be a problem.

Thus, as highlighted in the preceding section, claims of environmental illness are heavily contested by responsible operators, even in cases where there is clear evidence linking coal and silica dust to the disease. This case has important implications for research on contested environmental illness because it illustrates the myriad ways in which contestation can occur through bureaucratic channels, even in cases of known diseases (Brown, Morello-Frosch, Zavestoski 2011; Nemery 2009). Moreover, legal injustice remains, as miners often lack resources and expertise to mount effective medical and legal challenges against powerful company interests.
Recent Changes to Black Lung Litigation

The Affordable Care Act, which is currently pending repeal, has brought about significant positive changes in the structure of the Black Lung Benefits Program through what are called the Byrd Amendments. These amendments essentially reinstated some of the procedures that were in place before the Reagan Administration dismantled the legislation in 1981. Most importantly, the Byrd Amendments make it much easier for miners to qualify for black lung benefits by shifting the burden of proof to the employer instead of the miner. Now the coal operator must prove that mining did not cause the miner’s disability. This changes previous protocol, which placed the burden of proof on the miners themselves (Lofton January 24, 2017). Two additional major changes are the 15-year presumption and the automatic entitlement for surviving dependents. A respondent explained these changes and their significance:
The Byrd Amendment made two significant changes to the administration of black lung claims. The first is what we call the 15-year presumption. So if a miner has established 15 years of qualifying coal mine employment and the existence of a totally disabling respiratory or pulmonary impairment, then...the miner has invoked a presumption that he is totally disabled due to black lung.

A black lung benefits counselor noted the significance of the 15-year presumption rule in light of the difficulty in proving disability,

You still have to prove the 100 percent disability, which is hard. But if you can prove that, and if you’ve worked 15 or more years or longer in the mines, then you’re entitled to a presumption that your disease arose from your coal mine employment (Lofton January 24, 2017).

Essentially, the presumption shifts the burden of proof to the employer as noted by this respondent:

So by shifting that burden it really puts the burden on employer to disprove the connection between...the disabling respiratory impairment and the miner’s coal mine employment. Whereas before that burden was on the claimant to rely on medical opinion evidence to make that connection. Now it’s been kind of even reversed where it’s on the burden is on the employer to sever that connection.

A regional attorney argues that the 15-year presumption, “makes it dramatically easier to get federal black lung benefits.” He also argues that the presumption, “was a dramatic game changer for many.” The second major change is automatic entitlement for surviving dependents. Previously, if a miner had black lung benefits and died then the
surviving dependent would have to prove that the miner’s death was caused by black lung before they could continue to collect benefits. The automatic entitlement amendment in the ACA changed this, as explained by a black lung attorney:

That’s something that we worked on and you would say, I guess, fought for. That [automatic entitlement] used to be the law, and it changed during the early years of the Reagan administration…If a miner had won his federal black lung benefits it wasn’t an automatic entitlement for the widow. She had to go back through and then prove death due to it. So, theoretically you could have a situation where a miner clearly is dying from black lung but is in a car accident, and then the widow has no entitlement to benefits. So now, because of the Affordable Care Act, if a miner has won his Federal Black Lung Benefits then it’s an automatic entitlement to the survivor, no matter how the actual miner passed away.

A former miner discussed the change: “So the Byrd deal did this. It said that the widows don’t need to file a case. [Its] automatic [entitlement]. That’s the way it was before Ronald Reagan. That’s one of the things he took out of it. They praise him, but he didn’t care about working people.” The earlier removal of the automatic entitlements under Reagan was seen as a remarkable injustice that grieving widows faced. And respondents praised the recent changes in the law under the Affordable Care Act. For example, a respondent noted:

I was glad to see that finally they have changed some of the widows’ benefits laws. Before, miners would be getting compensation and die. And then when they died the coal company could come back and sue the widow and say you know, ‘Well, he didn’t really have the disease.’ And if the court upheld it, the widows could be
looking at paying back all of the money the miner got and not get anything. Those laws have changed.

Other major changes outside of the Byrd Amendments include *evidentiary limits* and *discovery*. An experienced attorney and respondent discussed the amendments made in 2000 to limit the amount of evidence. Prior to this change, the coal industry lawyers would take advantage of their resources and overwhelm the miner with the *amount of evidence*:

I mentioned the 2000 amendments to the regulations, and they limit the amount of evidence the parties can submit. And they actually limit the operator to two complete pulmonary evaluations. You can have x-rays re-read, and you can have your medical studies examined by consultants, but the operator can only submit the results of two complete pulmonary evaluations or substantially the equivalent.

Another respondent expanded on the implications of the rule, which was an attempt to level the playing field between the financially struggling miner and the resource-rich coal industry:

In these cases it wouldn’t be uncommon to see a *pro se* or, an unrepresented claimant, going against a large coal mine company. And the disparity in resources there...So, for that reason, among others, the Department wanted to impose these evidentiary limitations. That generally each party is entitled to two x-rays, two x-ray readings, two x-ray rebuttal readings, two sets of pulmonary function’s studies, two sets of arterial blood gas studies, a couple of medical reports in addition to the complete pulmonary evaluation that a miner is entitled to upon filing a claim. So trying to limit the resources to even the playing field.
Finally, another major change occurred with regards to disclosure and discovery. Many refer
to this as the “Gary Fox” case, which reshaped the benefits litigation process. A respondent
highlighted the injustice that Fox endured:

What happened to Mr. Fox is that he was trying to pursue his claim on black lung. He
had been to a couple of physicians that the coal companies had sent him to and they
had knowledge in their own possession that the man was very, very sick.
And they suppressed those reports. Mr. Fox wound up having to go back in the mines
and died subsequently. So one of the things the rule is designed to do is try to force
all parties in a black lung claim, to compel them to release all medical evidence that is
developed in their adjudication process, so it’s a discovery tool.

Respondents noted how disturbing the Gary Fox case was for black lung victims. A Pulitzer
Prize-winning series of investigative journalism articles written by Chris Hamby at the
Center for Public Integrity became a significant factor in revealing this injustice surrounding
the case of Gary Fox. An attorney summarized the significance of this public exposure: “The
legal battle that I was engaged in, the Fox case—eventually Chris’s articles and enough
people looking at it and saying, ‘Wait a minute, this is wrong!’ Where before, lawyers
especially, on both sides of the fence, were saying, ‘What’s mine is mine.’”

The lawyer continued describing this major flaw within the legislation:

It’s not civil litigation. It’s a worker’s compensation program. And also, Gary [Fox]
was a working miner when this happened to him. So how can you say the primary
purpose of the [Black Lung] program is to protect our most precious resource—the
miner—and then say you can withhold the knowledge and the evidence of complicated pneumoconiosis?

Jackson & Kelly, a well-known coal industry law firm, represented the responsible coal company, the defendant, in this case. Many participants still reference the law firm as criminal, as evidenced by this response:

Jackson & Kelly brought it on themselves for being so obstinate and cruel. It was criminal what they did to him [Fox]. They not only knew he had complicated black lung. They knew he had a high amount of silica that is normally more aggressive.

Recent changes to the Black Lung Benefits Program improve the odds of a miner receiving compensation for black lung. However, the program continues to be fraught with issues that disadvantage the miner. One of the major issues that remains is proving total disability. This issue prevents many miners from receiving benefits, even when they are extremely sick. The amount of time it takes to settle a claim is extraordinarily long, primarily because industry lawyers contest nearly every claim, regardless of its merit. Many miners spend the last years of their shortened lives fighting the coal industry for compensation. And many die from the disease before they are successful. A respondent explained: “It’s just a very long process, and a lot of them just get - they either die, or they just get tired, and they just give up.”

As miners attempt to navigate the black lung benefits system, they are often lost or even trapped in a bureaucratic maze. They spend many of the remaining years of their lives seeking treatment, compensation, and justice for their illness. Weber argued that bureaucracy is a modern form of social control, “Its system of rational rules may become troublesome, as
seen in the infamous ‘red tape’ that constrains and slows the bureaucracy and makes it unresponsive to environmental changes” (Barker et al. 1993:410). In other words, bureaucracy becomes irrational as actors obsess over the rules of the system without regard for the lives of those whom are most negatively impacted by bureaucracy’s irrationality (Barker et al. 1993; Kalberg 1980). This bureaucratic tension is also indicative of what O’Connor (1973) refers to as the displacement of class conflicts, as black lung is now subsumed by a system of legal-rational authority. Weber pointed to bureaucracy’s oppressive potential, coining the phrase, the “iron cage of rationality” (Barker et al. 1993). My analysis indicates that the Black Lung Program has become bureaucratized to the point that it has become dysfunctional for those seeking treatment and compensation. The system has created an enormous bureaucratic gap—one in which miners are left sick, disabled, and often hopeless as they struggle to seek redress for their illnesses. Instead of successfully preventing black lung (a preventable disease) and compensating those who have fallen ill, the bureaucratic structure has generated a series of oppressive obstacles. In this way, the black lung bureaucracy provides the perfect arena for contesting environmental illness claims. While part of the problem can be attributed to the mechanics of a complicated bureaucratic system, actors with vested interests (i.e. coal operators), exploit the bureaucracy and take advantage of a government program under constant pressure to balance its commitments to economic development and production expansion against its charge of protecting the public (see O’Conner 1973; Schnaiberg and Gould 1994).
CHAPTER 5: THE BLACK LUNG EXPERIENCE

In this chapter, I analyze numerous issues associated with the contested environmental illness experience. Black lung impacts people’s lives in innumerable ways. Coal workers are forced to confront challenges and insecurities at work and changing relationships with their coworkers. They also face financial obstacles and often times strained relations with families. The illness affects not only their physical health, but it also negatively impacts their mental well-being as they struggle with diminished physical capacity. As highlighted in the previous chapter, the bureaucratic processes associated with black lung make it extremely difficult for sick miners to receive compensation. Most reported feeling anger, frustration, and hopelessness as they navigated the cumbersome black lung bureaucracy. And many miners feel the black lung program is set up to prevent them from receiving compensation. Moreover, many miners often avoid testing and preventative measures due to fear of job loss. Consequently, many miners wait until they approach retirement age before exploring their health problems. In many cases, the delays in treatment exacerbate the illness condition. Below I examine the black lung illness experience in more detail. I begin by analyzing the process miners go through to receive a diagnosis, highlighting the myriad challenges they face. I then examine their experiences with treatment, focusing on lack of information and the obstacles to medical care. Finally, I analyze how black lung impacts miners’ lives beyond their experiences with physical health, discussing how living with the disease influences their personal lives and identity.
Challenges with Diagnosis of Black Lung

Diagnosis is the critical first step in disease recognition. As noted by Zavestoski et al. (2004:162), diagnosis “provides a gateway to health services, welfare benefits, unemployment certification, worker’s compensation claims, and pensions.” While diagnosis is critical to the recognition and treatment of all forms of illness, it is particularly important in cases where conditions are contested. Environmental health scholars make a distinction between presumptive and known forms of contested environmental illnesses (Brown et al. 2001; Shriver, Cable and Kennedy 2008). Presumptive diseases are those that are disputed as illegitimate diseases. For example, the U.S. government refused to acknowledge “Gulf war illness” as a legitimate condition. As a result, U.S. troops were denied treatment and compensation on the basis that the illness did not exist. In contrast, known contested environmental illnesses are those which have been confirmed by medical professionals and accepted by institutions such as governments, scientists and medical professionals (see Shriver, Cable and Kennedy 2008). These diseases clearly exist, but they have varying degrees of agreement on etiology or diagnosis (Brown et al. 2001). Such is the case with black lung disease. The disease has long been recognized as a legitimate illness tied to worker exposure in coal mines. But despite this official disease recognition, it remains exceedingly difficult for workers to receive proper diagnosis for their illnesses.

Contested Definitions and Complicated Classifications

In this section, I discuss the ways in which testing for black lung has changed over time. I also discuss the various classifications of disease, which contribute to the ambiguity of diagnosis. Research suggests that the damage caused by respirable coal dust and silica is
much more expansive than simple pneumoconiosis. Researchers suggest a broader term, “coal mine dust lung disease” (CMDLD) that would include multiple health conditions including classic varieties of pneumoconiosis and silicosis as well as COPD, chronic bronchitis, and chronic emphysema, to name a few (Petsonk, Rose, and Cohen 2013). Over time, research reveals that, “Chronic exposure to respirable coal mine dust causes lung diseases including coal workers’ pneumoconiosis (CWP), emphysema, silicosis, and chronic bronchitis, known collectively as “black lung” (Federal Register May 1, 2014). Thus, the definition of black lung extends to other forms of respiratory disease caused by inhaling coal and silica dust. Indeed, the definition of black lung can be a contentious issue, as it determines whether it is easier or more difficult to get black lung benefits. An attorney expanded on the differences in diagnosis:

Clinical pneumoconiosis is…what doctor’s would recognize as a pneumoconiosis. So anthracosilicosis, anthracnosis, those kinds of things. Legal pneumoconiosis is any pulmonary or respiratory disease or impairment that arises out of the miner’s coal mine employment…So that means that it’s broader…it’s a disease or impairment that’s significantly related to or substantially aggravated by coal mine dust exposure. So, this could include emphysema, COPD [chronic obstructive pulmonary disease], [or] any kind of impairment that a doctor might opine is significantly related to or substantially aggravated by coal mine dust exposure.

Another experienced attorney extended the discussion of the definition of black lung:

You may have come across some articles that Dr. Cohen and others have written, talking about the need to have a broad definition of coal mine dust lung disease. The
Black Lung Benefits Act talks about pneumoconiosis. And to some doctors, I think traditionally that meant scar tissue that formed in the innermost lung as a result of the inhalation of coal mine dust. But over time, medical research has proven that miners also can develop significant other respiratory impairments, such as COPD, as a result of breathing coal mine dust. And I think that there’s other kinds of diffused interstitial fibroses that’s related to coal mine dust inhalation.

Thus, coal workers’ pneumoconiosis has various definitions, which are based on both medical literature and legislation. The type of black lung is important when a miner is seeking medical care or is filing a compensation claim. These definitions, in turn, influence the diagnosis of the disease. Classic CWP is what most people refer to as “black lung.” However, the inhalation of coal dust can create other respiratory complications, or what is known as “legal pneumoconiosis.” In other words, despite the long history of disease recognition, there remains debate and contestation over the actual meaning of black lung.²

As noted above, diagnosis provides the gateway for subsequent treatment and compensation. Yet, despite the clear evidence linking coal and silica dust to black lung disease, diagnosis remains a complicated and cumbersome process. First, many miners avoid testing for black lung for a variety of reasons. Second, there are a number of problems associated with the black lung surveillance system. In general, multiple tests can diagnose black lung. Pulmonary function tests, chest x-rays, arterial blood gas studies, lung biopsies, and spirometry are common measures for diagnosing black lung. However, many miners

² For simplicity sake, I use CWP, pneumoconiosis, and black lung interchangeably throughout this study.
avoid testing until they are either approaching retirement age, are experiencing severe health problems, or they are attempting to file a claim for compensation. Clinics offer many supportive services such as testing and benefits counseling to aid miners in filing for black lung compensation. A clinic worker commented on the process a miner typically goes through at a black lung clinic to be diagnosed in order to file for black lung compensation:

We do testing on them to see…we find these miners and they apply for black lung benefits. I work with somebody, a benefits counselor, who helps them fill out the paperwork that starts the [compensation] process. That’s mailed into the Department of Labor and they okay it if they can be tested or not. Then they come in and we do chest x-rays, EKG, a pulmonary function test, blood gases, and they are seen by a pulmonologist.

Diagnosis has changed over the decades with major influences from Drs. Buff, Rasmussen, and Wells dating back to the 1960s. Cardiologist Isidore Buff, Pulmonologist Donald Rasmussen, and Pathologist Hawey Wells revolutionized the way miners and the public thought about black lung (Derekson 1998). A pulmonologist and respondent noted the legacy of Dr. Rasmussen, describing how he was the seminal figure in prompting greater recognition among miners:

He just really made it his business to learn about this disease and study it and to publish about it and write about it. But, then, take it a step further and really educate miners about it and work together with the miners to advocate for better diagnosis, treatment, and care, and compensation for victims of the disease.
Rasmussen played important roles in the historic black lung movement, and his research revolutionized how black lung is diagnosed: “Dr. Rasmussen’s evidence-based approach and detailed research helped to prove that coal-mine dust causes breathing problems that may not show up on x-ray and may not show up without quality exercise testing” (Smith, July 24, 2015). Rasmussen found that black lung does not always present itself on chest x-ray or in other tests. He argued that an arterial blood gas test during exercise was the only way to get a true diagnosis of black lung. Rasmussen was a pioneer for black lung testing, and he served as a mentor to many others who became involved with the National Coalition for Black Lung. Despite these advances promoted by Rasmussen and his supporters, however, testing for black lung is not standardized. As a result, diagnosis remains a difficult and legally challenging process.

Despite black lung’s status as a known disease (see Zavestoski et al. 2002), diagnosis remains a cumbersome process that is fraught with uncertainties and fear among workers. As miners attempt to navigate the black lung system, they often feel they must choose between their own health and wellbeing or a paycheck. In some cases, miners discover that they have black lung by accident. Clinic workers often see patients who come into the clinic for other health problems, but find out they have black lung. A clinical worker described a scenario, “Typically, they’re short of breath or maybe their symptoms get worse, or they have some reason that they want to look into.” The federally-funded black lung clinics dispersed strategically across the U.S. provide primary care and other health services to disparate populations. The clinics in the coalfields of Appalachia provide invaluable primary care, screening, and treatment services. These clinics are even more critical in Appalachia as
health care providers are limited and geographically diffuse. In many cases, miners are reticent to be tested or diagnosed for black lung, fearing job loss and benefits. As a result, many miners avoid testing for black lung until they are either close to retirement or they plan to file a black lung compensation claim. A clinic worker describes the process of getting miners to come to the clinic:

I guess it can start with their doctor, but normally for us [clinics], it starts with us, by the [benefits] counselor going to different UMWA [United Mine Workers of America] meetings to let them know that we’re available to help them with applications. So they can start the process to see if they do have it [black lung]. That’s the way we’ve been doing it. Or [information spreads by] word of mouth, from one miner to another. You know, saying that you can be tested for black lung, so that’s what we try to do.

Miners are deeply skeptical of medical professionals because they worry that doctors are paid or influenced by the coal company and will thus disregard their illness claims. As a result, black lung clinics must gain the trust of miners, which they often do by reaching out to the UMWA or regional Black Lung Association. Once miners are acquainted with the black lung clinics, they often see them as valuable resources. Miners also rely on their networks and personal experiences, or word of mouth to learn how to navigate the black lung system or to seek treatment.

Despite decades of scientific research and clinical knowledge about black lung, there is still not a standardized test for black lung disease. This ambiguity is typical in cases of environmental illness, which are often enmeshed in a climate of uncertainty even in cases of
known disease (see Brown, Kroll-Smith and Gunter 2000; Cable, Shriver and Mix 2008; Smith 1987). In the case of black lung, the coal company exploits this ambiguity and uses it to their advantage. In fact, the lack of standardized testing remains one of the major defenses of the coal industry. They can employ doctors that rarely identify black lung, or they may administer tests in a different manner, which is much less likely to lead to the diagnosis of black lung. For example, arterial blood gas tests during exercise yield radically different results as the same tests performed during rest (Petsonk, Rose, and Cohen 2013). A former miner commented on the difference between a true blood gas test and a resting one:

They [doctors] do the treadmill [test]. Dr. Rasmussen…he put a catheter right here in your artery so they got instant result of where your blood gas is while you’re [exercising]. I can get up, and walk around, and sit down and take two breaths and your blood gas improves. Some doctors say, sit down right there, I’ll be right back and get a blood gas. It’s a resting blood gas. It’s not getting anything but a resting blood gas.

Medical researchers and clinicians make an important distinction between “obstructive” and “restrictive” black lung. A black lung clinic director summarized the classification. Restrictive lung disease implies that the patient cannot inhale a normal amount of oxygen. In other words, “It’s hard to breathe in.” Health care providers use pulmonary function tests to “compare your values on a pulmonary function test with others of the same race, age, gender, and height, to determine what ‘normal’ is. And if you’re a couple standard deviations [below]…then you have restrictive lung disease.” Obstructive lung disease, “essentially means that you can’t blow out all of your air as quickly as we would think you
would.” The black lung clinic director explained that black lung can be either restrictive or obstructive depending on “how the body responds to coal dust.” In other words, miners experience dust exposure differently physiologically. In fact, some pulmonologists argue that black lung has a significant genetic component:

> We know that inflammation is genetically regulated, because it’s an inflammatory reaction and no two people react similarly…We know that because we’ll see families that have a history of black lung. [The] grandfather had it, father had it. And another worker working right next to him, no one got it. Same job, same dust. So we know to an extent that it is genetically-regulated.

Thus, black lung can be obstructive (i.e. cannot get air in) or restrictive (i.e. cannot push air out), and no one black lung patient experiences the disease the same. However, evidence suggests that there is a genetic component to black lung acquisition, as family lineages show a history of disease, while others in the same working conditions do not.

*Problems with Testing and Screening*

There are multiple problems with diagnosis that are associated with surveillance of black lung. The Coal Act requires coal operators to set up “opportunities” for black lung screening. However, testing remains entirely voluntary for miners and thus poses problems with surveillance and oversight. As a result, miners are not adequately screened for black lung and this circumvents the preventative aspect of the Coal Act. A federal employee explained the lack of miner participation in the surveillance program: “There is low compliance among the miners actually participating. I think it’s between 30 to 40% of miners who are participating in the Coal Workers’ Program.” The respondent expanded on
the low compliance of miners, suggesting three pitfalls of the legislation: 1) state legislation sometimes disincentivizes testing, 2) location of testing facilities and time off from work, 3) fear of retribution. These problems were discussed widely among benefits counselors, federal employees, and physicians who work closely with miners. Below I analyze the most significant problems associated with screening and diagnosis among miners, including worker concerns over job security, access to information, and medical training on black lung.

Figure 12 shows a snapshot of miners’ participation in the Federal Coal Workers’ Health Surveillance Program (CWHSP) in West Virginia from 1970-2014. As shown, the number of miners tested for black lung decreased dramatically over this forty-year period. Part of this decline can be attributed to the overall reduction in mining employment (see Bell and York 2010). However, according to the West Virginia Office of Miners’ Health, Safety, and Training (MHS&T), there were 65,428 coal mining employees in 2014 (Figure 13), yet only 1,167 miners were tested between 2010-2014 (Figure 12). Thus, nonparticipation in the federal surveillance program (CWHSP) is a critical issue. Given that West Virginia is a significant black lung hotspot, screening opportunities are imperative to identifying trends of the disease.

