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**HEALTH CARE FOR  
PATIENTS WITH**

**EXPOSURE  
TO ASBESTOS**

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# 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.

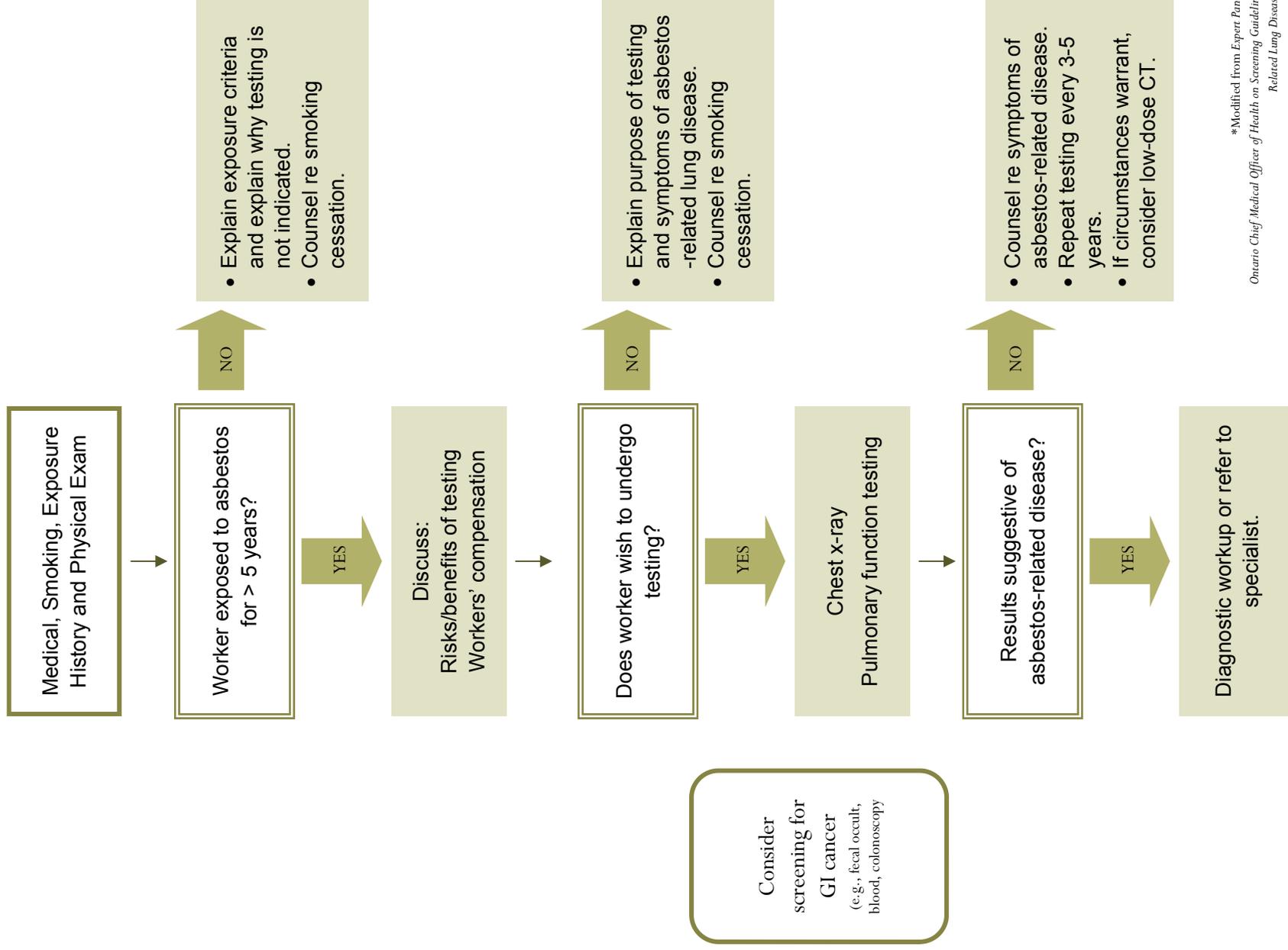


## Screening for asbestos-related disease

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\*



\*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

<p><b>Medical history</b> The medical history interview should include:</p>	<ul style="list-style-type: none"> <li>• Reason for visit</li> <li>• Current respiratory health history</li> <li>• Past medical history</li> <li>• Smoking history</li> <li>• General asbestos exposure history               <ul style="list-style-type: none"> <li>◇ Any contact with asbestos, including indirect such as laundering work clothes</li> <li>◇ Age at first exposure and years since first exposure</li> </ul> </li> <li>• Occupational exposure history               <ul style="list-style-type: none"> <li>◇ High-risk occupations such as construction, demolition, remodelling, asbestos mining and milling, shipbuilding, pipefitting, automobile brake mechanics, firefighting, asbestos abatement, power plants</li> <li>◇ Asbestos and other chemical exposures on the job or from hobbies</li> <li>◇ Source, intensity, and duration of exposure</li> <li>◇ Age at first exposure and years since first exposure</li> </ul> </li> </ul>
<p><b>Limited physical examination</b> The physical exam should include:</p>	<ul style="list-style-type: none"> <li>• Auscultation of heart and lungs</li> <li>• Abdominal examination</li> <li>• Extremity examination (including clubbing, pulses, peripheral edema, and cyanosis)</li> </ul>
<p><b>PA chest radiograph</b></p>	<p>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:</p> <ul style="list-style-type: none"> <li>• Pleural changes</li> <li>• Benign pleural effusion</li> <li>• Thickening and possible calcification of the parietal and visceral lung pleura</li> <li>• Interstitial changes</li> <li>• Diffuse, bilateral interstitial fibrosis</li> <li>• Lung carcinoma/ pulmonary nodules</li> </ul>
<p><b>Simple pulmonary function test</b> (PFT or spirometry)</p>	<ul style="list-style-type: none"> <li>• Include FVC, FEV<sub>1</sub>, and FEV<sub>1</sub>/FVC ratio</li> <li>• Consider pre- and post-bronchodilator, especially if obstructive component is evident. Asbestosis and some diffuse pleural disease may be characterized by restrictive changes</li> <li>• Among smokers, a mixed pattern may be noticed</li> </ul>
<p><b>Possible fecal occult blood test or colonoscopy</b></p>	<p>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.</p>
<p><b>Ongoing evaluation</b></p>	<ul style="list-style-type: none"> <li>• 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</li> <li>• 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</li> <li>• 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</li> <li>• CT may assist in differentiating pleural plaques from other soft-tissue densities, or cancer versus benign nodule or rounded atelectasis</li> </ul>
<p><b>Smoking cessation counselling and assistance</b></p>	<p>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.</p>

## 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

\* *Chrysotile asbestos image courtesy of the Scanning Electron Microscope (SEM) Facility, School of GeoSciences, University of Edinburgh. <http://www.geos.ed.ac.uk/facilities/sem/asbestos.html>.*

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