

Occupational Medicine Clinical Update

Occupational Health Clinics for Ontario Workers, Sarnia-Lambton

Asbestos-exposed Workers: Current Management Overview & the Screening CT Scan Debate

Given that the statement in the box below was made over 70 years ago, it is ironic that we are still struggling with how to manage patients exposed to asbestos. (Perhaps even more remarkable is that Canada is one of the few countries in the world that continues to mine the material for sale to developing nations).

The approach to asbestos-exposed workers and individuals has been in a state of flux over the past few decades, leading to some confusion about what is the most appropriate follow-up. Recently two authoritative bodies have systematically addressed the issues surrounding the management of nonmalignant asbestos-related diseases and asbestos exposure.

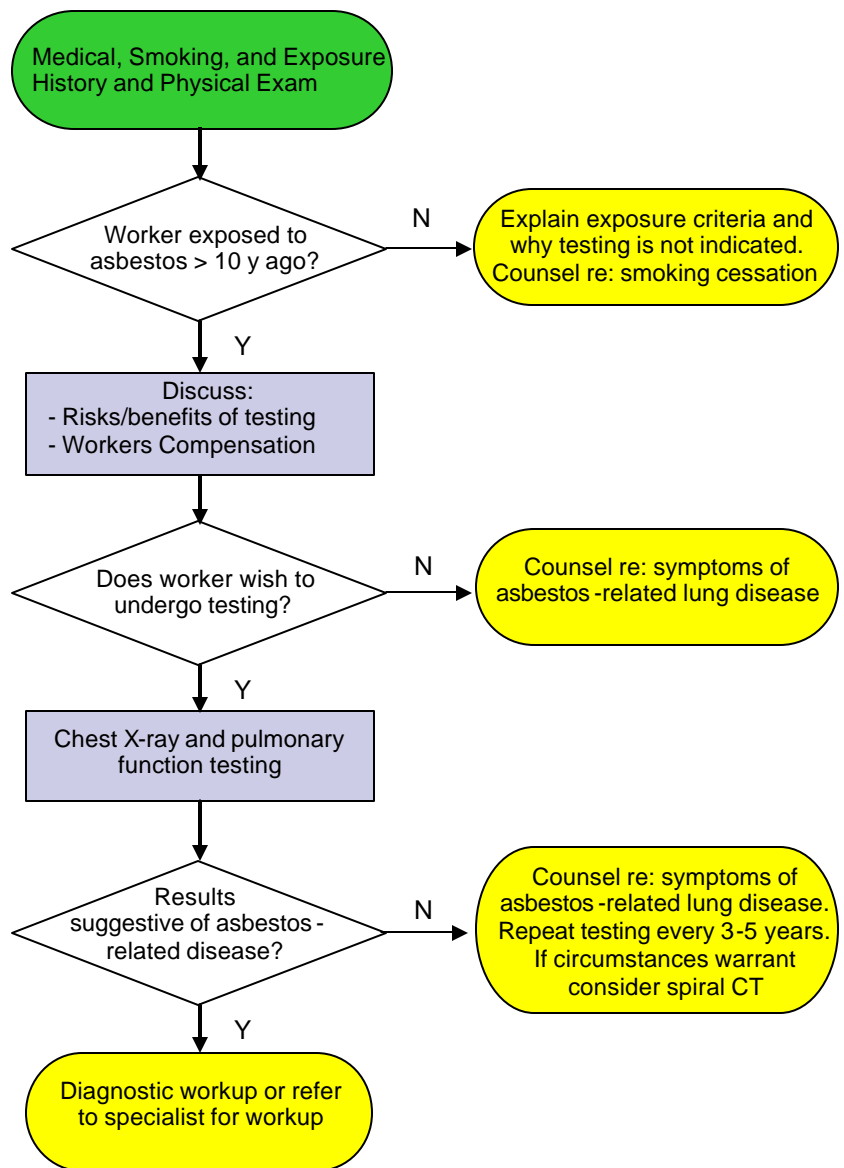
The approach recommended by the American Thoracic Society (ATS) is summarized in the table on page 2.2 By comparison, the flowchart shown on this page is the approach recommended in the *Expert Panel Report to the Ontario Chief Medical Officer of Health on Screening Guidelines for Asbestos-Related Disease (EPR)*.³ This report incorporated many of the elements of the ATS statement. Physicians should be aware there are two major differences between these two sets of recommendations.

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"Looking back in the light of present knowledge, it is impossible not to feel that opportunities for discovery and prevention of asbestos disease were badly missed."

- Thomas Legge, Chief Medical Inspector of Factories, 1934¹

Flowchart for Individual-Level Screening (Case-Finding) for Asbestos-Related Disease*



*Reproduced from: Expert Panel Report to the Ontario Chief Medical Officer of Health on Screening Guidelines for Asbestos-Related Disease.³

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First, the ATS recommends screening for colon cancer, whereas this subject is not dealt with in the EPR. Second, the ATS statement specifically recommends against **screening for lung cancer** while the EPR recommended consideration of CT scanning in individuals (but not populations), "If circumstances warrant." Those circumstances are left to the physician to define and weigh, but clearly require an intimate understanding of the relevant issues.