Another pivotal issue shown in Figure 13 is the dramatic increase in the number of independent contractors. This is problematic because contract laborers seldom receive the same amount of training and generally receive less scrutiny under federal regulations. Contract labor, otherwise known as precarious or contingency work, has increased in recent decades (Kalleberg 2000). This form of work is favored by employers because it reduces costs, but it also fragments corporate responsibility in high-risk employment as workers are
technically not trained or managed by the corporation (Kalleberg 2000; Kochran et al. 1994). Studies have found that an increase in contract workers tends to result in more accidents (Rebitzer 1995). Contract work also increases job insecurity, lowers wages, and decreases seniority rights (Crowley and Hodson 2014; Barley and Kunda 2004). In terms of policy and general awareness, limited surveillance participation undermines public knowledge of the true prevalence and seriousness of black lung. However, limited surveillance is also reflected in the direct experiences of miners, who fear losing their jobs and being subjected to increased scrutiny in the workplace.

![Figure 12: Number of Miners Tested and Percent of Miners with Black Lung in West Virginia (1970-2014)](http://webappa.cdc.gov/ords/cwhsp-database.html)

Notes: Data aggregated at five-year intervals. Data retrieved from NIOSH Coal Workers’ Health Surveillance Program (http://webappa.cdc.gov/ords/cwhsp-database.html)
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*Figure 13: West Virginia Coal Mining Industry Employment 2014*

*Source: Data retrieved from West Virginia Office of Miners' Health, Safety and Training, 2014 (http://www.wvminesafety.org/PDFs/ANNUAL%202014%20-%20Master%20Copy.pdf)*

**Worker Concerns Over Employment:** Some worker compensation laws aimed at helping identify black lung actual disincentivize early detection. These laws provide a narrow window of time for miners to file a compensation claim once they are formally diagnosed with black lung. However, miners ultimately fear being forced out of employment too early. In effect, these policies actually disincentivize miners from seeking early detection of black lung. A federal researcher explained the law through the illustrative case of Kentucky:

> Some places, for instance Kentucky, has a statute of limitations…basically they [miners] find out when they are 35 if they have evidence of black lung…So, that really means they only have four to five years left to work. So if they are 35 or 40 and they can only work until they’re 45 and that’s the best paying job in the area...So that’s really difficult. It’s hard to get people to participate [in surveillance] when that’s the situation they’re in.
While the compensation laws vary in each state, many respondents noted the negative consequences of Kentucky’s compensation laws. A black lung physician expanded on these issues:

I know that in the case of Kentucky, there’s a very significant disincentive to actually seek out any evidence of early disease. It’s that their worker’s compensation law says that you have—I believe it’s two years after you identify any kind of evidence of disease to make a claim, or else you lose the right to make any kind of worker’s compensation claim.

Thus, instead of preventing black lung, state laws in Kentucky discourage miners from seeking early detection because miners want to work as long as possible. Thus, miners choose to forego detection in order to continue working. This has an obvious detrimental impact on miners’ exposures and health problems, but it also keeps miners quiescent about overexposure in the workplace.

There are other obstacles to early detection. Some miners fear taking time off from work, and not being compensated for the time it takes to get tested. There are also logistical issues and problems with access. Given that the region is rural and isolated, miners are often forced to travel long distances to testing sites. Indeed, the long distance to testing sites may be intentionally designed by employers to discourage screening for black lung. A federal employee noted the issues related to limited access to care and employer efforts to dissuade miners from participating in surveillance:

The facility has to be within so many miles sometimes there is either A) isn’t a facility that is really close or, B) the mine chooses a facility that is not very close. So,
it will be within the radius that is required, but it will be maybe within a mile or two
of the edge of the radius. So, it does take the miners a long time to get there. I don’t
know that they are required to pay the miners for their time to go get their x-ray, so
that’s another thing if the miner has to take a day off or if they have to go on their day
off. So that’s really difficult for most people.

As noted previously, miners tend to work as much as possible in order to increase their
earnings.

Many miners fear employer retaliation in the workplace. Indeed, past research has
shown that these concerns are well founded (see London and Kisting 2016). For example, see
Cable et al. (2008) study of worker retaliation among whistleblowers in the nuclear industry.
As noted earlier, a similar “culture of fear” permeates central Appalachia and prevents
miners from seeking out medical screening and treatment. Thus, miners fear retribution in the
workplace and they strive not to stand out at work and threaten their employment status in
any way. Respondents noted that miners attempt to avoid “putting a target on their back” that
would cause them to be fired for any reason. In this scenario, being screened for black lung
or taking time off from work for any reason could be associated with the target metaphor. An
attorney described how miners’ fears keep them from being tested: “Before, when they had a
job, they didn’t wanna lose their jobs. So they didn’t go get testing or anything like that
because they were afraid they would lose their jobs.” Government officials report similar
issues, noting that miners do not want to “rock the boat” or appear disloyal to the industry.
As a result, they often decide to remain silent. Masculinity may also contribute to miners
remaining silent, as they do not want to appear weak or to threaten their “breadwinner” status
(Stergiou-Kita et al. 2015; Neilson et al. 2015). More generalized economic concerns and the related “culture of fear” serve to exacerbate these problems, as noted by this respondent:

I think now that the coal industry is in such a decline, that there’s just a lot of fear for jobs…We’ve kind of noticed a difference even in our participation rates of the miners participating in our program. I think a lot of it is so competitive now to keep your job in coal mining that I think a lot of them actually are afraid to do anything that would rock the boat or look like they were being disloyal or whatever. Because just so many mines are shut down and so many guys are getting laid off. It’s really competitive now about getting called back to work and all like that.

Given these economic and logistical issues, many miners choose to put off screening and diagnosis of black lung as long as possible. My findings indicate that miners only seek out diagnosis when they are: 1) laid off, 2) too sick to continue working, or 3) when they are close to retirement. The overall decline in production of the industry has prompted miners to get tested for black lung, as stated by this attorney: “Now, with a lot of the mines shutting down, you try to do what you gotta do. So more of them [miners] is getting tested.” After conducting between 10,000-11,000 black lung examinations, a pulmonologist interviewed in the study explained that, “More often than not, they wait until they retire because they don’t want to be given a reason not to work. They don’t want to know what might be found because they need to work.”

**Lack of Information on Black Lung:** A second major obstacle to adequate screening and testing relates to access to information. Overall, there is a lack of information about black lung issues among coal miners. Moreover, employers often attempt to make sure that
miners stay ill-informed by blocking access to outside services. In general, coal miners are not well informed about the dangers of dust exposure, black lung, testing opportunities, or the federal compensation program. These trends have been found in other extractive industries as well (see London and Kisting 2016). At the National Coalition Conference in 2015, NIOSH reported that they were not allowed to advertise their services because the program is federally funded. The mobile unit workers argued they did not understand this rule, and agreed that it was contradictory to the mission of the unit—to monitor black lung and keep miners informed of their health status. Furthermore, they reported that coal companies prevent them from parking the mobile surveillance unit on their property, arguing that the land was “personal property.” The mobile unit workers noted that this was a legally permissible action because participation in the surveillance program is not federally mandated. Additionally, NIOSH staff noted that miners and companies often conflate NIOSH with MSHA, the regulatory agency, which results in lower participation because workers have been told that regulations kill the coal industry. NIOSH employees and benefits counselors reported being “run off” from coal operator property when they offered testing, as described by this respondent: “Yeah, we’ve had our share of run-ins with coal operators.” Black lung clinics reported experiencing the same problems when they attempted to provide benefits counseling. A respondent noted, “They don’t let people like me on their property…No, you can’t even go onto coal mine property to try to get them to sign up for Black Lung.” Other employees at black lung clinics reported similar stories. For example, one clinical worker exclaimed, “We don’t go to the job site.” Inaccessibility has been widely noted by black lung advocates. In fact, the issue prompted clinic workers to dedicate an
entire conference session to the issue, “How to Sell Your BL Clinic to Miners” at the 2015 National Coalition Conference in hopes of breaking through employer barriers. Thus, the power of the industry to prevent outside education or screening opportunities has a huge impact on miners’ knowledge of black lung issues.

*Medical Training and Research Funding:* A third major obstacle is linked to medical training and research funding for contested environmental illnesses. Physicians and medical researchers form an important part of what is known as the dominant epidemiological paradigm (DEP), which forms an implicit framework for understanding disease in the United States. According to Brown et al. (2003:217):

> The DEP emerges from a diverse set of social actors who draw on existing stocks of institutionalized knowledge to identify and define disease, as well as determine its etiology, proper treatment, and acceptable health outcomes. While there are often competing belief systems for any scientific issue, there is usually a dominant one at a given point, even if that changes over time.

While the dominant epidemiological paradigm has begun to recognize environmental influences on disease, medical training and research is still biased against environmental causality. As a result, doctors are not well trained in screening for these influences. For example, in their research on Native Americans exposed to air pollution stemming from carbon black dust, Shriver and Webb (2009) found that physicians most often blamed individual behaviors such as smoking rather than environmental pollution.

Physicians are thus largely untrained on etiology linked to environmental exposures and occupational health in general. Consequently, environmental illnesses often go
undetected and therefore untreated (Brown and Kelley 2000). One may assume that living in an area with specific environmental problems (i.e. coal mining; superfund sites, etc.) would lead to better-informed physicians, but research shows there is no relationship between location and physician knowledge (Brown and Kelley 1996). In the case of black lung, this problem is exacerbated by the rurality of the region, which complicates access to health care (Friedl 1982). Furthermore, the lack of attention and medical studies related to black lung issues compounds the issues miners face in central Appalachia. In addition, geographical isolation limits access to specialized care and leaves many ill-informed about best practices regarding black lung diagnosis and treatment. In some cases, physicians themselves fear repercussions associated with identifying corporate or government polluters. In their research on the Oak Ridge Nuclear facility in Tennessee, Shriver et al. (1998) found that a local oncologist was effectively run out of town and had his career destroyed after linking residents’ health problems to the local facility (see also Brown and Kelley 1996; Cable et al 2008). Thus, fear can play an important part of physicians’ lack of diagnosis and treatment of black lung. Regional physicians and other respondents in this study noted that there is a lack of health care providers as many avoid black lung patients because they do not want to be involved in the adversarial process surrounding black lung compensation.

In addition to the lack of clinical training and generalized fear among physicians, there is a lack of research funding available to researchers studying contested environmental illnesses. Research funds are generally sparse in cases of environmental illnesses, particularly those in which low-income communities are involved (Brulle and Pellow 2006; Davis 2007;
Shriver and Webb 2002). Geographical isolation also intensifies the medical knowledge gap and limited access to care. A black lung pulmonologist reflected on this disparity:

In medicine, the diseases that get studied are not necessarily the ones that are the most common. Sometimes a disproportionate amount of money gets spent on diseases that are actually quite rare. Sometimes it’s because there’s an easy way to approach studying the disease…It might be that the types of people who actually get the disease are on the wealthier side, or are more likely to be insured, or insured adequately.

The respondent extended the conversation to discuss rurality and access to medical knowledge and research as well:

I think one major issue that I don’t see a good way to overcome is that this is a geographically extremely diffuse problem that affects small, rural communities, for the most part….Your ability to, one, care for people in any kind of specialized way is limited by geographic distance. It’s hard, too, getting educational materials out there can be limited, as well. Because there are people who may be practicing, relatively speaking, in a little bit of a vacuum. And getting updated on the latest literature to some folks can be quite challenging.

Occupational health and environmental illnesses require specialized training, which many do not receive. A federal employee noted how black lung remains an under-studied and specialized area of medicine that does not garner much attention:

In medical school, and even in mining engineering school, I don’t think there’s enough emphasis being paid to this as far as for occupational health. In occupational health field in medical school, there’s a lot of classes, but there’s not that much that
deal with mining and the coal workers’ pneumoconiosis and silicosis. I think that that’s something that needs changed too in the college curriculum.

Other federal researchers echoed similar concerns regarding the disparity of medical attention on occupational health. This problem is also compounded by the adversarial aspect of black lung litigation, which deters medical professionals from working with black lung patients:

I don’t think doctors in general are well-informed about occupational lung diseases, including black lung…They get very little education about it in medical school…it’s also a field where there’s a lot of adversity, where there’s lawyers and doctors don’t like lawyers, and they don’t like uncertainty, and there is always uncertainty in medicine, but there’s also uncertainty with regards to work-related diseases, so doctors kind of shy away from that area of medicine.

The Mining Experience: Declining Representation and Silence in the Mines

As mentioned previously, economic problems in the Appalachian coalfields have contributed to the “culture of fear” in the region. Findings indicate that workers are squeezed between their employers and the lack of other economic opportunities. In this vulnerable economic climate, miners are more likely to subject themselves to harm in the workplace, simply because they lack other viable options, this trend is common among rural extractive industries (Freudenburg and Davidson 2007). In addition, the decline of union membership has directly affected coal workers’ ability to safely speak out about health concerns in the workplace, which subsequently has an impact on the resurgence of black lung. Furthermore,
miners are fearful of being “found out” they have black lung. Findings suggest that intimidation tactics used by coal operators serve to keep many miners silent and subservient.

Declining Voice in the Workplace

Mining is one of the most hazardous occupations in the world (London and Kisting 2016). Miners work underground in a 55-degree climate and sometimes in deplorable conditions—knee-deep water, 36-inch seams, and unsanitary environments. Many argue that it takes a special person to do this work. Miners learn to adapt to the dangerous environment and the risks they face. A miner described the inherent dangers of working in the mines, “I’ve worked in mines where the roof was very dangerous and it’d fall all around you sometimes. And I’ve helped carry out miners who were crushed, but you learn to live with that fear and have respect for that roof.” In this dangerous environment, miners emphasized the importance of following safety rules and regulations in order to remain safe. They noted their willingness to “apply all the rules [they] can to be safe” simply because their lives and others’ depend on it. Participants note the positive impact the United Mine Workers of America has had on the health and safety of coal miners, as noted by this federal employee:

I’m not a big union person in other occupations, but I think for the coal miners, I think the union really, really did make a big difference. I think it could still make a big difference, but like I said, I think there’s a lot of fear of job loss. I know my dad and my uncle were always big UMWA guys and really felt that that is what turned the safety and health issues in coal mining around.

The declining importance of the union, however, has exacerbated problems in the mines. Many participants argued that the union’s decline has contributed to the sense of fear and
vulnerability in the mines. A miner noted, “Unions aren’t very strong anymore…I think historically in any industry, there is a lot less injury and illness in industries that are unionized versus those who aren’t, because the union fights for safety.” Miners noted how the lack of union representation now leaves miners vulnerable, as they no longer have a voice in the workplace. A retired miner explained how reporting violations can likely lead to job loss:

When I worked in the union, if the company wasn’t doing right, you filed a complaint. The union would take it up and it would get done….But now that you don’t have a union, you don’t have nobody to complain to, because the people you complain to is gonna fire you.

Thus, one of the most significant benefits of having a strong union was that it provided greater health and safety protections. A UMWA attorney explained the importance of a union safety committee:

They also noticed that there is a higher incidence in non-union settings because there’s no safety committee. MSHA can do a certain number of inspections, but it has a limited number of inspections and frankly if an employer is sophisticated, they can know the pattern and kind of clean up its act when MSHA is gonna come around. If you have a day-to-day safety committee that really works and you only have that in a unionized setting, there’s a little bit better chance that you’re not gonna have a lot of free dust out there that’s not being treated.

Thus, the presence of a third party safety committee helped hold coal operators accountable for safety practices. In comparison, the MSHA can only perform a couple of inspections a
year. Furthermore, union presence and safety committees provided miners with greater protection for speaking out about health concerns. Today, these protections are greatly diminished. I asked a prominent black lung scholar if the working conditions in central Appalachia were unique compared to other regions. His response yielded some interesting information:

Well I think it varies, but it’s not unique to Appalachia. I visited China and talked to miners…and I’ve been to Ukraine and done research in Ukraine…A lot of the conditions faced by our miners here are very similar to what other miners face overseas.

It is well known that Chinese workers endure poor working conditions. In fact, Jianjun (2007:42) argues that, “The [Chinese] coal mining industry places little value on the life of a miner.” It is a shocking realization that working conditions in central Appalachia are similar to those in less developed nations such as China and Ukraine.

Some coal operators are notably more devoted to health and safety precautions than are others. Many respondents noted that Alpha Natural Resources was more proactive and safety-driven than other companies. However, the decline of the industry has lessened miners’ autonomy to find better employment. During better economic times for the coal industry, when jobs were more plentiful, miners could simply choose to move to a better coal company. A respondent explained: “So if you’re not happy with the conditions of employment and you think you can go to work at a different place, then that’s what you’re going to do.” With a substantial loss of mining jobs, miners have also lost this flexibility and autonomy. The respondent noted, “Now, where our coal mining jobs are really limited and
there are lots of unemployed miners…they’re [miners] just scared because if you lose this job, you’re not gonna find another one.”

To summarize, given the vast unemployment associated with the current crisis surrounding coal, miners feel that they must do everything they can in order to keep their mining job. As a result, miners remain silent because they do not want to be labeled as “whistleblowers,” or “blacklisted” within an industry where numerous unemployed miners are waiting to take their place. A respondent explained:

Then you would be quiet because of fear that you would lose your job…Assuming you even know about the law that says you have the right to be free from discrimination, you’re still not necessarily going to push it. Sometimes miners refer to this as putting a target on their back, so they become known as a safety whistleblowers. These are small counties, and coal mine operators and coal miners know each other through various connections. It’s not like you have to have a formal blacklist to say, “Don’t hire!” You just get the reputation that that’s a guy you don’t want working for you.

A miner described how he was “blacklisted” firsthand:

Because I spoke out, they were going to take my job and fire me. After working 30 years in the mines, I had never had any disciplinary action. I wasn’t going to take that. So I said, here I will resign my job and I will go to a company that will treat me fairly and find employment elsewhere. I did, but when I went to find employment, I found out they had blacklisted me from working anywhere in the industry.
The precariousness of coal employment today creates a “reserve army of labor.” In other words, there is a critical mass of individuals who are underemployed or unemployed, which leads to vulnerability and threats in the workplace. This continuous threat of losing one’s job keeps miners silent and subservient.

_Fear and Intimidation_

Coal employers also engage in a number of intimidation tactics in the workplace. The findings from this project reflect a number of intimidation tactics used by employers to dissuade workers from speaking out about health concerns, being tested for black lung, or for exercising their “Part 90 Transfer rights,” a miner’s right to move to a less dusty position after being diagnosed with black lung. Below I discuss findings related to miners being intimidated and threatened.

As noted in the previous chapter, the treadmill of production framework notes the importance of continual production expansion (see Schnaiberg 1980). These demands have intensified the pressures on miners, as coal companies seek to maximize production with a smaller workforce and fewer resources. Miners report being threatened to produce more coal and for speaking out about safety concerns, as noted by this respondent:

_The companies don’t care about you. You’re only a number. I worked for Peabody Coal and one day the foreman had everyone lined up outside and the first thing he said, was ‘You have to put out more coal and I don’t care how you get it! You got to produce, you’re nothing but a number.’ We’re nothing but a number. They don’t see names. They only see numbers and money, and more money, and more money. And the things they tell you to do is not right._
This miner noted the fact that they could be easily replaced if they did not comply with these demands. And in this process there is inherent pressure to overlook safety regulations in order to increase production. Others reported fear of being laid off, or the fear of a company going bankrupt. For example, a miner argued:

I think that the fear of being laid off and fear of a company going out of business will have a chilling effect on those miners who want to fight for health and safety in their mines because they’re just so afraid of losing their jobs in the current climate that…[they] may not be as willing to fight for those things given the current circumstances. Other miners report nearly being fired for speaking out about safety concerns: “I filed a grievance, and he said they have to give you a verbal warning. But they were just setting up to fire me. Next time it would be a written and you’re gone.”

Miners and those who work closely with miners also report workers being fired for getting tested for black lung or for exercising their Part 90 Transfer Rights. Part 90 Transfer Rights are an imperative, yet underutilized part of the legislation. However, miners rarely utilize this right for fear of being unjustly fired:

I know just anecdotally…from talking to miners, that they usually don’t exercise their rights at all and if they do it’s within…the last couple years of their employment so maybe a couple of years before they retire. So there’s this fear that they’re going to lose their job. That their employer is going to fire them for another reason. They obviously can’t fire them because they have black lung, but they will find *another* reason, we’ve been told.
While the practice of firing workers who present their Part 90 Letters is of course discriminatory, the threats and realities of such actions force miners to continue working in unsafe conditions. This only serves to worsen their health conditions overtime. The execution of one’s Part 90 Rights remains a major problem in the mines today. The volatile state of the coal industry only intensifies miners’ fears. A federal employee notes the trouble of being labeled a “Part 90 Miner:” “Coal’s always been up and down like a roller coaster. But you’re out of work…If you get [diagnosed with] black lung first stages, Part 90, now you’re labeled. A lot of them didn’t want, they didn’t go get tested for black lung.” Furthermore, federal employees note that miners fear a number of negative repercussions if they participate in testing or if their employer finds out they have black lung:

We have heard that some miners have been retaliated against if the mine finds out they have black lung by firing them for another reason or demoting them, just different things like that. We don’t have any concrete evidence other than just interviews and anecdotal conversations with the miners.

Miners tend not to exercise their rights such as their Part 90 Transfer, and if they do, they wait until close to retirement. Others report having their pay docked for utilizing their Part 90 Transfer: “They are told they won’t get a pay decrease but…We’ve been told there are other ways that they can decrease their pay.” Other miners report disguised ways employers force workers to quit for exercising their Part 90 Rights:

We have one guy that talked to us at one of the black lung conferences. He turned in his Part 90 Letter and he had just had hernia surgery or a gallbladder removed, some kind of abdomen surgery. But they had cleared him to go back to work on his
previous job…Then he operated his Part 90 rights and they moved him to this shuttle car operator position where it’s really jostling and bumpy and he ended up having to quit because he was in so much pain and he couldn’t take any more time off because he had taken time off for the surgery.

Many participants offered numerous stories such as these related to retaliatory actions taken by coal operators. The frequency at which these stories are told suggests they are grounded in the lived experiences of miners. A respondent noted: “We hear stories. We can’t confirm any of it, but we hear, ‘Well, Joe presented his transfer letter and three weeks later they fired him.’ And no, they didn’t say it was because he had exercised his transfer option, they said it was because he was late two mornings.”

