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Title: A regional excess of mesothelioma attributable to two occupational cohorts in Minnesota
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Background:
Mesothelioma is a rare and usually fatal cancer that affects the lining of the lungs or abdomen. Unlike lung cancer, which is primarily due to smoking, mesothelioma represents an almost unique "indicator" of previous asbestos exposure. In Minnesota, a regional two-fold excess of mesothelioma among males was first identified in 1997. The region where the excess occurred (NE Minnesota) is home to a variety of industries, including a ceiling tile manufacturing plant (Conwed) as well as Minnesota's iron mining industry. While a previous MDH study confirmed that Conwed workers were exposed to asbestos prior to 1974, previously published studies of iron miners did not report mesotheliomas. These findings led to state funding to examine the mesothelioma excess.

Methods:
Record linkage studies were initially conducted in 1998 utilizing the state cancer registry and rosters of Conwed workers and taconite miners. The roster of Conwed workers (N=5,200) had been created in a state-funded screening and notification program in 1988-93. The roster of taconite miners (N=72,000) was created in the early 1980's by the Univ. of Minnesota as part of an industry-wide study of taconite miners. Following the record linkage studies, job titles of miners with mesothelioma were evaluated for potential exposure to commercial asbestos. Record linkage studies were again conducted in 2006-2007 in preparation for additional studies.

Results:
The initial record linkage studies identified 17 cases of mesothelioma among former miners diagnosed in MN from 1988-1996. 11 cases were identified among former Conwed workers. Commercial asbestos exposure was determined to be possible or probable for 15 of the 17 mesothelioma cases among miners. Additional record linkages in 2006-2007 increased the number of mesotheliomas among taconite miners to 58. Among former Conwed workers, the number of mesotheliomas increased to 25 cases. Most of the cases still resided in NE MN at the time of diagnosis, thus accounting for the regional excess.

Conclusions:
State cancer surveillance data was useful in identifying a regional excess of a cancer (mesothelioma) that is primarily caused by an occupational exposure (asbestos). Linkage studies identified two industries related to the excess, one of which was not previously associated with this cancer. Subsequent linkage studies revealed a dramatic increase in the number of mesotheliomas among miners which led to a $4.9 million state grant to the Univ. of Minnesota to conduct further studies of taconite miners. Preliminary results of these studies are expected in 2012.

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