HEALTH CARE FOR PATIENTS WITH
EXPOSURE TO ASBESTOS
Background

Introduction

Physicians are often asked to assess and provide care (manage care) for patients who are now or have been exposed to asbestos:

Workers involved in:
- Mining of asbestos or minerals contaminated with asbestos
- Manufacturing or using asbestos-containing products
- Custodial, maintenance and repair work in asbestos-containing buildings
- Direct contact with asbestos-containing waste or dust emissions

People:
- Living in the vicinity of asbestos mines and asbestos-related industries
- In direct contact with asbestos-containing waste or dust emissions, e.g., handling clothing of asbestos workers

Asbestos and asbestos-related disease

Asbestos refers to a group of fibrous silicate minerals including the amphibole minerals actinolite, amosite, anthophyllite, crocidolite and tremolite and the serpentine mineral chrysotile. Almost all of the asbestos mined in Canada was of chrysotile variety but it often contained small amounts of amphiboles as well. Asbestos was mined and milled in various parts of Canada, including in Baie Verte, NL, but the only remaining active mines in Canada are in Thetford Mines, QC.

The following diseases and conditions are known to be related to exposure to asbestos:
- asbestosis
- lung cancer
- pleural mesothelioma
- peritoneal mesothelioma
- pleural plaques
- diffuse pleural fibrosis
- rounded atelectasis
- pleural effusions
- laryngeal cancer
- ovarian cancer

There is mixed, but not conclusive, evidence that asbestos exposure is related to other cancers:
- pharyngeal cancer
- stomach cancer
- colorectal cancer

In general, a lengthy period of exposure to asbestos is required for the development of these diseases, although some findings show a dose-response gradient and therefore they can develop after short, heavy, acute exposures. Symptoms typically develop after a long latency period, averaging 15-20 years but sometimes up to 40 or even 50 years.

Asbestosis can be a precursor to lung cancer, but asbestos-related lung cancer, the most common cause of death among asbestos victims, also occurs in the absence of asbestosis. Smoking and asbestos exposure act synergistically to cause lung cancer, with the risk of lung cancer among workers exposed to asbestos who are also smokers or former smokers being approximately ten times higher than among non-smoking workers exposed to asbestos.
Screening for asbestos-related disease

Individuals with a history of asbestos exposure five or more years ago are at an increased risk of developing asbestos-related lung disease. Screening high risk workers enables earlier diagnosis and care and may reduce risk of complications.

There are other potential benefits from individual-level screening (case-finding), such as alleviation of individual or community concerns, promotion of smoking cessation or increased awareness of potential eligibility for workers’ compensation.
Flowchart for individual-level screening (case-finding) for asbestos-related disease*

Medical, Smoking, Exposure History and Physical Exam

Worker exposed to asbestos for > 5 years?

YES

Discuss:
Risks/benefits of testing
Workers’ compensation

NO

• Explain exposure criteria and explain why testing is not indicated.
• Counsel re smoking cessation.

Does worker wish to undergo testing?

YES

Chest x-ray
Pulmonary function testing

NO

• Explain purpose of testing and symptoms of asbestos-related lung disease.
• Counsel re smoking cessation.

Results suggestive of asbestos-related disease?

YES

Diagnostic workup or refer to specialist.

NO

• Counsel re symptoms of asbestos-related disease.
• Repeat testing every 3-5 years.
• If circumstances warrant, consider low-dose CT.