Living with Black Lung: Challenges with Treatment

While problems with diagnosis complicate disease awareness and recognition, those suffering from black lung experience innumerable obstacles as they seek medical treatment and care. In this section I discuss the benefits of treatment, the role of black lung clinics, the expense and avoidance of care, and extreme interventions. While there is no cure for black lung, treatment has shown to improve miners’ quality of life and reduce hospitalizations. Regional black lung clinics play an integral role in outreach, treatment, and benefits counseling for miners. Once miners are integrated into the black lung clinic system, they experience a dramatic improvement in their breathing conditions and their outlook on life. However, the critical issue is the expense of medical treatment, which often leads to the avoidance of medical care, even though black lung clinics are allegedly free or reduced-cost. Importantly, miners who are awarded black lung benefits obtain a medical card, which pays
for all medical expenses related to black lung. However, as discussed, only a small percentage of miners receive benefits. Thus, only a small fraction of miners have affordable access to the care they need for their disease. And even when benefits are awarded, coal operators sometimes contest medical expenses, particularly in cases of extreme interventions such as lung transplants.

Benefits of Treatment and Experiences with Black Lung Clinics

There is no cure for black lung, and the disease only worsens with time and exposure. However treatment such as respiratory therapy improves miners’ quality of life by helping them learn how to cope with black lung symptoms. Thus, black lung clinics offer an invaluable service to the miners. A clinical worker explained, “It’s just keeping them out of the hospital, and catching those symptoms early, extending their life, you know and making it a better quality of life.” Many miners view the clinics as “life-changing” because it improved their breathing skills and their outlook on life. Seeking treatment has also proven to reduce hospitalizations, thus saving the industry and miners additional medical expenses. A clinic worker discussed the benefits of pulmonary rehabilitation:

If they come to pulmonary rehab, we have proven that we can keep them out of the hospital…they found that we were really saving beau coups of money on these people, keeping them out of hospitals and hospitalizations…The coal miners, you know, they like it…You hear things like, “Nobody ever cared about us. Nobody’s ever done nothing for us before.”

A black lung clinic director discussed the benefits of treatment and emphasized getting miners to establish a treatment routine:
We try to get them to establish an ongoing [appointment] with our pulmonologists in our pulmonary clinic so they can get the proper treatments, as far as prescription drugs that they need, breathing treatments. There’s a big push right now to try to get these guys into pulmonary rehab…Yeah, it can definitely help them. It’s just educating them, and letting them know the benefits of it. It’s kind of like working out for the first time, going to the gym. It’s horrible and you don’t wanna do it, but once you keep doing it and you start seeing results, then you don’t wanna leave. You wanna keep doing it. So it’s just getting them over that hump.

Miners were very appreciative of the black lung clinics and the work they do. Miners offered testimonials and praised the clinics at the National Coalition Conference in 2016. A retired miner with black lung identified two workers from his black lung clinic and explained:

I didn’t know I’ve been breathing wrong all my life, but they taught me how to breathe. The black lung clinic, [name] and [name] and all the other ones associated with this meeting such as yourself…it wasn’t for people like you, I wouldn’t be alive today. [tears up] I would have already been gone, but I thank God for people like you.

Other miners report similar experiences with the black lung clinics:

God has been good to me because of all the stuff they are doing now at [name of clinic], rehabilitation…it teaches you how to breathe. That means a lot when you know how to breathe and going up and down the steps. I thought, “How is this going to help me?” But then I find out, it do help. Breathing in your nose and out your
mouth makes a real big difference. I’m so glad that we got somebody helping us and teaching us that our lives will be a lot better.

Many miners are largely unaware of the services offered by the black lung clinics, or that they even exist. Advertising is expensive on a non-profit budget and miners are deeply skeptical of medical professionals. Thus, gaining rapport with the miners is critical. Many clinic workers report that once miners come to the clinics, they quickly share the good news by word of mouth, which brings more miners into the clinics. Despite the success stories identified in this research, the clinics operate on limited budgets and their resources are continually strained. They report being overbooked and having too few resources, which will continue to be problematic as the prevalence of black lung increases.

Expense and Avoidance of Care

Regardless of the positive outcomes of treatment, many miners still avoid treatment because of its inaccessibility geographically and perceived expense. Again, very few miners have been awarded black lung benefits, which provides the critical medical card, needed to pay for medical expenses. This forces many miners to rely on their primary care physicians. A clinical worker explained the paradox, noting that miners, “can get treatment from their primary physician,” but “the real problem is getting their benefits for it.” In other words, miners could potentially receive treatment, but would have to pay for it out of pocket unless they have medical benefits. Miners are far more likely to seek care when it is paid for by the company.

However, even in cases where miners are awarded medical benefits as part of compensation for black lung, some companies still contest their medical expenses. The
contestation of medical expenses sometimes results in legal action, as explained by this respondent:

Miners [awarded black lung benefits] are entitled to qualifying treatment for conditions…We really only see a handful of cases a year, but they do crop up where the parties disagree as to whether the miner’s treatment is really related enough to his black lung so we deal with those as well.

Once awarded black lung compensation, the responsible operator is accountable for medical expenses associated with the disease. The treatments and especially “extreme interventions” such as lung transplants are tremendously expensive. For this reason, operators often contest the treatments, arguing that 1) treatments are outside the purview of medical compensation, or 2) particular health issues (i.e. heart or kidneys) are not a result of black lung. A black lung clinic director expanded on the extent of medical expenses that are often contested by employers. He noted that employers fight compensation claims, not for the monthly compensation, but because of the extensive medical costs associated with black lung:

One week in the hospital for a coal miner with a respiratory pulmonary disease impairment can be $200,000. So therefore, they [responsible operator] are not fighting for that monthly stipend. They are not fighting for that $967. They don’t care about that. They’re fighting to keep that miner from getting that federal medical card. Because that’s an expense for a person in the hospital, or to be treated. For example, the Advair inhaler that they use, that thing is like $400 a month, just for one particular inhaler. And some of them are on three and four inhalers...you start adding those three
up, that’s about $800 worth of medicine every month…So they fight because they don’t want to pay those medical expenses.

Miners who have had lung transplants often experience the brunt of contestation because of the excessive cost of the procedure. A miner discussed his battle with the responsible operator paying for his lung transplant, even though he was awarded federal black lung benefits:

My black lung insurance, which was through an operator in the coal company, they didn’t want to approve to have me examined for a lung transplant. Their reasoning was, [they] wasn’t for sure that it was black lung, even though I had been awarded by a federal judge that it was black lung, and through my health records.

This quote highlights the breadth and severity of black lung contestation that can continue long after diagnosis has been confirmed and benefits have been awarded.

*Extreme Interventions*

The case of “extreme interventions” warrants further discussion of the complications of treatment and contestation of the disease. There has been a significant increase in the number of lung transplants as a last resort for black lung treatment. Recent research shows that respiratory treatments do not slow the progression of black lung, thus, miners’ lung capacity is increasingly diminished over time. As a result, there is greater reliance on lung transplants (Blackley et al. 2015). A recent study shows that 47 miners diagnosed with CWP or unspecified pneumoconiosis received lung transplants between 1996 and 2014. Seventy-two percent (n=34) of these lung transplants were performed between 2008-2014. These figures provide additional evidence for the severity of the resurgence of black lung today.
(Blackley et al. 2015). According to a CDC official speaking at the National Coalition Conference in 2016, lung transplants cost at least $500,000, and even more if complications arise. Sixty-six percent of these lung transplants were paid for by Medicare (30%) and other government insurance plans (36%). Thus, the cost of lung transplants is disproportionately externalized to the public through what could be considered a form of corporate welfare for coal companies. The median post-transplant survival rate in this study was 3.7 years.

However, as discussed at the National Coalition, lung transplants have a high rate of rejection and many miners die within six months. Blackley et al. (2015:2) argue that lung transplants “for end-stage CWP is an extreme intervention…These transplants reflect the use of a scarce resource for an entirely preventable disease.” In other words, if preventative measures were taken, as required by law, these miners would not be in this condition. Miners would not need lung transplants and the public would not have to bear the cost burden.

Federal researchers shared some photos of explanted lungs that demonstrate the severity of coal dust exposure that leads to necessary lung transplants. A miner of 35 years, became the face of NIOSH’s *Faces of Black Lung* video. At only 60 years old, this miner underwent a bilateral lung transplant and died shortly afterwards. Figures 14 and 15 show the enormous damage caused by 30 years of inhaling coal dust, which led him to the necessary action of a lung transplant. His family consented to sharing these photos for educational purposes.
Figure 14: Explanted Lungs of West Virginia Coal Miner after 35 Years in the Mines
Source: Photo provided by NIOSH
During this research, another coal miner who had a double lung transplant shared his experiences with me. This miner worked in West Virginia as an underground coal miner for 36.5 years. When I met him at the National Coalition Conference in 2016, he was wearing a surgical mask. He was optimistic about his bilateral lung transplant, stating that, “I feel like I’ve been given a second breath of life.” The miner retired in 2009 when he felt he could no longer keep up with the pace of his work in the mines. He claims he knew he was “sick due to [his] breathing,” but he did not “really feel disabled.” Three years after retirement, he said he “got a lot worse, as far as my breathing” and “it really stopped me from doing a lot of
physical things that I had been doing since I’d retired.” I interviewed him in July 2016, just six months after his double lung transplant. He offered this account of his surgery:

It seemed like the surgery went well. I didn’t know what was going on because I was out of it for about a week. I was on life support and I had two surgeries as a matter of fact. The first day, they did the double lung transplant and the next morning, they called my wife and said we’re gonna have to go in and open him up and do some more things. They reopened me and cleaned me out and put me back together again. But anyway, God has been with me. I’ve been on life support three times during all of these procedures.

The miner goes on to describe the complications caused by the removal of one of his lungs (Figure 16):

One of them was attached to my ribcage and stuff and it didn’t wanna come out. My lungs was hard from the coal dust and from the scar tissue. So they had a hard time getting either one of them out and that sort of thing. And during the surgery, my clavicle thorax…it got bent or damaged and caused a lot of the fluid to leak, and I had a lot of problems because of that.
Figure 16: Bilateral lung transplant (left) and explanted left lung (right)
Source: Author’s Personal Photo June 14, 2016

He continues to describe his experience in the hospital and the cost of maintaining the
efficacy of his new lungs:

Usually you’re in the hospital a total of four weeks and you’re home—you’re out. I
was out a couple times, one time for three days, one time for nine days. Other than
that, I spent about four and a half months in the hospital. I had pneumonia three
times, fluid once, two staph infections, cardiothoracic surgery. I couldn’t tell you how
many bronchoscopies I’ve had, and different things—blood clots. I’ve been in the
hospital three times during this time…My medicine costs about $14,000 a month
because of the transplant. So I couldn’t afford that. I’m just a blue-collar laborer,
retired and disabled.

The miner reveals the excessive cost of black lung treatments and the injustice that surrounds
black lung. Yet, he remains grateful and excited about his new life. He claimed that if it were
not for those involved in the National Coalition, a reporter who distributed his story, and the
Department of Labor fighting on his behalf, he would have already died from black lung: “If
it wasn’t for that, I probably wouldn’t be here today.” This miner’s story illustrates the complexities of black lung treatment. He was one of the few who was able to receive extreme intervention, which is often not available to black lung sufferers in advanced stages of the disease.

**Beyond Diagnosis and Treatment: Life with Black Lung**

In this section, I move beyond problems miners’ experience with diagnosis and treatment and focus on other aspects of with the lived black lung experience. Despite the many challenges associated with black lung, respondents routinely emphasized the sense of pride associated with their work in the coal mines. They also emphasized the importance of self-sacrifice and economic benefits that allowed them to care for their families. These trends are common among male-dominated occupations in which the sacrifice of one’s body is actually rewarded and praised (Anderson and Kian 2012; Stergiou-Kita et al. 2015). Importantly, many noted that they would do it all over again, even knowing what they now know about black lung. Below I draw on narratives from respondents to analyze the complexities surrounding black lung disease in their daily life. Specifically, I examine issues associated with pride and identity, masculinity, and the day-to-day struggles of adjusting to one’s disability caused by black lung.

**Coal Miner Pride and Identity**

My findings suggest that loyalty to the coal industry has become a cultural adaptation in Appalachia. For many, self-reliance, familism, and patriotism are viewed as “Appalachian values” (Jones 1994), and this cultural context helps explain the willingness of miners to endure the debilitating effects of coal and silica dust as part of their larger sacrifice for their
families and their country. These narratives were commonly portrayed in the research. A regional attorney described the cultural mentality of the region, noting that miner loyalty to the industry had proven to be short-sighted given the way that coal companies treat sick miners:

I think a lot of it is a cultural mentality at this point. That if you are in the mines and you’re working, then your loyalty is absolutely to the mines and whatever is needed by the company. But I think that, unfortunately, is a little short sighted…Having to pay the medical benefits and everything that comes along with it when people get sick. So, I think they’re kind of missing the boat on that. But I think it really is kind of a pervasive thing, culturally, around the coal mines.

Other respondents noted similar perceptions of pride and identity among miners:

As with a lot of coal miners, it’s kind of a pride thing. These guys, I always say, especially, more of the men in coal mining, but the men in coal mining are very proud, and it’s, “I’ll work until they carry me out of there because that’s what I’m supposed to do. I’ve got to provide for my family”…For my dad, it was kind of his identity, “I’m going to work as long as I possibly can.”

Despite the environmental hazards and increasingly dangerous working conditions, a common narrative among sick coal miners was that they would “do it again” if they could. While trust and loyalty is often embedded in the workplace (Heck 1992; Pershing 2003), coal miners in Appalachia have demonstrated a particularly deep commitment and fierce loyalty to the coal industry and pride in the work they do. A respondent pointed out the paradox: “I’ve never seen anything like it, the absolute loyalty to something that they know will kill
them in the long run. But it doesn’t matter. It just doesn’t matter to them!” An attorney described the miners he has helped, noting their intense loyalty:

Most of them say they would go back to the mines tomorrow if they could…There is an incredible amount of loyalty among them. It takes a certain kind of person and community to mine coal. There’s stoicism to the group.

Other respondents noted similar experiences in their dealings with miners:

You know the ones who I’ve worked with, they tell you that they would do it again. They would go back tomorrow…if they could…They would go back in. They would do it again, because it was a very good living for their family, they were able to have a good life, and provide for their family…They look at that, you know, from being a man, that’s one of the things that they are really proud of. So from that standpoint of it, you know yes, I know I have black lung. You know and I know my life is probably going to be cut short, but I would do it again.

While the uncertainty of coal mining employment may influence miners to subject themselves to harm in the workplace, masculinity issues, stoicism and expectations for being the “breadwinner” of one’s family may also contribute to this trend in rural areas (Stergiou-Kita et al. 2015).

Given the intense loyalty of Appalachia to coal mining in general, and the commitment among miners more specifically, it is not surprising that many of those suffering from black lung feel betrayed by the industry. When coal companies turn their back on coal miners through their denial and mishandling of black lung it is perceived more generally as
an attack on their broader sense of community. Indeed, some referred to black lung as a “community plague,” and a “community tragedy.”

It’s almost a community plague. It’s a disease that is preventable if controlled. I never realized that until I worked in areas that didn’t have mines. I didn’t realize that…Yet there are so many people. It’s not like they’ve done something destructive to themselves. All they’ve done is gone to work, in the only avenue possible to them. And you know, as a result, they are terribly disabled, and very, very ill. Basically just from going to their jobs. And so, yeah, it’s a community tragedy really.

While many miners and other residents remain staunchly loyal to the coal industry, others continue to support coal mining for more practical reasons. Specifically, they understand the limited economic alternatives and they fear job loss (see Freudenburg and Davidson 2007), as described by this respondent:

[There’s a sense of] fear of losing their jobs and not being able to support their families. They’re very loyal family guys, the majority of them that I talked to. I think that fear just kind of drove them on and not wanting to stand out and not wanting to cause a problem or be drawn attention to and singled out.

The lack of alternatives places miners in a vice script of social control, where they are more willing to accept poor working conditions even if it means taking years off their lives. A respondent described the calculations made by coal miners:

There’s obviously an issue…the piece of the calculus that a lot of these people are making, whether it’s consciously or not, is, “I’m going to work at a job that is dangerous. I’m going to do this because it’s for the money. By far the best job I can
get. There aren’t good alternatives for me. Then know that it’s going to take years off my life, but I can hope for meager benefits at the end.” I mean, I think that when those are the choices that people are given it’s really a horrible situation.

This intersection of loyalty and fear contributes to the power and influence of the coal industry throughout central Appalachia, and also complicates the recognition, treatment and compensation of black lung disease. While many remained committed to the coal industry because of long-standing loyalty and tradition, others were motivated by the practical awareness that there are no viable economic alternatives in the region. Regardless of the motivating factors, miners who are suffering from chronic health problems are forced to calculate the benefits of continued workplace exposures in the present and long term economic effects associated with pursuing diagnosis and treatment of their disease. As noted above, many choose to continue working despite the negative impacts on their health.

**Masculinity Issues and Mental Health Impacts**

As noted in the previous discussion, the challenges of living with black lung are not limited to the bureaucratic issues associated with diagnosis and treatment of the disease. Many black lung sufferers are severely limited in terms of physical activity and other day-to-day activities. The findings indicate that miners struggle with the tension between masculine ideals and their new sick role as “disabled coal miners.” Below I discuss the loss of masculinity and identity, as well as other mental health issues associated with living with a chronic environmental illness.

Historically, men have been expected to fulfill the “breadwinner” role of the family (Johnston and McIvor 2004; Stergiou-Kita et al. 2015). This display of masculinity is
pervasive throughout many global regions and occupations (see Macheke and Campbell 1998; Marchant 2013; Ramirez 2011), and remains an important theme among coal miners in Appalachia. As noted in the previous section, coal miners are proud of their work and in many cases of the family legacy of work in the mines. It is common to hear stories or see photos of father and son coal miners. A respondent described this tradition:

Coal mining can be, a lot of time, a family-oriented thing. We have several pictures that we have taken of miners that come into the NIOSH mobile unit to get their screening done and it’s 2-3 generations. We have a lot of pictures of father/son miners. We have a lot of husband/wife miners.

Coal miners also note the important role that coal continues to play in the country’s economy, fueling much of our domestic energy for years. A respondent explained:

There is a lot of pride in coal mining. I think they look at the fact that the coal that they’re mining, a lot of people think just goes for electricity and power. And if you talk to coal miners, they’re very well versed on the fact that that’s a part of it. But there’s things we use every day in our homes that nobody has a clue it started out from a coalminer.

In addition to the importance of coal for the U.S. economy, coal miners emphasized the pleasure and satisfaction of working in the mines when they were healthy. Many described feeling invincible, as highlighted by this miner: “I can recall as a young man going into the coal mines, I didn’t think about the coal dust. I didn’t think about black lung. Only things I cared about was money.” Similarly, others described the adrenaline rush of working in the deep mines as described by this respondent: “To be a coal miner, you have to be a little
bit of an adrenaline junky, a rebel!” Thus, work in the mines not only provided economic
security but it formed an important part of coal miners’ identity in a profession that is highly
regarded in the region.

Yet, the onset of symptoms associated with black lung transforms miners from
feelings of invincibility to that of being disabled. When miners are diagnosed with black
lung, their entire identity begins to unravel. A former miner with black lung shared these
thoughts:

I was 40 years old when I was told that I had complicated pneumoconiosis. As a
young man, you don’t want to be told that [tears up]. That you can’t do the things you
want to do. I got a grandson that I would love to get out and do something with. And
all I can do is watch. It’s hard. You’ve been used to working all your life and stuff to
be taken away from you. Everything you do, you gotta do in moderation. You can’t
do the stuff you want to do.

In an effort to forestall their loss of identity, some miners attempt to hide their sickness from
their coworkers. They fear of being perceived as weak and vulnerable in the workplace. In
addition to the loss of identity, miners also fear discrimination from their employers and
often choose to wait until close to retirement to act on their illness. However, for some it is
too late. A respondent described miners’ concerns with being labeled as sick:

They don’t want other miners to know that they’re sick, or they don’t want to be
portrayed as a sick miner, or as a weak miner. What we see more and more is, they
hang on to that [Part 90] Letter and maybe three to five years before they’re thinking
about retiring, they’ll present the letter to transfer. And then those last two years of
As noted by this respondent, miners undermine their own treatment when they delay seeking recognition and treatment of the disease. In addition to the loss of identity, many miners suffering with black lung also struggle with significant mental health issues after they leave the mines. Many miners battle with depression and even suicide, as described by this respondent: “Yes, yes, a lot of them will commit suicide, because like I said, it’s sort of like a death sentence. And you know there was nothing for them.” The physical illness is combined with their loss of identity, and they are no longer able to provide for their families economically. This pressure and drive to provide for one’s family also pushes miners to continue to fight for black lung compensation as a way to continue to support their spouses even after death:

It’s not even necessarily getting their monthly benefits or getting the medical card, it’s the spousal benefits that come along with that. I think that’s just kind of a cultural thing, that they want to make sure their wives are taken care of.

In addition to overarching concerns related to the loss of identity as coal miners and breadwinners, those suffering from black lung experienced a loss of identity outside of work. For example, many had identified as outdoorsmen, and as people who were physically active and able-bodied. Suddenly, they are not only unable to work but they find it increasingly difficult and sometimes impossible to engage in the outdoor activities such as hunting.
fishing, or gardening. A disabled coal miner discussed this experience: “I can’t walk, certainly can’t run. I can’t walk up hills like I used to. You know, enjoy fishing or hunting or anything. But I do what I can.” A respondent recalled her father’s experience with black lung and his loss of identity:

With my father, it [black lung symptoms] was a lot worse when it was really hot outside and he was an outdoorsman. He loved to hunt. He loved to fish. He loved to be outside doing things. When it was really hot or really cold, he just couldn’t do it because he couldn’t breathe.

The ability to engage in outdoor activities was further stigmatized by the required use of oxygen tanks. The respondent describing her father added:

He didn’t want to have to carry oxygen with him all the time. He had it, but he didn’t want to do that. So his option was pretty much staying inside watching TV. He did a little bit of cooking and puttered around the house a little bit. But it just, it was devastating for him because he had always been so active and such an outdoorsperson, and he had to completely change his way of doing things.

Despite these limitations, disabled and retired coal miners still attempt to hold onto their “coal miner” identity, as noted by this former miner:

It takes a special person. Like I say, we were driven to the coal mine many of us because that’s all there was to work at. And then, when the union came through, it was a good wage too. And you had protection from being discharged unjustly.

