

Health Questions about Vermont Asbestos Mine

To: Vermont Health Care Providers

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The Vermont Department of Health has just completed a preliminary epidemiological analysis that suggests a potential risk of increased asbestos-related illness for people who have lived near the Vermont Asbestos Group mine in Eden and Lowell. Chrysotile asbestos was mined at that site from the early 1900's until mining operations stopped in 1993, leaving behind extensive asbestos waste rock and tailings.

In light of the new health study, state officials are calling for additional investigation of the impact of the mine, and warning people to stay off the mine. The Health Department is also recommending anyone who has a concern about their own exposure to asbestos to contact their health care provider.

Following is information that may be useful in addressing questions and concerns from your patients about their own possible exposure to asbestos.

Health Study Findings

- The Health Department's analysis of hospital discharge records, Vermont Cancer Registry data and death certificates for the years 1996 to 2005 found statistically significant associations between illness — asbestosis and lung cancer — and residence in the towns within a 10-mile radius of the mine.
- Asbestosis is a serious chronic lung disease caused by breathing in asbestos fibers. Exposure to asbestos can also be a cause of lung cancer, especially in combination with smoking.
- The findings revealed a statistically significant increased risk of disease, even after excluding people who worked at the mine.
- There was no significant increase for pleural malignancy, peritoneal malignancy, or mesothelioma (a rare cancer usually caused by breathing in asbestos fibers).
- Towns included in the study were: Albany, Belvidere, Craftsbury, Eden, Hyde Park, Irasburg, Johnson, Lowell, Montgomery, Newport Town, Troy, Waterville and Westfield.
- A major limitation of the study is the lack of information about an individual's exposure (dose response) — whether people inhaled asbestos, and if so, where and in what setting, how

much, over how many years, and other determining factors. Asbestos exposure is inferred from geographical proximity of residence at time of hospital discharge, cancer diagnosis, or death.

- The study was not designed to determine a cause-and-effect relationship by excluding other confounders, nor can it be extrapolated to determine any ongoing health risks for current residents near the mine.
- The current level of risk of asbestos exposure from living near the asbestos mine is unknown. Occupational exposure during the mine's operation remains the most significant source of exposure to asbestos fibers. Non-occupational exposure is now likely reduced since the mine closed in 1993, compared to the years when the mine was still operating.

Clinical Considerations

Exposure Pathway:

- The primary route of exposure is inhalation of asbestos fibers. Fibers may also collect on clothing and other surfaces and become airborne at a distant time and place, causing additional exposures.
- Asbestos fibers that accumulate over time in the lung lead to a number of slowly progressive pulmonary conditions. Other agents to be considered that can lead to a fibrotic interstitial pneumonitis include coal dust, silica, and hard metals such as beryllium and talc.
- Disease development is thought to occur because of the inability of macrophages to clear the pro-inflammatory fibers, leading to chronic inflammation, fibrosis and scarring.
- Smoking leads to reduced macrophage activity, and increases the likelihood of progressive fibrosis and cancer. Fibers may be partially cleared to the lung periphery, leading to thickened pericardial and pleural plaques. The presence of asbestosis and pleural plaques are felt to be precursors for the development of bronchogenic carcinoma and mesothelioma respectively.
- Not all individuals with exposure to asbestos will develop progressive fibrosis (asbestosis). A dose response exists, with heavier exposures leading to increased likelihood of progressive disease development and shorter latency periods between exposure and diagnosis.

Diagnosis:

- Diagnosis of asbestosis is primarily clinical and is made via a thorough exposure history, symptom review, clinical examination, lung function studies, and imaging studies.
- Earliest non-specific symptoms may include exercise intolerance and difficulty breathing upon exertion. Intermittent chest pains and a non-productive cough may be present.
- Asbestos is NOT associated with acute febrile illnesses, severe chest pain or sudden breathlessness. Listening to the lungs, particularly at the lung bases for the presence of rales is important.

Testing:

- A chest x-ray is an important test but it CAN NOT be used as a sole screening tool.
- Symptomatic individuals may require pulmonary function testing to determine if a restrictive pattern and reduced diffusion capacity exist. Chest x-ray findings of concern include: pleural effusions, increased interstitial markings and irregular opacities, pleural or pericardial thickening.
- Abnormal chest x-ray findings in people with a clinical suspicion of asbestos exposure should prompt a high resolution (thin section) computer tomography to distinguish interstitial fibrosis from lung cancer.
- Referral to a pulmonologist for broncho-alveolar lavage may help further delineate the cause of interstitial pulmonary fibrosis. Rarely is a lung biopsy necessary.
- Other extra-pulmonary malignancies have also been linked to asbestos exposure.

Therapy:

- The cornerstone of therapy is removal from the source of exposure.
- If the patient smokes, it is important that they quit.
- Symptomatic patients may require standard supportive care, including oxygen supplementation and treatment of co-occurring diseases such as emphysema.

For More Information:

- A more detailed discussion of diagnosis and management of asbestos-related disease can be found at <http://www.atsdr.cdc.gov/noa/healthprofessional.html>, and a copy of the Department of Health report can be found at <http://www.healthvermont.gov>.
- If you have additional questions or would like consultation about patients under your care, or suspect that you have identified individuals who have radiographic changes associated with non-occupational asbestos exposure, contact: Austin Sumner, MD, MPH, State Epidemiologist for Environmental Health at 802-652-0357 or email asumner@vdh.state.vt.us
- Additional clinical questions can be posed 24/7 to your Regional Certified Poison Center by calling 1-800-222-1222. An on-call toxicologist will be consulted.