



H65 Silicosis: Medicolegal Implications of Diagnosis

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Learning Overview: After attending the presentation, attendees will: (1) be able to recognize and diagnose silicosis at autopsy; and (2) gain a better understanding of the legal ramifications of diagnosis for the patient and the patient's family, including the potential need for expert medical testimony in a court of law.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by improving the diagnostic and death certification accuracy of forensic pathologists, as well as potentially better facilitating compensation for the family of the deceased.

Introduction: Despite well-publicized sources of occupational hazard and available means to minimize exposure to harmful particles, silicosis continues to threaten industrial workers in the United States. Although the incidence of hospitalizations and fatalities related to silicosis appear to be declining, recent data suggests that many cases may go unreported. Nationally, Wisconsin has one of the highest incidences of silicosis. Wisconsin has had an occupational disease surveillance program since 1983 and required reporting of outbreaks of occupational disease and toxic substance related diseases, but as of July 1, 2018, reporting statutes were revised to explicitly require reporting of silicosis and several other occupational and environmental diseases. It is hoped this will improve silicosis morbidity/mortality reporting, and detailed investigations can advance understanding of the disease. This study reviews Wisconsin silicosis incidence, compensation, and mortality data—including autopsy results—from the prior 14 years.

Methods: A retrospective search of the University of Wisconsin Hospital and Clinics (UWHC) electronic pathology databases was conducted for autopsy cases in which chronic silicosis was diagnosed. Cases were retrieved from the years 2003–2018 utilizing the search term “silicosis.” Additionally, statewide silicosis epidemiologic morbidity/mortality data was provided by the Wisconsin Department of Health Services (W-DHS) for the years 2003–2017, as well as information regarding Wisconsin workman's compensation and employer liability. A literature search utilizing the term “silicosis” and article review was conducted.

Results: Between 2003 and 2017, three cases of silicosis were confirmed via UWHC autopsy. All three were men (mean age: 69 years.) Comorbidities included hypertension, coronary artery disease, smoking, and pneumonia. Pertinent histologic findings included collagenous anthracotic nodules, interstitial fibrosis, and refractile foreign bodies. In two cases, silicosis was found to have caused or contributed significantly to death. Overall in Wisconsin, the age-adjusted rate of hospitalizations attributable to silicosis declined between 2003 and 2017 but remains substantially higher than the national average (e.g., 10.1 hospitalizations per million Wisconsin residents in 2010 vs. 1.2 hospitalizations per million residents nationally in 2010, the most recent year in which official reports are comparable). The age-adjusted death rate from silicosis per million residents likewise remains significantly higher in Wisconsin than the national average (i.e., 1.1 deaths per million Wisconsin residents in 2010 vs. 0.4 deaths nationally). A diagnosis of silicosis typically entitles individuals to worker's compensation to cover medical costs associated with their condition. In Wisconsin, the employer may also be required to pay compensatory damages up to \$100,000; this amount may exceed \$100,000 if the employer is found to be non-compliant with Occupational Safety and Health Administration (OSHA) regulations.

Conclusion: Historically, Wisconsin has had many foundries, ceramic companies, and industrial complexes where occupational exposure to silica dust is high; this may account for the relatively high silicosis hospitalizations and mortality in Wisconsin as compared to national averages. A diagnosis of silicosis should be carefully weighed by the pathologist in any patient with pulmonary fibrosis and suspicious occupational history, since it carries substantial implications for worker's compensation, compensatory losses, and employer liability.

Silicosis, Pneumoconiosis, Occupational Lung Disease