The painful decline caused by black lung is extremely difficult for miners as they are accustomed to an active work and recreational lifestyle. In an effort to hold onto some
semblance of their former lives, in some cases miners start to avoid doctors, fearing they will be returned to the hospital for their condition, as explained by this sick miner: “The first few years when I got sick, I get out of the hospital and I’m right back in the next week. I got to where I didn’t want to go to the doctor, because I knew I had to go back to the hospital.” Their quality of life begins to fade, the use of oxygen becomes permanent, heart problems develop, and organs eventually begin to shut down.

The latter stages of black lung disease, including in particular the increasing difficulty of breathing. Many talked about the declining quality of life miners endure and how breathing becomes a conscious effort:

Miners…who had black lung, daily things that we take for granted in being able to do, such as walking to the mailbox when it’s really hot outside, or going with the family to a family reunion, or on a picnic, or whatever, it’s just things they can’t do. Breathing becomes something that you have to kind of consciously think about. You know, you and me on a daily basis, we can ride a bicycle and still carry on a conversation with someone, or we sit and watch TV and never once have a thought about the fact that we’re breathing.

Another respondent likened the experience to drowning:

It’s almost like a sensation that you’re drowning on dry land. Especially when it progresses, that you really never can catch enough breath. And over time it gets worse and worse, and so you’re sort of gasping for air. Even in a seated position—not moving, not exercising—and you just can’t get enough air into your lungs. You can’t get enough oxygen into your blood. And then it just goes downhill until your body
physically just can longer survive with that little amount of oxygen and you die. It’s a really horrible thing to experience, especially people who have black lung. Others described how difficult the disease was not only on the individual sufferer, but also on their families. This respondent characterized the difficulty of black lung-related death, “Very hard, very hard death…I’ve witnessed the disease first-hand and I see what it can do to a family and to an individual.”

While there is variation in the ways that black lung effects different individuals, in many cases, black lung continues to progress, even after retirement when miners are removed from the coal and silica dust that caused the respiratory problems. A former miner noted the progression of the disease he experienced after retirement:

It’s like a cancer…it can get progressive. A lot of coal miners…don’t have it real bad…or they’ll have some of the side effects, but they can still live their life. Then you have those who might have a larger amount of black lung and it will get agitated, and even after you’re retired, it will get progressive and their health will go down, sometimes pretty quick. Mine turned pretty quick after about three years. Over three years’ time, mine was really bad.

Other miners echoed similar experiences: “I would run a mile and that was almost at the end of my mining career. To show how coal pneumoconiosis progresses, I went on and started getting these large spots on my lungs and I still can walk, but not uphill much.” In a recent *NPR* article, a retired miner with black lung in West Virginia described the body’s inability to function normally, which eventually leads to death:
You try to get air in them, and they don’t want to cooperate with you as they did before…There’s no cure at all. It keeps getting harder and harder until one day, I guess, you take your last breath and they won’t expand for you no more.

It took this miner four and a half years to secure his black lung benefits even though the condition of his lungs forces him to stop speaking while he is moving (Lofton January 24, 2017). Clinic workers describe the dependency on oxygen at the young age of 40 or 50:

These people coming in with their oxygen and the way that they are breathing with their inhalers. And they can’t walk ten feet without being out of wind. Some are in wheel chairs. Some are in their 40s and 50s. That coal dust has destroyed their lungs.

Black lung disease is not limited to respiratory problems. In fact, recent studies show that black lung can cause or complicate heart problems such as hypertension and heart failure (Petsonk, Rose, and Cohen 2013) as the lungs struggle to supply enough oxygen to all other organs. Research presented at the National Coalition Conference in 2015 suggested that it is difficult for the heart to pump blood through damaged lungs, which causes the heart to thicken. Heart disease and plaque build-up are common among black lung patients. Attorneys report that older miners experience multiple health problems as a consequence of black lung, “Heart and lungs work together, and a heart attack is not a cause of death—that’s just the end result. But you don’t die from a heart attack. You die from all those things leading up to the heart attack.” According to other presentations at the West Virginia Black Lung Conference in 2016, the lack of oxygen-rich blood causes the heart to become enlarged, weakened and less effective, eventually leading to kidney failure and death.
It is well known that advanced stages of black lung often lead to disability and premature death (Mazurek, Laney, and Wood 2009). Research shows that between 1968-2006, a total of 22,625 years of potential life lost (YPLL) were attributed to black lung (Mazurek, Laney, and Wood 2009). Even if black lung is not the leading cause of death, it has severe impacts on the body, and is ultimately a contributor to their death:

Miners have that sensation of shortness of breath and it’s a real limitation on their quality of life. It may not kill them, but typically what it does is it also makes it more difficult when they run into other health complications in life…it’s a contributor in their death.

Miners grapple with the uncertainty surrounding their health and the likelihood of a shortened life span, as described by this former miner:

Everything I do, “Let me catch my breath.” Simple things like a cold that 7-10 days your cold is over, not me, it’s a month, month and a half. I just went through it. My doctors said, “We don’t want you to get pneumonia because it will kill you.” So simple things like a cold is a scary thing for me. And I’ll be 58 years old and I’d like to think that I’m gonna live to be an old man, but I don’t know if that will ever happen.

Environmental illnesses are particularly challenging for a number of reasons. First, diagnosis is the pathway for treatment and compensation (Zavestoski et al. 2004), as highlighted throughout this chapter, yet the diagnosis of environmental illnesses is fraught with complications and uncertainties. Some physicians may want to avoid the contentious, adversarial process that enshrouds black lung. In addition, many physicians are not well
trained to identify, diagnose, or treat environmentally-induced illnesses (Auyero and Swistun 2008; Brown and Kelley 2000). Finally, some miners consciously avoid the diagnosis, fearing the loss of employment and health care benefits for themselves and their families. Thus, while black lung is entirely preventable and has a clear etiology, there are significant barriers to diagnosis, treatment and compensation. Second, environmental impacts do not affect everyone the same and race, class and gender can influence not only the likelihood of environmental exposures, but also the likelihood of diagnosis and treatment (Brown 1995; Brulle and Pellow 2006). In the case of black lung, social class plays a significant part in keeping miners silent about dust exposure and even their health status due to fears related to job loss. Third, economic concerns and the related lack of health care influenced miners’ ability and willingness to seek medical care. While there is treatment for black lung, there is no cure, and miners often avoid treatment because they cannot afford the medical expenses.

The challenges related to black lung go well beyond medical care. Indeed, they permeate all aspects of sick miners’ lives, including basic physical abilities, the loss of their identity, and mental health stress. Miners are forced to adapt to their new disabled life, which is a direct contradiction to their identities and proud miners and providers for their family. The resurgence of black lung has not only impacted the lives of those directly impacted by the disease, but many see the disease as an assault on Appalachian communities more generally, as a “plague” on central Appalachia. As one respondent noted, nearly all families in the region have been impacted by black lung, “There are just a lot of sad stories and kind of simmering outrage” as many feel “like their relatives or themselves are victims of a greedy corporation.” This feeling of outrage has prompted some in the broader black lung
community engage in advocacy work and to seek redress for the environmental injustices. These efforts are largely supported by outside advocate, including those involved with the National Coalition, black lung clinics, Black Lung Associations, the UMWA, attorneys, and other lay advocates who are fighting for black lung justice. In addition, retired miners have also begun to speak out and become an active part of this advocacy campaign. In the next chapter, I examine black lung advocacy work and analyze the continued resistance from elites and others working to limit the industry’s liability.
CHAPTER 6: ADVOCACY & INDUSTRY OBSTRUCTION

In this chapter, I analyze black lung advocacy and elite opposition to this campaign. I examine the advocacy efforts of those involved in the National Coalition of Black Lung and Respiratory Disease Clinics (National Coalition), in addition to the efforts of the Black Lung Association (BLA), black lung attorneys, the United Mine Workers of America (UMWA), lay advocates, and those in the retired coal miner community. I then analyze the continued contestation of black lung by the coal mining industry, which has fought to stifle legislative changes that would benefit miners and routinely challenged black lung compensation claims. I refer to “coal elites” as those with decision-making power in the coal industry. Notably these elites include coal operators (i.e. CEOs, owners, managers, and representatives of the industry). During the litigation of black lung claims, coal elites rely on legal counsel to represent their interests, as will be discussed.

Black Lung Activism and Obstacles for Change

In this section, I discuss environmental health activism as it relates to black lung. To provide context for this advocacy campaign, I begin with a review of the black lung movement of the 1960s, which represented one of the largest and most successful environmental health campaigns in U.S. history. I then examine the changing black lung advocacy landscape today. Drawing on theoretical insights from Gaventa (1980) and other scholars on power, I analyze the factors contributing to the relative quiescence of employed coal miners today compared to their counterparts during the original black lung movement.
Contextualizing Black Lung Activism: The Historical Black Lung Movement

The first reported case of black lung dates back to a British coal miner in 1831 (Castranova and Vallyathan 2000), but it took over a century before black lung was recognized as a legitimate occupational disease in the United States. This recognition of black lung can ultimately be traced to the successful black lung movement of the late 1960s, which was critical to changing the nation’s approach to occupational illness in the mines. The movement was sparked by a mining disaster in West Virginia. On November 20, 1968, a spark caught fire to the methane gas and coal dust in Consolidation Coal Company’s No. 9 mine (Barth 2005; Smith 1987). The mine continued to explode for another nine days after igniting, ultimate leading to 78 miner fatalities (Smith 1987). The horrific incident, known as the Farmington Coal Mine Disaster, ignited the black lung movement (Smith 1987).

In the months following the Farmington Disaster approximately 40,000 coal miners went on strike and effectively shut down the mining industry in West Virginia (Smith 1981). The respondents in this study reflected on the original miner strike. A respondent who was a young child at the time recalled the strike and the financial strain it had on her family:

I remember in ‘69…it was around that time when the miners came out on strike. And a lot of it has to do with different benefits and I think black lung was one of the benefits that they were striking for. My father and a lot of the operators at the plant where he worked at also came out in like a sympathy strike to show solidarity with the miners. And I do remember that time, just because I remember my mom worrying about going and getting groceries because dad didn’t have a paycheck coming in. He
had went and signed up for unemployment or something and they said well you can’t get unemployment because you’re voluntarily not working. It was a big to-do.

The strike was general not supported by the UMWA and this led many to criticize the union for its lack of support. Many claimed that the UMWA was corrupt and was not looking out for the best interests of the miners, but instead only focused on corporate production interests. A respondent noted the “wildcat,” or ex-officio nature of the strike, as it was conducted without union support:

The movement, as I understood it, in the 1960s was led by active working coal miners who were active in the Union or UMWA members. But, had actually organized this process a little bit ex-officio from the union because [it] in some ways [was] corrupt at that time, and not really interested in battling for this particular issue for the rights of these miners…They were sort of like wildcat strikes and…miners and also the Black Lung Associations…some former miners and disabled miners [were involved]. And that unity between the active working, not militant union miners, but sort of doing this on their own…That was a huge movement. A combination of the union miners and former miners, the doctors like Buff and Rasmussen, and that group of sort of radical, or radicalizing doctors, and then some politicians who were supportive and helpful.

Despite the lack of support from the UMWA at the time, the black lung movement ultimately garnered considerable support among the public and some key politicians, including former Congressional Representative and West Virginia Secretary of State, the late Ken Hechler. In 2009 at the age of 94, Hechler claimed, “I used to be an agitator, then an
activist. Now I’m a hellraiser” (Barrett December 11, 2016). Hechler died December 10, 2016 at the age of 102. Together a vocal group of miners and their allies advocated for legislative changes and better working conditions for miners in general. The original black lung movement proved to be successful. Just over a year after the formation of the movement, congress passed the Coal Mine Health and Safety Act, which was signed into law by President Nixon (Barth 2005; Smith 1987).

The political and economic landscape has changed drastically since the original black lung movement of the late 1960s, yet the historical movement does provide an anchor for today’s advocacy. Several respondents noted the importance of the original movement. For example, a federal employee emphasized the movement’s historically significance and described how it remains an important starting point for improving the legislation:

With any type of major change, there’s always a big initial push…and then…the loose ends are cleaned up and loopholes are closed. So, there certainly are those that are advocates and are passionate about this topic, but they aren’t starting from zero. They have a place to start from and I think that’s thanks to the 1969 Movement.

A pulmonologist and respondent discussed the support of the UMWA today, which plays a vital role in the current black lung movement:

Today, I think that the fight against these attacks on the benefits and things that miners has won has been largely led by the Black Lung Associations and union. The union is very involved and very supportive now unlike those [earlier] days. [The UMWA President] and a group of folks who lead the UMWA have been phenomenally supportive as far as I can tell. They’ve been working very hard to
help the Black Lung Associations, whereas they were a bit of a wildcat group back in the day. Then they work with the clinics, people in the clinics, staff, who really care about the miners, who’ve often been very supportive and helping in that movement. Thus, while the black lung movement has changed in recent decades, many remain involved and engaged with improving legislation and the livelihoods of miners who struggle with black lung.

*The Limited Role of Coal Miners in Black Lung Activism Today*

The coal crisis and related economic uncertainty in Appalachia has had an enormous impact on the region. I argue that these conditions have given the coal industry even greater power and leverage over miners. Notably, conditions in the mines have worsened while residents in the region have become increasingly desperate for employment opportunities. The industry’s push for increased profits has encouraged reliance on riskier forms of production, such as drilling into more rock and thus generating more silica dust. These conditions have not only placed greater strains on employment opportunities in the region (see Schnaiberg 1980), as predicted by risk society theorists (e.g., Beck 1992; Gephart 2004; Perrow 1987) these production methods have increased risks to worker health and safety. As a result, unlike the original movement, today it is rare to find an employed miner who is willing to speak out about working conditions and health effects associated with mining. As discussed in the next section, black lung advocacy has shifted to a confederation of the National Coalition, Black Lung Association, the UMWA, black lung clinics, lay advocates, and retired miners.
The silence among active miners was frequently discussed in this research. Notably, the relative silence of coal miners today is not unique. In his original work on quiescence in the region, Gaventa (1980) discussed the “culture of silence” that tended to lock residents into a dependent relationship with the coal industry. Furthermore, his work on power and powerlessness highlighted the quiescence and general complacency of miners in central Appalachia. Taking cues from Gaventa’s seminal work, others have uncovered similar trends in the region in recent years. For example, in her research on mountaintop removal in Appalachia, Bodenhamer (2016:1141) found a pattern of quiescence, as she explained: “Those in powerful positions will silence concerns that threaten the interests of the privileged class.” Similarly, Bell and York (2010) described the relative silence of coal communities regarding environmental destruction and unemployment. Moreover, Bell and York (2010) found that when residents did speak out against the industry they were often met with resistance from the industry. In the case of central Appalachia, the industry launched an aggressive media campaign under the moniker, “Friends of Coal,” in order to vilify their opponents and maintain their hegemonic position (Bell and York 2010; Bodenhamer 2016).

In another article, Bell (2009) attributed miner silence and the lack of resistance to the loss of social capital in coal mining towns in West Virginia that she credited to depopulation and deunionization in the region.

Today’s economic and political climate in Appalachia has further exacerbated these conditions. As a result, employed miners are unwilling to speak out, fearing reprisals and employment security. Thus, while silence and acquiescence associated with the coal industry is not a new phenomenon, findings indicate that political and economic conditions are
decreasing quiescence in the region. Results indicate a number of salient themes related to quiescence, which will be described below. First, as discussed previously, the lack of unionization and the “culture of fear” that permeates the coalfields remains a key issue that relates to miners’ silence regarding working conditions. Second, the prevalence of black lung is not perceived to be as pervasive as it was in the 1960s. Third, the unity of miners is not as strong as it was historically. Findings suggest that production bonuses in the mines (i.e. incentives to increase production), actually turn miners against each other for speaking out about safety and injuries in the workplace. The lack of union representation also compounds these issues.

*Deunionization and Culture of Fear:* There are tremendous benefits associated with union representation and other third party support in the coal mines, especially in terms of miners’ safety and wellbeing. Federal employees noted that miners feel empowered and safer when they can speak out about concerns in the workplace, as noted by this respondent:

> A lot of times, some of the places we go in that have health hazards, the employees are afraid to say something. Or, they have said something and they have been retaliated against or they’ve been ignored. So when we have an outside party to come in and validate these concerns on behalf of the employee and then offer suggestions for change, you really see a turnaround of the workforce. They feel more empowered and they feel safer. So that’s kind of good whereas they weren’t able to accomplish something like that by themselves.

Without proper union representation, many miners fear retribution from the coal operators and simply remain silent in the workplace. A former miner described the intimidation among
active miners who are not affiliated with a union: “The non-union miners are so intimidated and so scared…I mean afraid to miss work or…even go to the doctor.” Attorneys reported similar issues among their clients: “Active miners may have been a little reluctant to be too out there on issues of black dust exposure.” Miners do have the right to contact the Mine Safety and Health Administration directly to alert them of any safety violations anonymously. However, despite the alleged anonymity, coal operators often find out who complained and seek retaliation. A federal employee described the process and the fear that resonates among miners:

There’s an appropriate number they can call [to file a complaint]. They can do it anonymously. A lot of times you go out and do an investigation, somehow…that individual could be identified by the company…There’s so few jobs out there and so many people laid off that a miner probably feels threatened to turn in anything like that.

Narratives related to retaliation came up repeatedly during the research and serve as a constant reminder to miners to remain silent. Retaliation against workers speaking out on environmental violations and worker health and safety issues is not new. In their research on the Oak Ridge nuclear facility, for example, Cable et al. (2008) found that nuclear weapons workers were repeatedly harassed and demoted on the job after speaking out. In central Appalachia, however, the stakes are even higher given the lack of alternative employment opportunities. Thus, silence among active miners has become normative in the region.

Perceptions of Lower Prevalence and Acceptance of Risk: While concerns about retaliation and job security are the predominant factors shaping worker silence, findings also
indicate that “perceptions” of lower black lung prevalence among miners may also contribute to quiescence. Some note that the disease is not as pervasive as it was prior to the passage of the 1969 Coal Act. In addition, the uptick or resurgence of black lung is less resonant with some miners who have long been aware of the risks associated with coal and silica dust. Thus, for some miners the disease has remained a constant threat and the price paid for work in the mines. In this regard, black lung has become a “normalized accident” (Perrow 1999). Indeed, a federal employee argued that during the time of the initial black lung movement, the prevalence of the disease was between 30 and 40 percent among working miners, and even higher among retired miners. The respondent described the impact of disease and the diminished concerns among miners today:

I think it was just really, really prevalent [historically] and it was really affecting communities. Because the breadwinner was no longer able to work and women at that time weren’t as engaged in the workforce as they are now. So really, the support of the family relied on the husband. So now, we are not seeing 30 and 40 percent have the disease. So people are able to manage and enough people are able to manage so there’s not complete outrage. It’s just these small pockets and it doesn’t get a lot of attention.

Interestingly, findings indicate that there may be a “threshold effect” in that as long as rates stay below a certain level there is less outrage, or at least less vocal concern, expressed among miners and their families. Some clinic workers noted this observation: “It seems like people think that it [black lung] just went away and then all of a sudden it’s just coming back and that’s really not the case at all.” While prevalence of black lung decreased significantly
following the implementation of the Coal Act, it was never eradicated. Some argue that
calling it the “resurgence” of black lung is misleading, as it never disappeared. Miners do not
perceive black lung to be “resurgent” because it never stopped, as expressed by a clinic
director: “There are numbers that back that up [the resurgence of black lung]. But to people
who have been living in it for their entire lives, everyday, it might be a little better or a little
worse, but nothing changes very much.”

*Declining Unity Among Miners and the Use of Production Bonuses:* The third factor
contributing to relative silence among the miners is related to the lack of miner unity.
Findings suggest that miners do not have the same sense of worker unity, or worker identity,
as they did in the past. Again, the lack of unity can once again be linked to difficult economic
conditions in the region. In her research on central Appalachia, Bell (2009) argued that social
capital, the connection and unity of a place, has diminished in coal mining regions in West
Virginia. She attributes this loss of social capital to the outmigration of natives in search of
work and better opportunities. A black lung clinic worker interviewed for this project offered
a similar observation:

> It seems like when I’m out and about talking to current miners, there is not as much
unity among them. They’re much more worried about their own family situations and
they seem more fearful of trying to stand up as a group. I think they don’t think that
they can get enough of them.

Declining worker unity is clearly linked to the deunionization of the mines in Appalachia. As
a result, miners do not feel that they have the kind of collective representation and protection
needed to stand up as a group. Instead, miners turn inward and shift from acting on behalf of the greater good to acting on individual self-interests (e.g. individual job security).

The lack of worker identity is further complicated through the use of production bonuses, in the form of financial incentives, which are offered by coal companies. The appeal of gaining a couple hundred and even up to several thousand dollars extra each month leads to significant peer pressure and encourages miners to cover up safety concerns. Respondents argued that these production bonuses offered by coal companies ultimately serve to turn miners against one another. An attorney discussed how production bonuses have negative impacts for miners and their solidarity in the workplace:

Sometimes there’ll be a lot of peer pressure not to make waves, and there’s subtle ways and not-so-subtle ways…Now, suppose you’re working in a mine where the company offers you a production bonus. For every month where we hit 100,000 tons of production, you’re gonna get paid additional money. Now let’s suppose that you’re working with somebody who’s a mine safety whistleblower. So his whistleblowing activity causes the mine to go off production for two days that month, and your production drops below 100,000 tons. You’re probably not gonna be so happy about the guy’s complaints, especially if you think that you could live with that condition.

A former miner, now turned federal employee, explained that the bonuses influenced miners to make poor decisions in the mines, such as not following safety protocol:

Some of the production bonuses per year, you’re talking maybe $3,000 a month extra on top of your pay, anywhere from $300 to a couple thousand dollars a month extra. So when you’re getting those kind of bonuses, the men would do anything to run the
coal—get that extra money. If that meant don’t hang your curtains quite right, hurry up and get it cut real quick and leave the curtains half down, breathe the dust—they didn’t think nothing about it. So the incentives from operator’s bonuses could have them do stuff wrong.

Similar patterns are reported when it comes to safety concerns, as noted by this former miner:

One company I worked for came out with a new safety thing. They based it on, if you got hurt you’d lose your safety bonus. They broke it down per section. Like, if you’re on a section you and I work together there’s 10, there’s about an average of 15 people on a section. [If] one person gets hurt, that affected everybody on the section. They start doing it that way so it affects everybody’s bonus instead of basing it on individuals. So what that did…what happens when you start affecting the men’s bonuses?...You started getting incentives to cover your accidents up…The men started harassing you like, “Man you know you’re going to affect our bonuses” and stuff like [that]. Incentives like that.

