

Elevated Mesothelioma Rates Lead to Regional Investigation

The Challenge

In 1997, epidemiologists at the Minnesota Department of Health (MDH) identified an elevation in the incidence of mesothelioma among male Minnesotans in the northeast region of the state. Subsequent analyses with additional years of data confirmed a two-fold excess of mesothelioma among males compared to the statewide average. Although this rare cancer is caused almost exclusively by asbestos exposure, this finding renewed long-standing concerns over the potential health implications of exposure to mineral fibers from taconite (iron ore) mining and processing in northeast Minnesota. MDH's challenge was determining to what extent mesothelioma was associated with asbestos exposure or taconite mining in this region.



Taconite (iron ore) processing plant in northeast Minnesota along the northern shore of Lake Superior.

The Response

MDH epidemiologists began an investigation of the elevation in mesothelioma by linking the state cancer registry with personnel records available for two large industries in northeast Minnesota: a ceiling tile manufacturing plant and the taconite mining industry. The linkage studies identified mesothelioma cases in both industries. While a previous study had already identified a high risk of asbestos-related exposure and disease (including mesothelioma) among the ceiling tile workers, mesothelioma had not been previously reported among taconite miners. A review of job histories of the miners with mesothelioma, along with miner interviews and expert panel judgments, identified commercial asbestos exposure on the job as the likely cause of most of the mesothelioma cases (where sufficient work history was available). However, this limited study did not assess exposure to taconite dust, and public concerns increased as many additional cases of mesothelioma among miners were identified.

The Impact

With the information provided by the preliminary investigations by the MDH, state funding (\$5 million) was allocated to University of Minnesota researchers for the support of five concurrent studies of taconite miners. These studies include an assessment of occupational exposures (including taconite fibers), a mortality study, a case-control study of mesothelioma, an environmental study of airborne particulates in communities surrounding taconite plants, and a respiratory health study of current and former taconite workers and their spouses. The studies were designed to address the concerns of the northeastern Minnesota community and whether the 4,000+ current miners, their family members, and community residents remain at risk from ongoing exposures in the workplace or community. Findings from these five-year studies are expected in late 2013.

For more information, visit the MDH Occupational Health or the University of Minnesota web pages:

MDH: <http://www.health.state.mn.us/occhealth/>

University of Minnesota: <http://taconiteworkers.umn.edu/>

For questions, please contact the MDH Center for Occupational Safety and Health at health.workerhealth@state.mn.us.