Consider screening for GI cancer (e.g., fecal occult, blood, colonoscopy)

*Modified from Expert Panel Report to the Ontario Chief Medical Officer of Health on Screening Guidelines for Asbestos-Related Lung Disease (June 2006)
**Clinical screening guidelines for asbestos-related disease**

<table>
<thead>
<tr>
<th><strong>Medical history</strong></th>
<th><strong>Limited physical examination</strong></th>
<th><strong>PA chest radiograph</strong></th>
<th><strong>Simple pulmonary function test</strong></th>
<th><strong>Possible fecal occult blood test or colonoscopy</strong></th>
<th><strong>Ongoing evaluation</strong></th>
<th><strong>Smoking cessation counselling and assistance</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The medical history interview should include:</td>
<td>The physical exam should include:</td>
<td>Note that radiological evidence is typically not present until at least 5 years after first exposure. In addition to a clinical evaluation, the use of a B-reader is recommended for radiographic rating of lung changes. The radiograph reader should look for:</td>
<td>Include FVC, FEV1, and FEV1/FVC ratio</td>
<td>There remains uncertainty as to whether cancers of the colon and other GI cancers are related to asbestos exposure. Accordingly, there is no consensus on whether patients with exposure to asbestos should be considered at elevated risk and screened earlier than standard age-related guidelines recommend.</td>
<td>If x-ray is normal or inconclusive and exposure history is positive, repeat x-ray as needed (every 3-5 years is generally considered appropriate). Lateral and/or oblique view recommended for inconclusive pleural changes</td>
<td>Smoking increases the risk of lung cancer in a synergistic manner. All patients with exposure to asbestos should be counselled about smoking cessation, offered assistance to that end and advised about exposure to second-hand smoke.</td>
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<tr>
<td>• Reason for visit</td>
<td>• Auscultation of heart and lungs</td>
<td>• Pleural changes</td>
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<td>• Current respiratory health history</td>
<td>• Extremity examination (including clubbing, pulses, peripheral edema, and cyanosis)</td>
<td>• Benign pleural effusion</td>
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<td>• CT scan: NOT a screening tool; recommended only if exam/PFT results suggest disease but x-ray does not correlate or if findings of uncertain significance are found on chest x-ray</td>
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<td>• Past medical history</td>
<td></td>
<td>• Thickening and possible calcification of the parietal and visceral lung pleura</td>
<td></td>
<td></td>
<td>• Consider referring patients with possible restrictive lung disease, significant radiographic or pulmonary function abnormalities or those with uncertain significance to a pulmonary or occupational lung specialist for complete pulmonary function tests and further evaluation</td>
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<td>• Smoking history</td>
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<td></td>
<td>• CT may assist in differentiating pleural plaques from other soft-tissue densities, or cancer versus benign nodule or rounded atelectasis</td>
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<td>• General asbestos exposure history</td>
<td></td>
<td>• Interstitial changes</td>
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<td>◦ Any contact with asbestos, including indirect such as laundering work clothes</td>
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<td>• Diffuse, bilateral interstitial fibrosis</td>
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<td>◦ Age at first exposure and years since first exposure</td>
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<td>• Occupational exposure history</td>
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<td>◦ High-risk occupations such as construction, demolition, remodelling, asbestos mining and milling, shipbuilding, pipelitting, automobile brake mechanics, firefighting, asbestos abatement, power plants</td>
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<td>◦ Asbestos and other chemical exposures on the job or from hobbies</td>
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<td>◦ Source, intensity, and duration of exposure</td>
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Recommendations for management after the diagnosis of asbestos-related disease

Management of malignant and non-malignant asbestos-related disease should follow guidelines for those diseases. This includes referral to appropriate specialists, agencies and resources for treatment.

Follow-up with patient
- Notify the patient of results and the work-related aspect of the illness
- Inform patient about options for compensation within your jurisdiction

Secondary Prevention
- Smoking cessation counselling and assistance
- Withdrawal from further exposure
- Immunization (pneumococcal, influenza)
- Management of concurrent respiratory and other diseases

Monitoring
- Observation, PA chest x-ray (q. 3-5yrs) and elevated index of suspicion for lung cancer, mesothelioma, GI cancers (see “ongoing evaluation”)

Development of patient-specific management plan for symptomatic disease
- There is no accepted treatment for mesothelioma.
- Lung cancer may have greater survival if diagnosed early.
- Clinical trials of CT screening are ongoing in 2010 without definitive results regarding increased survival with early diagnosis using this modality (Teel 2007).
Resources and References