The respondent explained that the companies purposefully used this strategy to increase production and limit health and safety concerns, adding: “Companies knew how to send stuff like that out to get things done.” In this regard, employers juxtapose economic incentives and masculine ideals in order to achieve the desired result of increasing production. Thus, the display and acquisition of masculinity leads miners to take greater risk in the workplace and to overlook safety precautions (see Neilson et al. 2015). Hodson (2001) argues that using teams is one industry tactic to increase surveillance and production. As coworkers begin to police one another, teams serve to extend the power of the supervisor in the workplace.
Additionally, workplace abuse such as verbal abuse, inappropriate firings, and job insecurity are all unhealthy conditions for pressuring workers to produce more (Hodson 2001).

In summary, theoretical work on power helps inform my understanding of the lack of miner representation in black lung advocacy today (see Bell 2009; Bell and York 2010; Gaventa 1980; Hodson 2001). The findings indicate three major themes with regards to miner silence in the workplace. First, deunionization and the culture of fear leaves miners with few options and encourages their silence. Second, miners have come to accept the risks associated with coal mining, including black lung. Masculinity may play a role in this acceptance of risk and sacrifice of one’s body. Third, there appears to be declining unity among miners, which is compounded by the industry’s use bonuses to increase production by turning miners against one another, amplifying peer pressure, covering up accidents, and disincentivizing safe practices in the mines. Together, these factors contribute to silence and quiescence among current miners. In the absence of vocal opposition from employed miners, health advocacy surrounding black lung has largely been spearheaded by various professionals, lay advocates, and retired miners, as described in the next section.

**Black Lung Advocacy and Collaboration between Lay Advocates and Experts**

The concept of “embodied health movements” was introduced by Brown et al. (2004) to understand advocacy work surrounding disease and contested environmental illness. Embodied health movements often challenge traditional medical and scientific knowledge in cases where environmental factors are being questioned. More importantly for this research, however, environmental health movements bring together laypersons and other experts in collaborative efforts in environmental health campaigns (see also Brown and Zavestoski
In this way, environmental health movements build on both the experiences of those directly affected by illnesses and the expertise of sympathetic experts to build campaigns directed at raising public awareness and impacting policies to improve working conditions and disease recognition. Given the reluctance of employed miners to speak out in the current economic climate, black lung advocacy work is being directed by a coalition of healthcare professionals, lay advocates, black lung attorneys, and retired miners. Below I examine environmental health advocacy through three general platforms and venues: 1) National Coalition of Black Lung, 2) political advocacy and legislative work, and 3) legal advocacy.

The National Coalition of Black Lung

The National Coalition of Black Lung and Respiratory Disease Clinics (National Coalition) is central to advocacy efforts related to the disease. After the passage of the Coal Act, black lung clinics were formed to provide healthcare to miners, but they were not connected to each other or to other laypersons and experts. The National Coalition was established in 1984 and designed as an interdisciplinary organization to bring together federal researchers/employees/regulators, clinic workers, benefits counselors, medical professionals, attorneys, lay advocates, and miners. A pulmonologist involved in black lung disease discussed the origins of the National Coalition:

When there was lobbying and legislation passed to fund black lung clinics, they [National Coalition] sort of formed as the first group of grantees, people who applied for these federal grants for the black lung clinics program. The Coalition was a
formation of those people who were successful grantees and to sort of provide education and support to all the clinics grantees that were in that program.

Black lung legislation was so complicated that many struggled to make sense of the laws. Moreover, black lung has remained such an understudied area of medicine that it requires specialized training and mentorship to understand the disease. Given these complexities, the National Coalition has been critical in bringing together various experts and advocates who are working on black lung issues. The National Coalition provides a platform for environmental health advocacy by regularly bringing together miners, lay advocates and medical and legal experts. As a result, the interdisciplinary nature of the National Coalition has allowed individuals to compile knowledge from the experiences of lay advocates and a wide range of experts to address the ongoing issues related to medical knowledge, treatment, and public advocacy work on the disease. Indeed, it has become the central clearinghouse for issues related to the disease.

As part of their advocacy work, the National Coalition holds conferences to educate those involved with the disease. A black lung clinic director remarked on the origins of the National Coalition and the vital role it continues to play:

The first meeting took place in Abington, Virginia, at the Martha Washington Inn. It was about five clinics…They just got together and said, “Listen, we need to tap all of our resources together here and start having some type of a conference, because you can’t go to no community college or four-year college and take a class on black lung.” [Laughs]
Those involved in the National Coalition determined that the best way to educate black lung advocates was through regional and national conferences. The black lung clinic director explained:

So they decided back then that the only way that we could educate our staff and our doctors, people who were interested, is to start having these conferences…The mission of the coalition is for all clinics to provide those services, which are what HRSA [Health Resources and Services Administration] tells us we need to provide—the patient education, the pulmonary rehab, outreach, benefits counseling, and to try to give that miner and their family a better quality of life.

Given the complications of black lung disease, as well as the ever-changing legislative rules and regulations, the National Coalition serves a vital role to the black lung advocacy community. Undeniably, many argued that they would be lost without the efforts of the National Coalition, given that there is no other single place to get all of the information needed to work in this field. A federal employee described the importance of the black lung conferences:

I was actually talking to one of the clinics earlier and they said they wouldn’t know where they would be without these conferences. They learn so much by being here, best practices for the clinics, and outreach. I think it’s just a great opportunity.

The National Coalition represents black lung clinics in several states including, Arizona, Colorado, Illinois, Kentucky, New Mexico, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and Wyoming. The Coalition has five primary goals: 1) to adopt uniform black lung education and treatment standards; 2) to improve communications and
information between clinics; 3) to provide a unified voice for Black Lung and Respiratory Disease Clinic Programs; 4) to sponsor opportunities for education, training, and technical assistance; and 5) to encourage coal miners and others suffering from respiratory diseases to participate in coalition activities (National Coalition 2015). Ultimately, the National Coalition serves to educate the public, miners, and experts working on black lung issues. The National Coalition conference consists of three “tracks” so participants can choose which area would be most applicable to them and their work. These tracks consist of medical, legal, and benefits. Most participants move around to different tracks depending on the presentations they think would be most beneficial; x-ray technicians, clinicians, and attorneys actually receive education credits for recertification by attending the National Coalition conferences. A pulmonologist commented on the complexity of black lung issues and the knowledge required to help miners navigate the black lung program:

You’ve got Administrative Law Judges from the Department of Labor. You’ve got members of the black lung program, district directors, claims examiners, attorneys, you’ve got lay representatives, social workers, physicians, respiratory therapists, nurses, all here to make sure that coal miners who want to apply for black lung are treated fairly, [and] respectfully…Everybody needs to know what’s needed for a complete [black lung] exam, how to write the report…You don’t want miners who are entitled to [benefits] not get it. So you want to make sure the reports are accurate and fair. And you have to understand [the] law, because when you write your report, you have to understand the lens that the legal community looks through.
This respondent also described the complexity of writing reports for miners’ compensation claims, adding that the reports must be legible to multiple actors, which all have special languages and/or potential barriers. The respondent expressed how important it was to get feedback from those responsible for processing the reports. The respondent described how he utilizes the black lung conferences to improve his practices in order to better serve miners:

You got to realize, you got to always write in terms of coal miners reading your report, lawyers reading your report, [and] judges reading your report. Not just other doctors. So you can’t write in medical terms, you have to write in legal terms. And you come to these meetings to learn how to do that. And I want feedback. The only way I’ll ever get feedback from the legal community is to come to these meetings because I don’t ever see these lawyers except at these meetings.

Attorneys expressed similar sentiments about the breadth of knowledge offered at the National Coalition conferences:

I go to seminars that are put on by the National Coalition of Black Lung Respiratory Disease Clinics…They’re about trying to help coal miners who have black lung. Help get benefits. Increase benefits…help improve claims. They’ll bring together [the] medical profession and legal profession and [coal miners].

The National Coalition is also involved in community outreach for miners and their families. Respondents described the myriad misconceptions, half-truths, and myths about black lung that permeate the coalfields. The National Coalition attempts to mitigate these issues. It is also an important arena for miners to educate themselves on how best to file a claim for black lung, and seek treatment. Miners can attend the conference for free, and they
offer a “miner’s lunch” which usually includes a speaker, such as the President of the United Mine Workers of America. NIOSH also offers free black lung screening. Despite these efforts, miner participation varies significantly between conferences, and at times participation by miners is low. A prominent physician and respondent commented on the efforts of National Coalition affiliates to educate the public about black lung:

There’s been a lot of effort on the part of the union, and on part of the black lung clinics, and the black lung associations to really educate the community…There may still be some myths and misunderstandings, but I think in this country, I think there is pretty good penetration of some of this into the communities.

The National Coalition provides a space for many to engage in advocacy for miners. Through their efforts in the National Coalition physicians and federal employees are attempting to create a more just system that recognizes and respects the science and latest medical developments in prevention and treatment of black lung. A respondent discussed his advocacy for miners and the use of science:

Given my position as an educator, scientist, and researcher, and as an examiner for the DOL [Department of Labor]…I advocate for the truth of science. Which you know, I think it would be really, really helpful to the miners. Because the people that are denying this disease are not scientific and are not academic about it. So I advocate what I think miners deserve and what the examination and evaluation show. So that’s the way that I really focus my advocacy.

This black lung advocacy is critical for miners, as described by a federal employee who outlined the challenges faced by those impacted by the disease:
…these folks [miners] when they retire or they’re laid off, or they quit and they end up having the disease they can’t speak themselves. Attorneys are expensive and black lung attorneys are hard to come by. So we do every little bit we can to help by drawing attention to the problems and keep the problem in the focus of the industry and keep harping on the fact that safety is important and health is very important and respiratory disease has not gone away.

The National Coalition provides an important platform for retired miners to engage in black lung advocacy. When miners retire, or when they are no longer able to work for the industry, many begin to speak out about their experiences. And they often do so in order to inform other young miners about their experiences. As such, retired miners contribute significantly to environmental health advocacy through their lay experiences and insights. Numerous respondents discussed the influence of retired miners, as highlighted by this respondent:

“What you find is, really quickly, once they’re retired, they’re willing to say, ‘Yeah they [coal operators] used to have us hide dust pumps all the time.’ They’re no longer trying to protect that industry, because a lot of them realize they’re sick and [the industry is] not worth protecting.” Many miners underestimate their influence, and some, for example, describe “not being much of a public speaker” and generally being shy about speaking in a public forum. But, the National Coalition serves to empower these voices by providing a platform and a public forum for them to share their experiences.

As a result, miners have come to view the black lung conferences as an empowering event and as a source of support for them and their fellow sick miners. And they are taking advantage of these opportunities to encourage others with their own lay experiences, as
explained by this former miner: “That’s really why I go to the Black Lung Conference…My challenge at hand is to be an encouragement to those who think there is no hope. Give them some hope. Let them know not to give up. That’s the only way you lose, is to give up.”

Another retired miner shares his story at the National Coalition conference so that other miners might escape the trap he fell into:

I had 28 years in the coal mines…I can recall as a young man going into the coal mines, I didn’t think about the coal dust. I didn’t think about black lung. All the things I cared about was money…As a young man, you don’t see these things, you’re just like a young deer. You take off and run like nothing going to happen to me. All I care about is making that money, I don’t care about wearing a respirator, I don’t care about the dust or anything. So time went on. One year went by, 10 years went by, 15 years went by, and all of a sudden I realized I was having trouble trying to breathe doing my normal walking. And [I] still didn’t pay any attention to it. Eventually it got my attention…I will tell each and every one of you to work safe. Do work that’s right. Don’t go underground and break the law…Manager say, “You gonna do it or you’re gonna lose your job,” so they put fear in you. So when you do that you expose yourself to a lot of things. A lot of the things I’ve done that I regret, that I wish I hadn’t done…Don’t give up, the more people that protest, the more people that stand together, the more people that pray and believe that God will bring this thing to come, it will come to pass.
Political Advocacy and Legislative Changes

While the National Coalition is not officially a political advocacy group, many of those involved in the Coalition engage in various forms of political advocacy aimed at improving legislation and the lives of those suffering from black lung disease. Such advocacy work generally takes the form of lobbying in Washington, D.C., writing letters to congressional representatives, and reaching out to government agencies. A black lung director noted his advocacy efforts:

I’ve been to a couple of sessions with MSHA [Mine Safety Health Administration], and I know Joe Main [Assistant Secretary of Labor] very well. He started his campaign about five years ago to End Black Lung—Act Now! And I was very involved in that, and some of my staff was…I do go to D.C. once a year. I go to the Hill; I meet with all my congressional leaders. I speak for their constituents here in the coalfields on issues that are going on.

Several respondents described their advocacy work. For example, an attorney described filing petitions for rulemaking and lawsuits aimed at reducing the legal respirable dust limit:

We filed a notice of rulemaking—a petition for rule-making with MSHA. We filed a few lawsuits, basically saying that the old standard of how much dust miners can be exposed to [was too high]…We said that the science has said for 20 years that that should be in half. [That it] should be one cubic meter. And we had a lot of resistance for a while [from the industry]. We filed a lawsuit that we lost. But actually when the Obama administration went in, we filed another petition for rulemaking and they
granted it. And MSHA, as part of that rulemaking, has reduced…there is much lower allowable limits of dust in underground mining.

Other forms of outreach and advocacy efforts include informational blogs. One notable blog is called *Devil in the Dust*, which is maintained by Appalachian Citizens’ Law Center. The blog is useful for keeping up to date on black lung issues, primarily focusing on legal changes. A respondent commented on the usefulness of the blog for keeping attorneys informed of new developments:

> We have a blog…*Devil in the Dust*…But [name] [has] done a great job with that blog…There’s a number of attorneys who are scattered around the Midwest who do black lung work, and who also sort of stay in touch with each other. And most of us go the National Black Lung Clinics Association meetings every year. And we put on educational sessions at those meetings. And so it’s [the blog] sort of an informal listserv. And we exchange information about questions and cases.

Public recognition and advocacy for black lung improved after news of a scandal at Johns Hopkins was reported in 2013. Chris Hamby, an investigative reporter for The Center for Public Integrity wrote a Pulitzer Prize-winning series of articles titled, “Breathless and Burdened: Dying from black lung, buried by law and medicine,” that revealed the trail of lies and injustice surrounding black lung litigation. This series of articles threw the coal industry and Dr. Paul Wheeler of Johns Hopkins Hospital into the political limelight, and has led to massive reform within the Department of Labor and the Mine Safety and Health Administration in recent years. These articles revealed that the black lung unit at Johns Hopkins favored coal companies over sick coal miners (Hamby October 30, 2013). Despite
biopsies and autopsies proving Wheeler’s diagnoses wrong repeatedly, in an interview Wheeler argued, that he was “more intellectually honest than other doctors, because he recognizes the limitations of x-rays and provides potential alternative diagnoses” (Hamby October 30, 2013). The Johns Hopkins scandal awakened advocates and government agencies to the malfeasance of the industry and led to changes with black lung compensation. These changes, known as the Byrd Amendments, were a successful venture of those involved with the Coalition and government agencies. A respondent explained:

Since the Johns Hopkins exposure, I think the Department of Labor [and other congressional representatives have] worked to try to make things…They were just so outraged that they’re trying to make things easier…for miners [and widows] to obtain [benefits]. And before Senator Byrd died, he worked very hard to help with that process. So the Affordable Care Act has some information in it, some pieces that are specifically targeting miners with black lung.

The Byrd Amendments were passed as part of the Affordable Care Act (i.e. Obamacare) and served as a major accomplishment for improving compensation for black lung. The Byrd Amendments include two major changes: the 15-year presumption and automatic entitlement for widows and dependents. Other recent successful improvements to the legislation for prevention include a lower respirable dust limit (1.5 mg/m³), the use of continuous personal dust monitors (CPDM), and increased fines for health and safety violations. Black lung advocacy work has been instrumental in initiating all of these changes.

Attorneys and Lay Advocates: Fighting for Miners and Their Right to Compensation
Many miners suffering with black lung disease need access to legal resources and expertise in order to mount successful campaigns for disease recognition, treatment and compensation. Unfortunately, there are a limited number of attorneys who specialize in black lung law. Thus, black lung litigation remains insurmountable for many miners who lack adequate education, knowledge, and resources to successfully navigate the legal bureaucracy alone. A respondent described the legal disparity she witnessed at a black lung hearing:

> Who were they [miners and widows] up against? These were attorneys…As I was listening to these men and then the widow talk. For example, the first gentleman who I sat in on, he dropped out of school after fifth grade. He did not have a GED. And so, you can imagine trying to navigate this stuff and understand it.

The complicated legal bureaucracy and the lack of available lawyers working in the area has prompted the development of “benefits counselors” and “lay advocates.” Benefits counselors serve an important function through their primary work with miners at black lung clinics. They assist with filling out miners’ Department of Labor forms, as discussed by this respondent:

> Benefits counselors, in most cases, would generally just deal with the process up to the time that the miner is going to give a decision or possibly…gather in some of the initial evidence once they get that decision.

Lay advocates, on the other hand, are familiar with black lung law and can informally represent miners in the courtroom. Thus, lay advocates play a much more direct and critical role in advocating on behalf of sick miners, as discussed by this respondent:
Lay advocacy goes a bit further [than benefits counselors] in being able to actually prepare the case yourself for hearing. Maybe submitting things to the judge on behalf of the client and possibly even representing a client at a hearing that doesn’t have an attorney.

While lay advocates serve a critical role for black lung sufferers, the lack of legal representation by attorneys exacerbates the complicated legal terrain that miners must navigate. Black lung compensation claims can be contested for extended periods of time, ranging anywhere from five to twenty years. Thus, it is difficult to maintain legal representation from lawyers for the full duration of this period. In addition, it is difficult for lawyers to win cases in court. There are no settlements in black lung law. Rather, there is only one winner and one loser. These factors, combined with the coal industry’s willingness to prolong and extend legal proceedings, makes for a long, and often unsuccessful battle for black lung attorneys. Multiple respondents discussed the lack of attorneys, mostly due to the complicated nature of black lung compensation and the related delays in pay. For example, one respondent explained:

At that particular time, there was no attorney in the nation taking black lung cases…Because there’s no money in it. The only time they can do a fee petition or generate any type of revenue is if the case is finally won. And in a black lung claim…[it goes] over a period of 10, 15, 20 years. So the attorneys aren’t doing them.

During fieldwork, I interviewed several attorneys that work on black lung claims. Notably, however, very few attorneys are able to work on black lung compensation claims full time, as discussed by this respondent: “The number of miners I help is constant because there are so
few attorneys doing this. I believe I am the only attorney in the country who does black lung litigation full time and exclusively.” Other attorneys who work on black lung claims also engage in other legal activities and advocacy: “I’ve been doing black lung benefits claims for probably over 25 years now, representing individual miners and widows on claims. And also some other advocacy on black lung.” Given the limited availability of lawyers, many miners are simply forced to rely on lay advocates. A respondent explained:

> It was a great thing [lay advocates], because there just weren’t enough legal people to do this work. So you couldn’t just rely on lawyers, because then those people [miners] would be unrepresented. So lay advocates played a big role.

An attorney and respondent discussed the origins of lay advocates and their training:

> Well when I first started 25 years ago, there were some people that were lay advocates. And those lay advocates had been trained to some degree by the Black Lung Association, and some degree by…an attorney with the union. And they [lay advocates] came out of a phase when Social Security was administering it [black lung claims]. When you didn’t have to be an attorney to represent people at these hearings…in the absence of lawyers who wanted to get involved, because there weren’t many who wanted to get involved. So just lay people who were concerned and a couple of them were just in it for the money, but most of these lay advocates were just good people who wanted to help people in the community. They learned the [black lung] system and represented people.

A lay advocate describes his first foray into the black lung legal system:
About six months into the [beginning of the black lung] program, a miner comes in. He said, “I filed for benefits, and I can’t find no attorney that would assist me to going to the hearing.” And I said, I know very little about the black lung legal side of it, but I will go with you just to comfort you. So we drove to Abingdon, Virginia, [to the] black lung hearing. Granted, I’d never been to a hearing before in my life, and so we are walking to the federal courthouse in Abingdon, and the judge looked at me and said, “Are you his attorney?” And I said, “No, sir, I am not an attorney, but I do work for a black lung program as the benefits counselor.” He said, “Well, you are a counselor, then.” I said, “Yeah, I am a counselor, but I’m not a legal counselor.”

Lay advocates are still a viable part of black lung advocacy work across the Appalachian region and beyond. In fact, in some cases lay advocates have a higher success rate than attorneys. A respondent noted that the lay advocates at a black lung clinic in Virginia have a particularly high success rate: “The thing that [director] always boasts about is…the lay advocates that come out of [clinic name]… they have – I want to say [director] said a 35-40% success rate. They are the highest. They are more successful than any place else in the country.” Thus, lay advocates continue to fulfill an important role in the coalfields of Appalachia. However, as black lung claims have become more complicated, with the more adversarial process, lay advocates often lack the skills, time, and resources they need to defend these cases against the resource-rich coal industry. A respondent discussed the increasing complexity of these cases and the reduction of lay advocates:

As the system has gotten more and more complicated with the adversarial part that we’ve talked about, I think it became harder and harder. And [its] harder for lay
advocates to handle the claims. Now, the benefits counselors at the clinics now perform some [functions] and in some cases, all of the functions…But there are fewer people that do that. What often happens now, people at the clinics help people get there. First of all, explain the system because it’s complicated, and help them gather their records and that kind of thing. But when they get to the point where the company is going to contest something, for the most part, the people who have some merit to their claim, which is everybody, they get referred to some of the few sympathetic lawyers or whatever and they do most of the claims and they’re likely to be successful.

In summary, there are a variety of ways in which advocacy work is helping to shape the black lung landscape. This advocacy work ranges from the efforts of the National Coalition to political advocacy and legislative changes, to individual level efforts to assist individual miners in seeking treatment and compensation for their disease. Despite these important efforts, the system continues to be fraught with problems and the deck is often stacked against miners. Black lung advocates continue to push up against powerful opponents in the coal industry. And miners continue to struggle with limited resources, and with a complicated bureaucracy that errs on the side of the industry. In the next section, I analyze industry obstruction and contestation of black lung prevention and compensation.

**Industry Obstruction and Contestation of Black Lung Prevention Efforts**

The coal mining industry is contesting the disease on two fronts: black lung prevention and black lung compensation benefits. In this section I focus on the industry’s efforts to obstruct and contest efforts aimed at preventing the disease. In the next major
heading below I focus on the industry’s efforts to obstruct and contest black lung compensation claims. While environmental illnesses are nearly always contested by powerful actors, the case of black lung is unique for two reasons. First, black lung represents a case of a “known” contested environmental illness (Brown, Morello-Frosch and Zavestoski 2011; Brown et al. 2001; Zavestoski et al. 2002). In other words, both the environmental pollutant and the illness condition have been fully recognized. Second, black lung has long been accepted as a legitimate and diagnosable illness condition. Despite being a recognized disease with a clear etiology, black lung continues to be contested at multiple levels by the coal industry. In this section, I examine the industry’s contestation of black lung. Specifically, I organize my analyses around elite obstruction and contestation of prevention and compensation. In addition to elite contestation, I highlight the myriad bureaucratic problems undergirding black lung today.

The coal industry has shown little effort to address resurgent black lung in Appalachia. Rather, the industry continues to contest the disease and to challenge prevention efforts. A long-time West Virginia physician working on black lung reported his efforts to alert the industry about the dangers of coal dust and the resurgence of the disease. The respondent recalled his communication with the industry, describing how the coal companies are strategically externalizing the costs of black lung. The physician explained:

I can’t tell you the name of the mining company, high-ranking person who told me this, but he said, “You know, you’re gonna have an uphill battle getting us to do anything about black lung because we don’t pay for black lung. It costs us money to be careful about that, but we don’t lose anything by not. We don’t lose any money by
letting the dust levels be too high…” He said, basically, the government pays the black lung benefits, “So it doesn’t hurt us, the miners getting benefits, it comes out of the tax.” But certainly the coal industry doesn’t see it as a competitive advantage or disadvantage. The mining companies that actually spend more money on dust controls are gonna not get as much profit. And so this mining industry person said to me, verbally, “We have externalized the cost of black lung, and therefore we’re not willing to do anything about it.

This respondent’s interaction reveals how the coal industry has approached health and safety in the mines, and helps explain resurgent black lung. It reflects how unequal power dynamics and class inequality are perpetuated and reinforced. These findings are neither new nor shocking given the history of the industry. The coal industry and other rural extractive industries often rely on externalizing health and environmental costs in order to increase profit margins (London and Kisting 2016). Indeed, Epstein et al. (2011) argued that the “cheapness” of coal is veiled in the externalized costs of both health and environmental pollution. According to these analysts, the true cost of coal when quantifying its externalized health and environmental impacts from extraction to waste disposal is actually more expensive than making the shift to renewable energy.

The pattern of the coal industry to externalize costs by cutting corners on health and safety has existed for decades. The Upper Big Branch (UBB) mine explosion in 2010 was illustrative of these same patterns. The UBB mine explosion occurred on April 5, 2010, killing 29 West Virginia coal miners. Five separate state, federal, and independent investigations of the UBB disaster determined that, “It was a preventable explosion caused
by a failure of the operator to follow known safety standards” (BILL S. 3443 “Robert C. Byrd Mine and Workplace Safety and Health 6 Act of 2012”). Three employees plead guilty during a criminal investigation, and Don Blankenship, CEO of Massey Energy, the responsible operator, was sentenced to a year in prison “for conspiring to violate federal mine safety standards” (Blinder April 6, 2016). The President of the United Mine Workers of America called the incident “industrial homicide” in their independent investigation of the mine explosion (Roberts May 20, 2010). Furthermore, postmortem examinations showed that 71 percent of the miners who were killed (who had enough lung tissue to be examined), had black lung (Federal Register May 1, 2014). Miners reflected on the mine explosion, and on the oversight of the bureaucratic system. This scenario represents O’Connor’s (1973) notion of the displacement of class conflicts into legal-rational bureaucratic systems, yet the problem is never solved. A miner recalled:

It wasn’t until Upper Big Branch and Don Blankenship and Supreme Court Justice, Benjamin, that all this sort of just kind of eased up to the surface. And Upper Big Branch the question was raised, how can this happen this day and time? Where was the oversight? Where was the government? Where was the regulators? And what Massey done, they played the system.

Don Blankenship, often touted as a working class good ol’ boy, who worked his way up to riches in the coal industry, was vilified after the UBB explosion. However, respondents noted that his focus was always on the bottom line and not the health and safety of the workers. Some miners quoted Blankenship saying that, “When you bend them, or break a man, you just get you another one.” Miners argue that, the coal industry has treated miners as
disposable and replaceable tools of production. Other miners commented on the treatment miners endured from coal operators, equating them to “dogs:”

If you can treat people like a dog and get by with it, you know, one day you will do it two days. If you [do] it two days, you will do it four days. You know what I’m talking about? Okay, he [Blankenship] had done this mess for so long. They had about 10 or 15 mines. They’d done this for so long and got by with it.

In a recent news interview, Blankenship was equally as dismissive of black lung, noting that black lung was not worth the effort to prevent:

Blankenship responds, “Yeah, I’m sure that there’s a certain amount of things that section bosses do and so forth, but the truth of the matter is that black lung is not an issue in this industry that is worth the effort that they put into [it] (Smith October 14, 2015).

For many, Blankenship’s response to black lung simple reflects the industry’s overarching perspective: coal miners are expendable and health and safety lowers profits. As on one respondent noted, “Company values dictate whether their productivity is emphasized over safety; I think that’s one big challenge.” Typically we think of violence as an act of force; however, this view is biased and nebulous (Jackman 2002). Instead, we must widen our view of violence, so that we can see how insidious and far-reaching it is. For example, hundreds of thousands of workers die each year due to unsafe practices, yet subjecting workers to hazardous working conditions is rarely considered an act of violence (Jackman 2002). The case of black lung offers a powerful representation of corporate violence, as miners are willfully exposed to toxic dust that has been proven to lead to disability and death. This
phenomenon also resonates with O’Connor’s arguments regarding the contradictions of capitalism, as the state struggles to regulate dangerous industries while simultaneously promoting production.

The coal industry has engaged in a number of activities that have undermined black lung prevention efforts. Many respondents argued that the coal industry continues to deny the existence or at least the significance of black lung. Miners are told that coal dust will not hurt them, or that black lung has been eradicated, and that there is no need to worry about dust inhalation and black lung screening. As discussed in previous chapters, workers have been threatened, or unjustly fired for being whistleblowers. The industry has also blocked NIOSH and black lung clinics from testing and educating miners about black lung. In addition, there has been a lack of effort to educate miners about the danger of coal dust and black lung. In the next section, I discuss the ways coal officials have attempted to obstruct prevention efforts in the mines. Specifically, I discuss the ways in which coal operators have misguided miners with regards to coal and silica dust and screening. Next, I examine coal operator tactics for dust fraud, and noncompliance with regulations. Finally, I will analyze the industry’s efforts to contest new regulations.

*Misinformation and Silence of the Industry Regarding Dust and Surveillance*

During fieldwork, there were numerous narratives and experiences shared regarding the ways that information is manipulated to undermine miners’ health concerns. For example, a federal employee and respondent noted that the industry continues to deny the existence of black lung today:
I feel like the coal industry has fought this idea that there even was black lung for a long, long time. And they frequently fight on the individual [compensation] cases and on up to broader scopes. I’m not sure that they’re in the position to educate. Many of them deny [that] black lung even exists.

Other respondents echoed similar concerns and they noted the industry has been well aware of resurgent black lung for nearly two decades, dating back to 2000. Despite the industry’s general awareness of resurgent black lung, miners remained uninformed about black lung in Appalachia. The industry remained silent, as described by this respondent:

I guess one question is, when this information from NIOSH was first published in the early 2000s, why didn’t the companies do more at that time to get answers? Because when you tell miners about this, they go, “What! They’ve known about this for how long?” They had, unless you read the journals, the pulmonary journals, nobody knew about this, except this small group of [coal industry] people here, had any idea about this at all.

In the case of central Appalachia the isolation of the mountains also seems to play a part in the limited acknowledgment of black lung. Mining accidents appear to receive more immediate attention in the news and within the industry, whereas black lung disease remains largely absent from public discussion. This is particularly ironic, given that black lung kills significantly more miners than mining disasters. A respondent explained the difference between the sudden impacts of mining disasters versus the slower destruction associated with black lung disease:
The public is not particularly paying attention to the issues of workers. And it gets back to the problem of having people dying in underground mine explosions versus dying more slowly from black lung. The safety problems and the accidents that kill miners or any other workers get a lot of attention, but the diseases that kill substantially more workers, just get very little attention. And I think people often, maybe even without articulating it, feel that that’s just the cost of doing business.

Miners offered a variety of narratives related to their experiences with the denial of black lung disease and dust exposure: “Gosh, I had no idea this type of thing, that, you know, this could happen to me or how bad it can be.” Other miners recalled the coal industry’s mantra that, “coal ain’t gonna hurt you,” as described by this retired miner:

I was a coal miner for 35 years underground, a continuous miner operator. When I first started in the mines, the dust and stuff when you were at the face [cutting coal it] was so thick you could hardly see. Companies would say, "Well that ain’t gonna hurt you. Just go ahead and do your work and everything." Because they said, "It wasn’t gonna hurt you."

Furthermore, miners have been uninformed about testing, and were discouraged from participating in NIOSH’s black lung surveillance program. A black lung clinic worker reported that despite longevity of the black lung clinic program, many miners are still unaware that the clinics exist or that they can be tested for black lung: “We still have people say we’ve never heard that we could be tested and we’ve been around for a long time. They say they still don’t...they’ve never heard that they could be tested for black lung.” A pulmonologist and respondent discussed how miners do not take advantage of black lung
testing opportunities, and are also sorely misinformed, which perpetuates the health disparity among miners:

Every coal miner is entitled to a black lung examination and far too few take advantage of that. Even today, many coal miners don’t realize they have a coal mine dust-related lung disease until they go have their cardiac catheterization or their prostate biopsied. And they have to have a chest x-ray and they realize they have a bad lung disease…There are a lot of myths, there’s a lot of misunderstanding, a lot of half-truths, and you know, I think there is a certain element of resistance. If a miner has been told that he doesn’t have black lung, he’ll tell other miners, “Don’t bother, it’s not worth it!” So there are a lot of reasons why they won’t take what’s entitled to them, and that’s a thorough evaluation.

Despite the resurgence of black lung, the misinformation, and general disregard for health and safety in the mines, the industry has remained relatively quiet on the issues. However, coal operators have also engaged in deliberate dust fraud in order to conceal excessive dust exposure from federal regulators.

_Dust Fraud—The Willing Subjection of Miners to Unsafe Dust Exposure_

One of the most important aspects of the Coal Act of 1969 was the creation of a respirable dust limit. At the time of the initial passing, the dust limit was 2 mg/m³, which has since been reduced to 1.5 mg/m³. In response to the general tightening of the regulatory limits, some coal companies have engaged in tactics to falsify dust samples. The most notable tactics are placing dust pumps (i.e. devices used to measure the amount of respirable dust) in areas that are less dusty, instead of at the face where the coal is extracted, as directed
by the legislation. A number of respondents shared their personal experiences with falsified dust records. The first account comes from a pulmonologist, who noted the declining respirable dust reported by the coal industry:

We did some epidemiologic studies trying to see what things might be associated with the rapidly progressive disease regions... We looked at the reported dust levels. In other words, the coal companies are required to report the dust levels several times a year to the federal agencies—MSHA or the state. And the dust levels that they reported, and the silica levels that they reported did not seem to have gone up; they all seem to be going continually down. So at least based upon what we call the “compliance samples” submitted for the purposes of showing that the mine was controlling dust, those did not implicate higher dust levels or higher silica levels.

Federal agencies claim that the industry “shot themselves in the foot” by falsifying records. For instance, when federal agencies began discussing decreasing the respirable dust limits, the companies started complaining, stating that the 1.5 mg/m$^3$ was impossible. Yet the “compliance samples” they were submitting were much, much lower than that. A federal employee describes this scenario:

What happened was some of these mines were, I mean can we really prove it, no, but when you start getting a 0.3 dust [sample], 0.1 and 0.5, and then [MSHA] says we’re going to do 1.5, they [companies] start fussing about it. What it is, they were turning in falsified samples, most likely falsifying their numbers. So MSHA came down a little harder on them and said, “You said you could do it!” Well, now operators are upset about it [lower dust limit].

198
Others describe how coal operators were able to falsify these dust records by hanging dust pumps in less dusty areas. A respondent recounts an incident when MSHA caught a mine company falsifying dust records:

MSHA caught the company red-handed. Because they’d [MSHA] show up and they’re at the power center, and there’s a fresh-air intake right there. The dust pumps that are supposed to be on the continuous miner operator who’s up at the section mining coal are hanging there! And management is sitting under them...This is exactly what we think happens, but it’s very difficult to catch them in the act of doing that. I think hiding dust pumps was so routine in the industry for years that most miners didn’t think anything of it. It was just part of what happened. It’s just sad. You hear about these things during the case of a miner who’s got serious lung disease, and he’s recounting all these times that the company was hiding dust pumps from the regulators.

Other respondents discussed the improved continuous personal dust monitors (CPDMs) and other ways mine operators would falsify dust records. For example, a respondent described pervasive cheating in the coal industry:

Cheating on the dust sampling, That still goes on all the time...That’s something that Joe Main, MSHA, has worked on these personal dust monitors that are a little more tamper-proof and aren’t as easily messed with. So the old system, and that’s something that’s been used for decades, is basically this dust pump that just measures how much dust is collected into it. And you use it over a period of time and then that’s what your sample’s based on. Well, there’s nothing in the apparatus that can
say where’s it been during this time. And what would typically happen, and a million
guys tell me this sort of thing. You would wrap it in rags. You would put it in a
dinner bucket. You would go hang it in the fresh air intake, where nothing but clean
air is blowing over it the whole time.

Aside from deliberate dust fraud, there are other regulations that the coal operators
overlook. Common issues include failure to hang ventilation curtains, failure to provide
enough ventilation, and negligence in maintaining water sprays on mining equipment. Again,
these are all specified mechanical controls that are part of the regulations set forth by the
Coal Act of 1969. Numerous respondents commented on coal operator negligence in relation
to these prevention efforts. A former miner who is now a benefits counselor commented on
these problems in the mines and the threats that companies perpetuate in order to control
miners:

The jobs are scarce, so they [companies] hold that over you, “If you don’t wanna
mine this way.” Because they wanna mine the cheapest. They don’t put up enough
ventilation. They don’t put the curtain up. And if you say anything about it, there’s
three guys outside waiting for your job. So we’d really like to get rid of it. And we
wouldn’t have to worry about benefits and the health of the miner. If we’re gonna
actually get rid of it, I won’t have a job but at least there’ll be people breathing a lot
better. And their health will be a lot better and they won’t be gasping for their last
breath.

For some respondents, the central problem with coal operators centered around
ethics, rather than regulations. A common narrative included the sentiment, “You can’t
regulate ethics.” In short, a respondent noted that you can put the best regulations possible in the books, but you cannot enforce these regulations every second of the day. In some regards, this serves to nullify regulations, especially within an industry that wields such power without serious repercussions. A clinic director explained that miners have grown skeptical that anyone can control what are termed the “outlaw operators” that run many of the coal mines in Appalachia. The respondent attributed the conscious decisions to evade health and safety regulations to “corporate values:”

I think it just comes down to corporate values. I think that mines that…care about the safety of their miners, they do what they can to run a tight ship. And those that are more productivity minded, kind of only put on those things for show if there’s somebody there that’s sampling that day. I think some of the recent changes in legislation may hope to curb that. It’s hard. I think for many of the miners that are much older than I am and have seen a lot more abuse of the system. I think it’s hard for them to view it anyway but skeptically.

Industry Contestation of New Regulations

Due to the recent resurgence of black lung and uncovering of malfeasance within the coal industry in central Appalachia, MSHA and other federal agencies have attempted to tighten preventative regulations. However, the coal industry has fought against these efforts to improve health and safety in the mines. Many respondents noted the power of the industry and their general approach to resist new regulations:

The industry groups, for example, the National Mining Association, or your state Coal Associations, the trade groups, they typically oppose all additional safety
regulation, whether it makes sense or not…They basically said, and we always hear this. “Well, we just really need more time to study the issue.” Despite the fact that we’re 20 years out on this major study that says you really should cut [the] dust [limit] in half. And nothing’s ever been done about it. And really no other data out there that says anything other than that. And a lot of disturbing data…about complicated pneumoconiosis going back to where it was 50 years ago.

Thus, the industry has shown little effort to address the black lung problem in central Appalachia. Instead, they continue to fight every federal effort to improve the excessive dust exposure in the mines. When the new dust limit was proposed, it would have reduced the legal respirable dust limit to 1 mg/m$^3$. The industry claimed that this new regulation was unconstitutional, and a legal battle ensued, as explained by a respondent:

Eventually NIOSH suggested that the limit be reduced from 2 mg/m$^3$ to 1 [mg/m$^3$].

And there was a lot of debate and the regulations were promulgated to do that. A lot of resistance from [the] coal industry…They ultimately adopted the change from 2 to 1.5 and that is due to go into effect, that change, in August 1st of this year [2016]. So that’s been a long, long battle to try to reduce the standard.

In response to the proposed reduced dust rule, the National Mining Association filed a lawsuit (National Mining Association et al. v MSHA et al.) stating the following:

The Phase II requirements [1.5 mg/m$^3$ dust standard] in particular stand to cripple the industry. Within a month, Phase II will usher in radically new and different respirable coal mine dust sampling requirements that will make it impossible for underground coal mine operators to maintain simultaneous compliance with both the Dust Rule
and the different mandatory safety standard that requires the near-constant application of rock dust (Dust Rule Stay Petition 2016).

In other words, the industry’s argument was that the regulations were yet another facet of the “war on coal” in which regulators were determined to kill the industry. However, again, the concern was not for human health and wellbeing, but instead centered on the industry’s productivity. As stated by the respondent above, the issue was settled with a 1.5 mg/m$^3$ dust standard. According to a secondary source from the Federal Register, the final rule did the following: requires full-shift dust sampling, redefines the term of “normal production shift” (i.e. at what percentage the machinery should run), and reexamines requirements for those certified to collect dust samples (Federal Register May 1, 2014).

To summarize this section, coal operators with decision-making power in the mines have engaged in a number of fraudulent activities in order to report lower dust samples to the Mine Safety and Health Administration. These efforts to skirt regulations include submitting falsified dust samples far below the legal respirable limit, encouraging and expecting miners to conceal or impair dust pumps by hanging them in the clean air intakes, or wrapping them in rags so that the measurements were lower than what was representative. Furthermore, instead of working with federal agencies to remedy the black lung problem, they have shown no effort to put miners’ health and safety first. Instead, they have contested efforts to improve prevention and surveillance of black lung, including filing a lawsuit arguing that the new respirable dust standard would “cripple the industry.” While I was not able to prove these claims directly from coal operators, multiple respondents, including retired miners who shared their personal stories and accounts of working in the mines, and secondary sources
substantiated these claims. The continued presence of black lung, a preventable occupational
disease caused by environmental exposures, is indicative of many failures, including
government’s inability to enforce regulations, noncompliance of the industry, and
government’s inability to successfully monitor the problem. The industry continues to have
far too much power and government agencies can do little to control them.

**Industry Obstruction and the Contestation of Black Lung Benefits**

While the previous section focused on industry contestation of black lung prevention
efforts more generally, this section focuses more specifically on the industry’s efforts to
contest health claims. Despite the advocacy and improvements made to the black lung
program, sick miners continue to struggle to receive benefits. Research on contested
environmental illness is replete with examples of industry elites contesting health claims (see
Brown and Kelley 2000; Brown, Kroll-Smith and Gunter 2000; Cable et al. 2008; Shriver et
al. 2008). Contestation of environmental health claims are often centered around the inherent
ambiguity and uncertainty of environmental exposures, which places the burden of proof on
the victims who are often under-resourced and ill-prepared to mount effective challenges. In
addition, cases of environmental illness are contested by corporate elites, who may engage in
various acts of misconduct and impropriety. In some cases, the actions of corporate elites fall
within the law (i.e., efforts to influence policy and legislation), but in other cases their actions
violate established law and regulations (Adams 2014; Auyero and Swistun 2008;
Freudenburg and Davidson 2007) The follow discussion of elite corporate obstruction and
contestation is organized around several themes, including: the persistent denial of claims,
reports of corruption in the form of influencing physicians, and efforts to deny culpability and externalize the cost of black lung through the use of bankruptcies.

*Industry Contestation of Black Lung Benefits Claims*

One of the primary forms of corporate contestation of black lungs comes through the routine rejection of miner claims. The black lung compensation program would be difficult for anyone to navigate, but it is particularly daunting for miners who are hampered by debilitating illness. Numerous respondents pointed to the disadvantages faced by miners as they attempt to file compensation claims. A respondent explained:

The compensation process is very difficult and candidly, is stacked against the miner. Just because people who are very, very sick have a hard time having all of these medical tests and traveling to get them done. Frequently the doctors on the other side will fight and there are a lot more resources on the coal company side to hire doctors than perhaps, not to say that they can’t get a fair shake, but it’s a lot, a lot of work. So I see that as being more valuable, is the simplification of the process, and the closing of the loopholes, I see that as being the area that needs attention.

The black lung program is an adversarial system. As such, miners must *fight* the responsible coal operators in order to win compensation for their disease. The process starts with the miner (or benefits counselor, lay advocate, or attorney) filing a claim with the Department of Labor (DOL). Next, the miner must get a DOL examination for black lung. The DOL examiner sends his/her report to the claims examiner. Next, the case goes to a judge, and each side does a series of briefs. Following the DOL’s decision, the miner or the defendant (i.e. coal company or insurance company) can file an appeal. Appeals can occur at several
points throughout the claims process (see Figure 9 in Chapter 4), even if the claim is meritorious. Another respondent explains the process in detail:

It’s quite an adversarial system…Each case is litigated if a miner makes a claim…Each case is almost like a little mini lawsuit, which can take a very long time and it can be very difficult. Some companies, even though the data is very persuasive, have a policy of fighting every claim no matter what, no matter how meritorious it is. Other companies are not like that and they will accept it if the claim looks meritorious. If it’s not, and the companies fight it tooth and nail, as it does occur in some cases, it can be an incredibly long and drawn out process.

The respondent continued, adding that coal operators strategically deny claims: “Some people think it’s done that way on purpose by the companies to have a chilling effect on the community, to scare miners off from doing it. So it can be pretty tough…I think the approval ratings are maybe…15 percent or something like that of miners who apply and get benefits.”

A federal employee expanded on the general approach of the industry to continuously contest the claims by filing for an appeal after every decision:

In black lung [compensation], if [the Department of Labor] pays a miner, and about 85% of the time when [the DOL] does make an award, the coal company will object and take it to the ALJ [Administrative Law Judge], then the [Benefits Review] Board, and then often times, all the way to the Circuit Court. Sometimes to the Supreme Court if they’ve got a constitutional argument, which they fought…the 2013 regs [regulations] that implemented the Byrd Amendments. They fought in every Circuit Court. They fight everything tenaciously.
As mentioned by this respondent and many others, the coal industry fights regulations and compensation claims tenaciously, making it even harder for disabled and deserving miners to receive a small stipend each month and medical benefits. Not only does the industry contest claims for technicalities, but they also exploit the ambiguity of disease in their arguments (see Brown, Kroll-Smith and Gunter 2000; Cable, Shriver, Mix 2008; Vyner 1988). In other words, they will blame a miner’s disease or disability on anything other than black lung, as mentioned by this respondent:

It seems like some people who are contesting these claims, and not everybody, will think of any excuse they can, or any medical diagnosis they can, other than black lung in order to defeat the claims. They’ll blame it on smoking, weight gain, obesity…They’ll take anything they possibly can…They come up with a whole host of them. I can give you 100 or 50 diseases that people come up with other than black lung in order to try to defeat these claims…I wouldn’t say absolutely that there are no cases that are not black lung, because of course, there are when there are alternative diagnoses. But in large part, these experts that are trying to explain away these findings other than black lung, they’re sort of making stuff up or its very poorly supported by the evidence.

As noted above, the ruthless contestation of claims serves as a “chilling effect” on miners to dissuade others from applying for benefits. Miners describe how uncertain the claims process is, even after being awarded benefits; the defendant can still contest the claim, which is often reversed. A miner described his experience:
I filed [for black lung benefits] and they found a large opacity on my right upper lobe of my lung…The law says if you have an opacity over 1 cm, then you’re automatically supposed to be disabled with black lung…They started paying me a check every month for black lung for one year, but the coal company appealed the case…then the judge ruled for the company.

Some defendants will actually argue that the miner did not even work for them! In other cases, the “responsible operator,” the last employer the miner worked for at least one year, which is also responsible for the final bill, is also hotly contested, as described by this respondent:

When a miner files his claim…and the Department of Labor identifies the coal mine operator, which would be responsible for payment of benefits if the claim is awarded. And the basis for that is the operator where the miner was last employed for at least 12 months, and worked at least 125 days in that period of time. So operators do sometimes contest their being identified as the responsible operator. And occasionally it can be a close question. It has to be 12 months. If it’s less than 12 months, then that operator is not the responsible operator.

The fact that these miners are extremely sick and at a financial deficit compared to the coal industry, miners face an uphill battle from the start. The financial leverage of the industry was used to overwhelm the miner with the amount of evidence, many respondents noted this disparity and how overwhelming it was for the miner. For example, a respondent explained: “These files are inches thick. I mean up to six plus inches thick with doctor’s reports, with depositions, the forms that you fill out…I mean it is just an onerous process.”
These issues eventually led to the “evidentiary limitation rule,” which limits the amount of evidence each party can submit. A respondent discussed this development in detail:

Back before 2001, before the new regulations or standards came out on the limitation of evidence, a responsible [operator] or the attorneys for the insurance carrier, they could amass as much medical [evidence] as they wanted to. I’ve been in hearings back in the ‘90s, where you have sixty x-ray re-readings at $100 a pop. There is no way that a miner can spend $6,000 to level that off. But in 2001, we call them the limitation of evidence amendments, it was narrowed down to two pieces per party. The responsible operator and the claimant had to the right to two x-rays, two pulmonary function studies, two arterial blood gas studies, two complete pulmonary examinations. So that sort of leveled the playing field with the Department of Labor.

Importantly, the industry has the capacity and often the willingness, to extend the process in an effort to make it nearly impossible for the miner to continue. Numerous respondents noted this delaying tactic as a critical part of the industry’s overarching defense. Some cases can be resolved in four to five years, but many continue for ten or even twenty years. This delaying process can effectively thwart the efforts of miners, either through the depletion of financial and legal resources, or through death. Furthermore, the lengthy process and resulting stress can further exacerbate the physical illness, particularly for a miner with acute black lung disease. As a result, many miners simply give up because they no longer have the energy or the will to continue fighting the industry. At the 2016 National Coalition Conference a miner who was awarded black lung benefits after a lengthy legal battle attempted to encourage other miners to keep fighting:
For those of you in decline and those of you helping people get their black lung—there’s one more thing that’s more dangerous than black lung—fear, worry, don’t know what to do. Because the companies have set this up so that time will kill you if you worry yourself to death. Your energy is bad, and you’re wondering if you’re gonna [be] put on a treadmill analysis to take my test. Filing and disagreeing. And then they want some more time to file and they want this and that. And you’ve applied and you’ve got to wait another 180 days, 160 days, 90 days. Then you gotta go through the cycle all over again,

Similarly, other miners described the lengthy process that encompasses black lung litigation. This sick miner has been fighting the company for over ten years, even though, legally, he is considered totally disabled:

It can go on a long time. They let the company appeal cases when they shouldn’t have no appeal. It’s clearly won, but they still let them. The black lung laws are almost a joke…I’m waiting; I’ve sent in modification again. They denied me again…Even though it [lung opacity] went past 10 millimeters…it went from 10 to 12. And it was 1 cm was supposed to declare [total disability]. The companies, their doctors, say no, it’s not that big, so that’s what happens with the case.

Clinic directors also discussed the painful waiting game they have witnessed with miners, describing how taxing the process is on their health. Many miners pass away before they are even awarded compensation, as described by this black lung clinic director:

I mean honestly anything that you’re going to spend 10 years of your life fighting a legal battle. And honestly for some people it is a year or two, particularly if they have
progressive massive fibrosis. But, I mean, many of these guys, it’s a decade and they’re already pretty sick. It becomes a waiting out the clock sort of thing with whether or not they’re even going to live long enough to get it. And it doesn’t hurt the coal companies at all to drag their feet. And this is speaking of the worst ones, I don’t want to vilify all of them…but there are those…that have a legal counsel, specifically paying to make this a hard process.

*Charges of Industry Influence and Corruption*

While the coal industry’s routine rejection of worker claims raises ethical concerns, these actions generally fall within the parameters of the law. Yet, in addition to such legal forms of contestation, some respondents in this research reported charges of corruption, focusing particularly on the ways in which the coal industry influences physicians’ reports. Some respondents discussed how the coal industry would pay ten times the typical amount for x-rays and x-ray readings to ensure a “negative reading.” This accusation was recently confirmed by Chris Hamby’s investigative reporting for the Center for Public Integrity. Hamby focused on the issues surrounding compensation for miners with black lung and the tactics the industry used to combat these claims in court. The series of articles titled, “Breathless and Burdened” received a Pulitzer Prize, and has been widely celebrated. Much of this work focused on Dr. Paul Wheeler, the head of Johns Hopkins University School of Medicine’s black lung unit. The report found that Dr. Wheeler consistently denied black lung in over 1,500 cases in which he reviewed x-rays. The Johns Hopkins black lung unit is no longer operating and Wheeler has since retired (Mosk and Kreider September 30, 2015).

The case of Dr. Wheeler revealed the malfeasance that was occurring between the
coal industry and a prominent physician at Johns Hopkins Hospital. Many respondents expressed outrage at the case. Hamby described Wheeler’s prestige in the medical field, “When it comes to interpreting the chest films that are vital in most cases, Wheeler is the coal companies’ trump card. He has undergraduate and medical degrees from Harvard University, a long history of leadership at Johns Hopkins and an array of presentations and publications to his credit.” (Hamby January 13, 2015). Dr. Wheeler’s credentials as a prominent physician at a prestigious hospital played an important role in assisting the industry’s contestation of black lung compensation claims, as noted by Hamby:

In more than 1,500 cases decided since 2000 in which Wheeler read at least one x-ray, he never once found the severe form of the disease, complicated coal workers’ pneumoconiosis. Other doctors looking at the same x-rays found this advanced stage of the disease in 390 of these cases. Since 2000, miners have lost more than 800 cases after doctors saw black lung on an x-ray but Wheeler read the film as negative. This includes 160 cases in which doctors found the complicated form of the disease. When Wheeler weighed in, miners lost nearly 70 percent of the time before Administrative Law Judges… (Hamby January 13, 2015).

While the case of the Johns Hopkins black lung clinic received extensive media coverage, some of the respondents interviewed in this research believe that this is part of a persistent pattern that continues today. They argue that these physicians are still essentially being “bought” by the industry. The following excerpt is indicative of this response:

There are still doctors out there that…profess that black lung doesn’t exist. Yeah absolutely…There will be somebody to pay them to say that stuff. Not to sound
too cynical. But yeah, if coal companies can get people to believe that black lung doesn’t exist, then sure, they’d be a lot better off. Not that all of them would do that, but there are those that would, there’s always a range of moral values when it comes to that.

While some respondents argued for outright corruption in the form of payoffs, others pointed to slightly more subtle forms of influence. For example, as part of the claims litigation, each party may request the evidence from the other side. In many cases, the industry would seek out a “company-friendly” doctor to reanalyze the x-rays as described by a lay advocate and respondent:

It’s just their doctors’ reports. They [industry] go get doctors to restudy…if you have an x-ray, they send me a notice that they want it, and I give them a medical release signed by my client. And they go in and send it to their doctor. They send him the x-ray they study, then their doctor says, “Oh, I don’t see any black lung.”

The industry also typically pays much more for medical reports. Many stated that the “company doctors” tend to get paid ten times as much. One respondent in particular was frank about the approach of the coal industry to “purchase” the opinions they wanted, such as the denial of black lung disease:

I think it was a case of people getting “purchased opinions.” You know, that these physicians were paid large amounts of money, more than 10 times the going rate to read an x-ray. And I think that their ethics were compromised by the amount of money they were making and reading these things as negative.

Miners echo similar issues: “See the problem with black lung is…the company pays 10 times
[more] for a doctors’ report what we [miners] do. We pay $75, they pay $750… they have better doctors. It’s a big black hole.”

_The Use of Bankruptcies to Offload Financial Responsibility_

The findings from this study suggest that bankruptcies are frequently used by the coal industry to offload their financial responsibilities, including black lung benefits, retirement pensions, and healthcare expenses. Notably, respondents reported that this has been a long-standing industry practice. This is not unique to the coal industry, as many other industries\(^3\) utilize the same bankruptcy laws to skirt financial responsibilities. In fact, some corporations simply consider it “good business” to utilize bankruptcy laws to offload responsibilities. Halliday and Carruthers (2009) argue that bankruptcy in the United States and global institutions has become _normalized_. Similarly, Ho (2009) argues that the financialization of our society only creates greater risks and instability for workers and global markets alike, as corporations are able to offload their financial risks. The issue received substantial attention.

At the National Coalition Conference in 2015, various presenters focused on the pending bankruptcies of Patriot Coal and Alpha Natural Resources. For example, it was reported that 14 of the 25 coal companies in central Appalachia are owned by these two companies. Ultimately, both companies filed Chapter 11 bankruptcy. Patriot Coal was liquidated and now operates as a different company (Becker October 2, 2015). Alpha Natural Resources emerged from bankruptcy, and continues to operate on a smaller, privately-owned scale (McGee July 26, 2016). Also according to reports from the same Coalition Conference

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\(^3\) During his Presidential Campaign in 2015, Donald Trump bragged about exploiting Chapter 11 bankruptcy law, which he filed six times. (http://money.cnn.com/2015/08/31/news/companies/donald-trump-bankruptcy/) Chapter 11 bankruptcy allows the business to remain open, but shed its debts
in 2015, Patriot and Alpha were strategically trying to avoid paying miners’ pensions and health insurance. Earlier interviews with miners and informal conversations with UMWA officials suggest that many of these bankruptcies are in fact better characterized as “fake bankruptcies,” simply utilized to offset costs. These practices are not only completely legal, but they are actually incentivized by Chapter 11 bankruptcy law.

Most importantly for this research, when a coal company files bankruptcy they usually offload their black lung benefits expenses as well. This action places significant burden on the Disability Trust Fund and the Department of Labor, which must then administer and pay for these claims. Many respondents remarked on the strain bankruptcies caused for the Trust Fund. A federal employee and respondent called these bankruptcies a “business strategy” and a form of “corporate welfare” which tax payers pay for:

Take Patriot for example, because they not only went bankrupt but they kind of evaporated as a company. So roughly 1,000 of their [black lung] claims that they were administering, that they had agreed that they owed, they hired what they call a “third party administrator,” or an insurance company will do it. It doesn’t really matter who. They would administer these claims for Patriot, pay them, pay the medical bills, make sure that proper care is rendered. And when Patriot went under, all of those claims that were being administered by their third party administrator are now being administered by the federal program, [the DOL], by our people and so that’s just an added administrative burden onto us, because we don’t have a whole lot of resources…And the other part is that benefit payments, monthly payments, and medical payments all come out of the Trust Fund, it’s like corporate welfare…That’s
really what it is. And if you follow it, every one of these companies, it’s a business strategy. Peabody’s getting ready to do it, and they’ve dumped all their liabilities onto us.

A union official shared similar insights, arguing that bankruptcy in the United States is a legal way for businesses to “cheat.” As a result, taxpayers are paying for the added administrative and benefits costs that these companies are obligated to pay. He also noted that quite often the owners and operators filing bankruptcy are also the buyers of the liquidated businesses. Thus, creating a revolving door, one in which companies can offload their debts and start fresh, debt free without even changing ownership. This is technically illegal, yet the federal government has often overlooked these issues:

In most bankruptcies, not all, the employer says we don’t have the resources to defend these [black lung] claims anymore…Then the federal government has often stepped in and said, “Okay, we’re going to be the defendants and protect the Disability Trust Fund,” which often takes over this responsibility out of a bankruptcy. That has a bunch of consequences. It frees up the people who are doing the bankruptcy to cheat in the sense that they have this legal responsibility that’s worth millions or tens of millions, or hundreds of millions of dollars and they no longer have to have it…Once it gets into the Disability Trust Fund it’s on the tax payer and that’s a bad thing. So these owners who up and got out of this liability this way, so far, anyway, the federal government response has not been particularly aggressive in trying to allege that the same people are also involved in buying, and therefore they should not be getting out of their responsibilities.
In summary, there are myriad ways in which the coal industry contests the compensation claims of sick miners. They can simply resist every single claim, dragging out litigation to deplete miners’ resources and/or wait for them to give up or die. They can also influence physicians, either through direct or indirect means of payment. Finally, they can deflect responsibility through bankruptcy. Together, these strategies and tactics make it exceedingly difficult for black lung sufferers to receive compensation. Moreover, as noted in this section, some of these practices simply shift the financial responsibility to federal agencies and programs. Thus, taxpayers end up subsidizing the very coal companies that are responsible for these sick miners.

*Coal Industry Political Influence and Black Lung*

In general, there are several political issues that prevent significant reforms of the black lung program. First, the coal industry has a massive amount of power in central Appalachia, as well as substantial national lobbying power. This power has enabled the industry to dilute prevention and compensation efforts and influence political processes at the highest levels of government. Second, administrators and regulators are under-staff and underfunded, which is further intensified by both the increasing prevalence of black lung and increased number of coal companies bankruptcies. This has placed government programs and agencies under tremendous strain.

Given its historic importance in energy production in the United States, the coal industry has had tremendous power and political influence. And this power dynamic has been even more striking in central Appalachia. Respondents noted the importance of extensive political donations, which have given the coal industry extensive influence over favorable
policy decisions, including those related to black lung legislation. For example, a miner argued that the power of the industry has diluted black lung legislation:

   It’s [black lung] political. The coal companies lobby these legislators, what do they do? They [legislators] do what they want them to. They’ll say, “Here, we need to change this. This has to be like this, easier on us, we’re getting ripped off.”

Another respondent noted the tremendous political influence in West Virginia: “It’s not a secret that the coal industry finances most of the political campaigns here [West Virginia], and that they see it as an essential part of their business practice.” Another miner made a similar argument, “This state [West Virginia] is owned and operated by the coal industry, hands down. The coal operator can get a Supreme Court Justice elected. You know how deep it runs.” Others echoed similar arguments about how Don Blankenship “bought” a Supreme Court Justice: “It just shows the power of the industry…We know of Blankenship’s buying a Supreme Court Justice in West Virginia. We know how insidious the reach is.” Another respondent extended this discussion:

   In West Virginia…Blankenship, who was the head of the Massey Coal Company for years, bought a Supreme Court Justice. And they basically paid every penny of his campaign. And it was an absolutely dishonest and vicious campaign. But the other Supreme Court Justice, who was definitely a pro-worker justice, was removed. And the new justice did not recuse himself when Massey’s suit came to the Supreme Court. He was the key vote that basically saved the Massey Company millions of dollars.
Black lung administrators and regulators are short-staffed and underfunded as well. Many Administrative Law Judges have retired, but have not been replaced. The same goes for black lung claims examiners, which has created a huge backlog of claims without the staff and funding to administer them. A respondent explained:

We have a tremendous backlog of decisions that we’re [DOL] trying to address. We’ve got maybe 6,000 still in the hopper that we need to do. We just don’t have the resources. We have too few people and too much work. And the bankruptcies don’t help.

Other federal employees expressed similar concerns about limited staff, judges, and law clerks:

I guess maybe 15 years there, we’ve kind of lost Administrative Law Judges [ALJs] and law clerks. And so there’s been a push in the last couple of years to do additional hiring of law clerks and ALJs. My position wasn’t new, I was just filling a position that had been vacated actually about a year before I joined the office.

There are not enough claims examiners to process black lung claims, which also places significant burden on the claims process. It also makes it untimely and delayed, as described by many respondents: “The Department itself is great, but they are so overworked at this point, they don’t have enough claims examiners to get everything done. So the process is just super bogged down right now.” According to a federal employee, the DOL requested to hire fourteen claims examiners in 2017, but he exclaimed, “I don’t think we’ll get any. We’re still under sequestration.” Thus, federal agencies do what they can, but they remain understaffed, and therefore inefficient at processing claims. There is also a general lack of “political will”
to change the benefits program, even though many respondents expressed that the system is in dire need of drastic reform, as expressed by this federal employee:

I don’t think that congress… I don’t know that they’re going to take on something like this [black lung program reform]. And I don’t know that there’s the political will to overhaul a program that’s been running since the early 70s. And I also think too that there’s probably this perception out there with people who are not part, who don’t have anything to do with any of the coal states, that this is something from the past.
CHAPTER 7: DISCUSSION AND CONCLUSIONS

In this chapter, I summarize the major findings of this research and discuss contributions to the literature on environmental health and contested environmental illness. This research elucidates multiple issues faced by coal miners and the coal industry in general. As the coal industry has expanded production, it has generated greater environmental externalities and increased environmental health risks for miners. This problem is further complicated and intensified by the vast economic problems in Appalachia. The lack of alternative opportunities and protection in the workplace has created a “culture of fear” which leaves employed miners fearful of job loss and retaliation for speaking out about health concerns. Furthermore, miners postpone black lung screening and diagnosis, fearing being stigmatized in the workplace. This serves to further exacerbate the impacts of the disease. While black lung is a federally recognized and compensable disease, miners become mired in bureaucracy as they seek diagnosis, treatment, and compensation. In this regard, the bureaucracy has become obstructive rather than beneficial. The industry continues to prioritize production over health and safety of the miners, as well as exploit the bureaucracy to contest black lung on multiple fronts. The industry contests nearly all individual black lung compensation claims in order to avoid financial responsibility and to dissuade others from seeking compensation. Finally, the industry engages in lobbying efforts aimed at limiting its liability and responsibility for black lung disease, shifting the burden to the federal government instead.

Black lung disease represents a classic case of how environmental illnesses are contested by multiple powerful actors. Black lung is an oft-cited example of a historically
contested environmental illness, yet this study appears to be the first systematic examination of black lung using this framework. Black lung was first diagnosed in a British coal miner in 1831 (Derickson 1991), yet it was not recognized in the United States until the late 1960s, well over a century later. Historically, leading up to the 1960s, black lung disease was contested on multiple fronts. Coal operators denied health claims and the existence of black lung, as they attempted to link the illness to other sources (Derickson 1991). Miners were told that “coal dust was good for them,” and their sickness was blamed on their own personal negligence such as smoking or alcohol consumption (Smith 1981). The black lung movement of the late 1960s drastically changed this reality.

By the 1960s, miners were increasingly concerned about the disease and started to organize and mobilize to seek official recognition of the disease. Striking miners and their allies were successful and in 1969 the Coal Mine Health and Safety Act was signed into law. Recognition of black lung shifted from a presumptive contested disease to a known one with a clear etiology linked to coal dust. The official recognition of the disease imposed more regulatory precautions and it also led to a federal benefits and compensation program (Smith 1987). Cases of black lung initially fell dramatically following the implementation of the Coal Act (Laney and Attfield 2014). Yet disease prevalence began to increase again around the year 2000 (Laney et al. 2012; Petsonk, Rose, and Cohen 2013). One study shows that between 2005 and 2009 the prevalence of black lung was as high as 17 percent in some counties in Appalachia (Antao et al. 2005). Equally worrisome has been the upward trend in the most severe cases of the disease for those at younger ages (Attfield et al. 2011). In other words, miners who have only worked under the conditions of the Coal Mine Health and
Safety Act are experiencing some of the worst forms of black lung (see Antao et al. 2005; Laney et al. 2012; Petsonk, Rose, and Cohen 2013). Despite its long history, clear etiology and official recognition, black lung continues to plague coal miners in Appalachia. The case of black lung represents a unique opportunity to study the life cycle of a contested environmental illness, from its early contestation and recognition, through its resurgence today and ongoing contestation.

This research was based on several guiding research questions: 1) How have broader economic challenges and coal mining practices impacted resurgent black lung? And how has formal recognition of black lung affected prevention of the disease? 2) How has the formal recognition of black lung influenced the lived experiences of those suffering from the disease, particularly in terms of diagnosis, treatment and compensation? And in what ways does living with a contested disease such as black lung affect other aspects of their lives beyond health status? 3) How do those suffering from black lung and their supporters mobilize to seek redress for the illness? And what roles does environmental health advocacy play in addressing black lung issues? 4) How does the coal industry continue to contest the claims of black lung sufferers, despite the formal recognition of the disease? And what role does the industry play in shaping institutional responses to black lung? I draw on theoretical literature in environmental sociology to develop a framework for addressing these questions. I used in-depth interview data, fieldwork and various secondary sources to analyze resurgent black lung and to better understand the lived experiences of the disease, as well as the central mechanisms undergirding its continued contestation by the coal industry.
Summary of Key Findings

The first research question addressed resurgent black lung from a structural lens, specifically focusing on how economic and bureaucratic challenges, along with coal operator practices, have contributed to resurgent black lung. This “coal crisis” has intensified the resurgence of black lung through several mechanisms. Findings show that depleted seams, mechanization, competition from natural gas, and deunionization all play a role in the resurgence of black lung in central Appalachia. Treadmill of production theory argues that production is a perpetual cycle of expansion involving a series of environmental withdrawals and additions (see Gould, Pellow and Schnaiberg 2004; Schnaiberg 1980). This process of ever-increasing production expansion serves to accelerate the depletion of natural resources and generate more pollution. These environmental additions in the form of pollution become externalized to the broader population. Findings reveal that the environmental externalities of production in the coal industry are exacerbated by technological developments, which have increased environmental exposures and risks (see Beck 1992). Technological developments in the industry have increased the toxicity of exposure by not only increasing coal dust exposure, but also silica dust as large seams have been depleted.

Given the precariousness of Appalachian coal, the industry has relied on new technologies and riskier practices to increase production despite the depletion of coal seams. These industry practices have increased toxic exposures and environmental risks. Thus, the combination of production expansion and increased risks have deleterious health impacts in the form of increased black lung disease. This analysis suggests a synthesis of both treadmill and risk society perspectives in understanding the environmental risks associated with
extractive industries. Formal recognition of the disease has had positive impacts in the past, but in recent years the combination of economic challenges and industry practices has led to an upsurge of the disease despite its official recognition. Findings suggest that in cases of contested environmental illness, disease recognition may be an important step in disease prevention, but it may be outweighed by overarching economic factors and employer decisions to emphasize production over safety. Thus, employers play a pivotal role in disease prevention. Otherwise, regulations alone are not enough to prevent disease and protect workers. Regulatory failure, often circumscribed by budgetary and bureaucratic limitations, may further exacerbate environmental illnesses, even in cases of known diseases.

The second research question addressed the disease experience, specifically focusing on how formal recognition of black lung has influenced the experiences of those suffering from the disease. As noted in the theoretical literature, diagnosis is the critical first step in disease recognition. Diagnosis is the “gateway to health services, welfare benefits, unemployment certification, worker’s compensation claims, and pensions” (Zavestoski et al. 2004:162). Diagnosis requires proper screening and testing, and it relies on workplace support and worker buy-in. Various tests such as pulmonary function tests, chest x-rays, and biopsies can be used for diagnosing black lung, yet a standardized test for black lung does not exist. These tests are technically available for miners, but findings indicate a series of barriers to successful screening. Many miners avoid testing for fear of retribution such as job loss or demotion for exercising one’s Part 90 Rights. Others report the limitations of Kentucky’s black lung compensation laws, which force miners to file a compensation claim within a short period of time or risk losing their right to file a claim. Given the limited
employment opportunities in the region, many are unwilling to take the risk of being tested for black lung. Findings indicate that miners only seek out the diagnosis when they are: 1) laid off, 2) too sick to continue working, or 3) when they are close to retirement. NIOSH and black lung clinics also report being deterred from testing on coal operator property, thus creating additional barriers. Findings indicate that formal recognition of a contested environmental illness does not necessarily translate into individual success along the lines of diagnosis, treatment, and compensation. There is a significant gap between general recognition of disease and individual experiences.

The effects of black lung are far-reaching and span across economic, social, familial, and mental impacts. As noted in the analysis, black lung is often a debilitating disease. And the condition is further complicated by the fact that many miners wait until they are near retirement, or simply too sick to continue working, before seeking medical treatment. This reflects miners’ fears of job loss associated with either forced retirement, or more incendiary retaliation taken against them in the workplace. Findings reveal that by the time most sick miners have sought and received treatment, their disease symptoms have left them largely incapacitated. Findings also indicate negative effects on sick miners’ active lifestyles and identity. Many find that they are unable to remain active in various outdoor activities. Respondents lamented being unable to play actively with children and grandchildren. Miners also tied their illnesses to the loss of masculinity as they can no longer work and provide for their families. Some disabled miners become depressed or even commit suicide. Thus, the disease not only affects physical health, but also affects their mental health and sense of identity.
The third research question focused on mobilization and environmental health advocacy. This study sought to examine how those suffering from black lung and their supporters mobilized to seek redress for the disease. It also asked what role environmental health advocacy plays in addressing the disease. In the analysis, I examined the history of black lung advocacy, highlighting the successful campaign of the late 1960s and how it differs from the black lung movement today. The historic black lung movement of this period was initiated following the horrific Farmington Coal Mine disaster, in which 78 miners were killed. Within months, approximately 40,000 miners went on strike and essentially shut down the mining industry in West Virginia (Smith 1987). Analysis contrasts historic advocacy against the current economic backdrop and environmental conditions in the coal mining industry. I characterize the current conditions as a “coal crisis” in terms of the reduction in the number of successful mining operations and mining jobs in Appalachia. In turn, economic uncertainty has left miners in a difficult position. Miners need employment and most feel they cannot afford to complain about environmental exposures, let alone engage in more formal grievances with others. In addition, deunionization further complicates these issues as miners have no representation or protection in the workplace to air grievances. Findings thus indicate that active miners are no longer willing to engage in black lung advocacy work.

However, findings point to an active advocacy campaign from other stakeholder groups, including the National Coalition of Black Lung and Respiratory Disease Clinics, clinic workers, the Black Lung Association, black lung attorneys, the United Mine Workers of America, lay advocates, and retired miners. The National Coalition helps miners by
providing a platform and a public forum for miners to share their experiences. Actors within the Coalition also play a critical role in political advocacy and pressing for legislative changes. Furthermore, the National Coalition provides an important avenue for miners to become informed and empowered, and to identify mechanisms for engaging in their own lay advocacy. Black lung attorneys and lay advocates also play critical roles in advocating for miners suffering from black lung disease. These two groups are instrumental in helping miners navigate the complicated black lung bureaucracy, as well as the legal challenges and obstacles put in place by the coal industry.

The fourth research question addressed how the coal industry continues to contest black lung claims and how they attempt to influence policy and legislation. Specifically, it asked what role the industry plays in shaping institutional responses to the disease. Findings indicate that the coal industry continues to contest black lung disease, despite it being officially recognized for the past five decades. Environmental illnesses are nearly always contested by powerful actors, but findings suggest that black lung disease is unique for two important reasons. First, black lung represents a known environmental illness (Brown et al. 2001; Zavestoski et al. 2002), where the environmental causes and the disease itself have long been firmly established by both medical and governmental officials. Second, black lung is a preventable disease. Yet, despite its clear etiology and it being preventable, black lung is still challenged by the coal industry. My analysis focused on the ways the industry continues to contest and obstruct black lung efforts on two fronts: black lung prevention and black lung compensation.
In terms of the coal industry’s efforts to obstruct black lung prevention efforts, findings show the industry continues to cut corners on environmental exposures. Respondents recalled numerous examples of the ways in which regulations are circumvented in order to maintain production schedules. Miners are misinformed about the dangers of coal dust and the reality of black lung disease as they fail to receive adequate training on these issues. As noted, miners are fearful of speaking out about health and safety issues in the mines because of concerns related to retaliation. Furthermore, respondents reported more insidious forms of obstruction such as deliberate dust fraud in which records were falsified and dust pumps were moved to less dusty areas of the mine to conceal the true dust exposure. Coal operators also utilized production and “safety” bonuses as a way to influence miners to police each other while at work. Findings indicate that the coal industry also challenges new regulations set forth to improve prevention. In response to the proposed reduced dust rule, the National Mining Association filed a lawsuit (National Mining Association et al. v MSHA et al.) stating that the new rule would “cripple the industry.”

Findings indicate that the industry also engages in efforts to obstruct and contest black lung benefit claims. Specifically, I found that as a matter of course the industry routinely rejects the majority of coal miner benefits claims. This puts the miners in an adversarial and disadvantaged position, where they are forced to fight the industry for their benefits. Findings show that miners often spend several years fighting for compensation. The coal industry uses a variety of tactics aimed at prolonging the claims dispute process, which forces miners to rely on the limited number of black lung attorneys, or lay advocates. Furthermore, black lung attorneys must often defend their clients for little compensation.
Sick miners and their allies argued that these delaying tactics used by the coal industry were designed to limit liability, as many miners die or give up before they are awarded compensation.

There were numerous charges of outright corruption within the industry, claims that were reinforced by the high-profile case of a Johns Hopkins University School of Medicine scandal in which the industry was allegedly influencing patterns of black lung diagnoses among sick coal miners. For many in the black lung community, the Johns Hopkins case simply validated what miners and government agencies had long believed about the industry. Findings highlight the strategic use of bankruptcies by the coal industry to offload their financial responsibilities. Bankruptcies often allow coal operators to avoid their financial obligations to black lung victims by shifting the economic burden to the U.S. federal government, and consequently, taxpayers. As a result, the federal government serves to subsidize the coal industry’s practices through a form of corporate welfare.

Findings indicate that the coal industry continues to influence reforms related to black lung. The coal industry remains powerful in central Appalachia, and it maintains significant lobbying power at the local, regional, and national levels of government. The coal industry’s influence aims to further dilute black lung prevention and compensation efforts. The political influence of the coal industry is further emboldened by the lack of funding and regulatory oversight from those charged with protecting coal miners. Regulatory programs are consistently underfunded and understaffed. Finally, the uncertain future of coal leaves many apathetic about changing the black lung program, diverting attention to the myriad other environmental problems and policy debates around the country. These trends will likely
worsen under the current administration, which has targeted pro-coal industry policies as a central part of its campaign.

Recent news articles shed some light on these issues: “The Affordable Care Act includes special provisions that make the process of getting black lung benefits easier for coal miners. If the ACA is repealed, gaining these benefits could become much more difficult, effectively harming a group of people that President Trump has promised to protect” (Lofton January 24, 2017). The contradictions are frustrating for many, as they will likely have the greatest impacts on the most vulnerable populations in the spirit of increased corporate profits. The biggest contradiction of all, however, is that coal employment has been on the decline for decades, yet West Virginians still cling to the cultural symbolism of mining coal (Krugman March 31, 2017). Meanwhile, Donald Trump insists that he will revitalize the industry by rolling back Obama’s “coal-killing regulations,” yet 20,000 retired miners will lose their health benefits in April 2017 if Congress does not step in. Miners feel that Trump is only acting on corporate interests (Scheiber April 19, 2017). Thus, the political and corporate contradictions leave miners neglected once again.

Preventing and compensating black lung is fraught with issues ranging from malfeasance and fraud, to understaffed agencies, and bankruptcies that place an incredible amount of strain on administrators and regulators. Advocacy work for black lung continues and there have been some positive developments. There have been significant improvements in recent years such as MSHA’s work to decrease the legal respirable dust limit, and instate continuous personal dust monitors. The DOL has also made recent improvements by creating the medical disclosure rule, and the Byrd Amendments that include a 15-year presumption
and automatic entitlement for dependents. But despite these changes, black lung advocates and victims face an uphill struggle as prevalence of black lung continues to increase. As noted throughout this study, black lung is a *preventable* disease, yet the industry continues to sacrifice the wellbeing of their workers in an effort to secure more profit. These types of corporate practices not only plague the coal industry in central Appalachia, but span across industries throughout the U.S. and beyond.

**Implications and Future Research**

To summarize the theoretical and empirical implications, this study builds upon and extends literatures on treadmill of production, risk society, and contested illness. My study argues for the integration of treadmill and risk society perspectives, which can provide unique insights into our understanding of the ways environmental exposures are increased and intensified among the population. This integration of theoretical perspectives has particular utility in regards to extractive industries. In the case of coal mining, the logic of the treadmill combined with the increased risks associated with newer and riskier technologies contributes to resurgent black lung disease. Thus, this study suggests important ways that these literatures can be integrated in future studies. This research also has important implications for the literature on contested environmental illnesses. The study illustrates the ways in which a long-established, recognized (“known”) environmental disease can still be contested. This work thus has implications for a wide range of environmental health problems today, such as those linked to lead poisoning and other cases of known environmental contaminants. In addition, while black lung is an oft-cited historical example of a contested environmental illness, this is the first systematic study of the disease using this
framework. Finally, and related, while extensive epidemiological research has been conducted on black lung, this research adds considerable depth and richness to our understanding of the disease by examining not only the causal factors contributing to its resurgence, but also the lived experiences of the disease and the factors undergirding its ongoing contestation. Thus, this study is also useful for informing and improving policies surrounding black lung, including its prevention, treatment, and compensation.

While this study answers a number of important questions, it leaves many to be addressed in future research. In terms of future research on black lung, additional fieldwork focused on the black lung clinics could provide additional detail on the experiences of black lung victims. In addition, future analyses could conduct more systematic analysis of black lung victims, including those who are currently employed in the industry. Furthermore, an organizational ethnography of the coal industry would also be fruitful in terms of tapping into the industry’s logic and modes of operation. While this study focused on coal mining and black lung disease, it can inform future research on other extractive industries and other known environmental contaminants. Most notably, hydraulic fracturing for natural gas is taking place in communities across the country and residents are decrying environmental health and safety concerns. The theoretical insights from this research can provide a blueprint for analyzing environmental impacts and contested health claims. In addition, lead contamination is increasingly being reported across the United States. Like black lung disease, effects of lead contamination are well known. Yet, lead contamination and illnesses continue to be contested by many. Future research could draw parallels between the
contested dynamics of black lung and those related to both hydraulic fracturing and lead contamination, among others.
REFERENCES


BILL S. 3443 “Robert C. Byrd Mine and Workplace Safety and Health 6 Act of 2012”


(http://www.communitycommons.org/2016/08/mapping-poverty-in-the-appalachian-region/?km_Aug-10%20Email%20Campaign=Economy%2C%20General)


Gould, Kenneth A., David N. Pellow, and Allan Schnaiberg. 2004. "Interrogating the treadmill of production everything you wanted to know about the treadmill but were afraid to ask." *Organization & Environment* 17(3): 296-316.


National Mining Association et al. v. Mine Safety & Health Administration et al., 14-12163 (2016)


APPENDICES
Appendix A: Interview Guide: Regulatory Agency Representatives

INTRODUCTORY INFORMATION
1. Tell me a little about yourself.
   a. Do you live in Appalachia?
   b. What organization do you work for?
      i. How long have you worked for this organization?
      ii. Describe your work at this organization.
2. Do you work on issues related to black lung?
   a. How long have you worked on these issues?

COAL MINING
1. Were you or your family members employed in the coal mines? Describe.
2. If you worked in the coal mines, how old were you and how long did you work there?
3. Is anyone you know affected by black lung?
   a. How does black lung affect you or your family?
4. Are you familiar with the 1969 Coal Mine Health and Safety Act? If so, probe:
   a. Did you or other family members discuss black lung at this time?
   b. Were you or any of your family members involved in black lung advocacy before the act?
   c. What are your memories of the act?
5. Is there any movement like there was during the 1960s? Why/why not?

GENERAL ENVIRONMENTAL HEALTH ISSUES
1. How would you describe the working conditions for coal miners in central Appalachia?
2. To the best of your ability, can you describe the nature of this work and any hazards coal miners may face?
3. Is your organization involved with health and safety issues in the mines? Describe.
   a. What is your role?
4. Are certain regions affected more by health hazards in the mines than others?
   a. Why do you think that is?

CURRENT BLACK LUNG DEVELOPMENTS
1. Are you aware that cases of black lung in central Appalachia have been increasing in recent years?
   a. How do miners find out if they have black lung? What is this process like?
   b. Do miners and their family members have access to information related to black lung?
2. If so, what are the best sources of information?
3. What are the roles of industry and government in educating the public about black lung?
4. What is the role of your agency in educating the public about black lung?

PREVENTION EFFORTS FOR BLACK LUNG
1. Do miners wear any protective equipment such as face masks or respirators while working in the mines? [could also include personal dust monitor (PDM)]
2. Are there efforts to control the amount of dust in the mines? (e.g.: ventilation, job rotation, breaks, etc.). Explain.
3. Are there agencies responsible for enforcing the use of protective equipment or dust control in the mines?
   a. Do you think they are effective?
4. Have you or others ever raised concerns about the amount of dust in the mines?
   a. What agency did you contact?
   b. What was the response?

COMMUNITY RESPONSES TO BLACK LUNG
1. Based on your experience/work in central Appalachia, are community residents aware or concerned about black lung? Explain.
2. Is there public discussion of black lung (industry, mass media, community, or personal conversations?)
   a. What is generally said during these discussions?
   b. Are people generally supportive of black lung sufferers? Explain.
3. Has there been cooperation within the community to assist in educational, preventative, treatment, or compensation efforts for black lung? Explain.
4. What is the public’s perception of the resurgence of black lung?
5. What is the industry’s perception of the resurgence of black lung?
6. How do miners perceive the resurgence of black lung?

GOVERNMENT RESPONSE TO BLACK LUNG
1. Have there been challenges establishing educational, preventative, treatment, or compensation efforts for black lung? If so, please explain.
2. Do you think local city officials have been supportive of black lung concerns? Explain.
3. Has there been good cooperation between various government agencies involved in black lung efforts? Explain.
4. Is there any resistance from the industry, medical professionals, or others with regards to black lung claims?

BLACK LUNG ADVOCACY ACTIVITIES
1. Have you or your family members been involved in any organized efforts or advocacy activities to raise awareness about black lung?
   a. If so, describe the organization.
b. Could you explain the organization’s core agenda and strategic goals?
c. When and why did you decide to participate in this organization?
d. What are the costs and benefits of being involved with efforts related to black lung?
e. How do these goals and actions fit into the larger context of black lung?
f. Have you been involved in the National Coalition of Black Lung and Respiratory Disease Clinics or other organizations focusing on black lung?

2. Can you describe the actions you have taken (e.g., public gatherings, lobbying, lawsuits, etc.) regarding black lung?

3. Have you experienced any opposition due to your efforts to raise awareness of black lung disease?

GENERAL BACKGROUND INFORMATION
1. Age
2. Sex
3. Race
4. Level of Education
5. Marital Status
6. Income bracket
   a. less than $15,000
   b. $15,000 to $24,000
   c. $25,000 to $39,000
   d. $40,000-$54,000
   e. $55,000-$69,000
   f. $70,000-$84,000
   g. $85,000-$100,000
   h. more than $100,000
Appendix B: Interview Guide: Coal Miners and Families

INTRODUCTORY INFORMATION
1. How long have you lived in central Appalachia?
2. Were you or your family members employed in the coal mines? Describe.
3. If you worked in the coal mines, how old were you and how long did you work there?
4. To the best of your ability, can you describe the nature of this work and any hazards coal miners may face?
5. Are you familiar with the 1969 Coal Mine Health and Safety Act? If so, probe:
   a. Did you or other family members discuss black lung at this time?
   b. Were you or any of your family members involved in black lung advocacy before the act?
   c. What are your memories of the act?

CURRENT BLACK LUNG DEVELOPMENTS
1. Are you aware that cases of black lung in central Appalachia have been increasing in recent years?
2. Do you, any of your family members, or friends have black lung?
3. How do miners find out if they have black lung?
4. Do miners and their family members have access to information related to black lung?
   a. If so, what are the best sources of information?
5. What are the roles of industry and government in educating the public about black lung?

PREVENTION EFFORTS FOR BLACK LUNG
1. Do miners wear any protective equipment such as face masks or respirators while working in the mines? [could also include personal dust monitor (PDM)]
2. Are there efforts to control the amount of dust in the mines? (e.g.: ventilation, job rotation, breaks, etc.). Explain.
3. Are there agencies responsible for enforcing the use of protective equipment or dust control in the mines?
4. Have you or others ever raised concerns about the amount of dust in the mines?
   a. How was it received by the supervisor?
   b. Were any actions taken to solve these problems?
   c. Is there an outside person you can talk to about work-related issues such as these?
   d. Do you feel like your concerns were taken seriously? Why or why not?
LIVING WITH BLACK LUNG DISEASE (IF RELEVANT)
1. When did you first discover you had black lung disease?
2. Can you describe how you were diagnosed?
3. Was the diagnosis of black lung disease straightforward after you saw medical doctors?
4. Did you discuss your work in the coal mines?
5. Did medical doctors discuss the link between coal mining and your condition?
6. Have friends and family been supportive of your medical problems?
7. Has anyone questioned whether your disease is actually related to coal mining?
8. Has your employer been understanding/supportive of your illness? Explain.
9. Did you continue working in the mines after being diagnosed with black lung?
   Why or why not?
10. Did you request a different job (e.g. less dust) within the industry after being diagnosed with black lung?
    a. How was this request received by your supervisor?

MEDICAL TREATMENT FOR BLACK LUNG
1. Do you have medical problems you believe are related to black lung?
2. Do you feel like there is a clear connection between your health problems and coal mining?
3. Have you been satisfied with your medical treatment?
   a. What kind of treatments have you experienced?
   b. Where do you go to receive treatment?
4. Are you considered disabled based on your health conditions or black lung diagnosis?
   a. Can you describe this experience?

BLACK LUNG ADVOCACY ACTIVITIES
4. Have you or your family members been involved in any organized efforts or advocacy activities to raise awareness about black lung?
   a. If so, describe the organization.
   b. Could you explain the organization’s core agenda and strategic goals?
   c. When and why did you decide to participate in this organization?
   d. What are the costs and benefits of being involved with efforts related to black lung?
   e. How do these goals and actions fit into the larger context of black lung?
   f. Have you been involved in the National Coalition of Black Lung and Respiratory Disease Clinics or other organizations focusing on black lung?
5. Can you describe the actions you have taken (e.g., public gatherings, lobbying, lawsuits, etc.) regarding black lung?
6. Have you experienced any opposition due to your efforts to raise awareness of black lung disease?
PUBLIC REACTION TO BLACK LUNG
1. Is there public discussion of black lung (industry, mass media, community, or personal conversations?)
   a. What is generally said during these discussions?
   b. Are people generally supportive of black lung sufferers? Explain.
2. What is the public’s perception of the resurgence of black lung?
3. What is the industry’s perception of the resurgence of black lung?

GENERAL BACKGROUND INFORMATION
1. Age
2. Sex
3. Race
4. Level of Education
5. Marital Status
6. Occupation
7. Income bracket
   a. less than $15,000
   b. $15,000 to $24,000
   c. $25,000 to $39,000
   d. $40,000-$54,000
   e. $55,000-$69,000
   f. $70,000-$84,000
   g. $85,000-$100,000
   h. more than $100,000