The topic of screening with low-dose CT is complex and quite controversial. It is discussed in more detail on page 3. The main message to take away is that while **population-level screening** is not being recommended by any organization the door has been left open by some scientific bodies for **individual-level screening**.

Along with the potential benefits of the procedure (early detection of asbestos-related lung disease which may be treatable as well as identification for worker's compensation purposes), the EPR calls for a complete discussion of the risks (additional radiation, relatively high levels of false positives with subsequent procedures and related anxiety as well as morbidity).

It is worth noting that these recommendations also apply to **'household contacts.'** These are individuals who received their exposure from household members who brought asbestos fibres home (usually inadvertently on body, clothing, or equipment) from the workplace. Asbestos-related diseases

The Fibre You Don't Want in Your Colon: The Need to Screen Asbestos-exposed

Individuals with significant occupational asbestos exposure are considered to be at increased risk for gastrointestinal malignancies.^{2,4} The evidence regarding asbestos exposure and in particular, colon cancer, has led the American Thoracic Society to recommend that such individuals be screened (see box below).

The recommendation is intended such that these individuals be stratified in a high risk category for colon cancer (like those with family history of colon cancer or polyps) and screened accordingly.

can also be acquired in the community from other inadvertent exposures.

The ATS-derived recommendations for management (in the box below) are largely self-explanatory. It is worth noting that **individuals should be notified of the presence of pleural plaques** and the WSIB informed, as pleural plaques are considered to be an independent risk factor for asbestos-related malignancies.²

It also needs to be emphasized that **smoking cessation** is a critical prevention strategy that needs to be addressed with every asbestos-exposed individual.

RECOMMENDATIONS FOR MANAGEMENT AFTER THE DIAGNOSIS OF ASBESTOS-RELATED DISEASE*

(i.e. pleural plaques, diffuse pleural fibrosis, asbestosis)

1. PATIENT NOTIFICATION

- 1.1 Inform patient of work-related illness
- 1.2 Report to appropriate authority as an occupational disease, as required by law (jurisdiction-dependent)
- 1.3 Inform patient that there are options for compensation

2. IMPAIRMENT ASSESSMENT (if this falls within clinician's scope of practice)

- 2.1 Conduct an assessment of functional impairment
- 2.2 Rate impairment in accordance with ATS criteria, which are incorporated into the AMA Guides

3. TERTIARY PREVENTION

- 3.1 Smoking cessation (primary prevention for smoking-related disorders)
- 3.2 Withdrawal from further excessive exposure
- 3.3 Immunization (pneumococcal, influenza)
- 3.4 Management of concurrent respiratory and other diseases

4. MONITORING

- 4.1 Chest film and pulmonary function testing should be conducted every 3 to 5 years
- 4.2 Active monitoring (periodic screening) for colon cancer [see box above]
- 4.3 Observation and elevated index of suspicion but not screening for lung cancer (see discussion page 3), mesothelioma, gastrointestinal cancers [other than colon - see box above]

5. DEVELOPMENT OF A PATIENT-SPECIFIC MANAGEMENT PLAN FOR SYMPTOMATIC DISEASE

* Adapted from the American Thoracic Society Official Statement on the Diagnosis and Initial Management of Nonmalignant Diseases Related to Asbestos, 2004.²

A Spiraling Debate

The debate in the scientific literature over low-dose thoracic scanning for early detection of lung cancer has proven to be complex and contentious, with numerous conflicting studies and varying interpretations of their meaning making it a challenge for clinicians to know what to do. Here is what the major bodies wading into the issue have concluded:

2003 - The Canadian Task Force on Preventive Health Care: "...there is insufficient evidence (in quantity and/or quality) to make a recommendation as to whether spiral CT scanning should be used for screening asymptomatic people for lung cancer; however other factors may influence decision-making."⁵

2004 - American Thoracic Society Official Statement: The committee studying the issue found insufficient evidence to recommend for or against periodic health surveillance for lung cancer or mesothelioma. However authors of that document recently noted that, "...screening for lung cancer using new technologies, such as spiral CT scan, is an active area of investigation, and recommendations may change as new data become available."²

2004 - The US Preventive Services Task Force: "...the evidence is insufficient to recommend for or against screening asymptomatic persons for lung cancer with either low-dose computerized tomography (LDCT), chest x-ray (CXR), sputum cytology, or a combination of these tests."⁶

The report also went on to say, "If screening is being considered, doctors and patients should discuss the pros and cons of screening before going ahead with x-ray, CT scan, or sputum cytologic examination to screen for lung cancer. Patients should be aware that there are no studies showing that screening helps people live longer. They should also know that false-positive test results are common and can lead to unnecessary worry, testing, and surgery."

2006 - American Cancer Society: "The ACS historically has maintained that patients at high risk of lung cancer due to significant exposure to tobacco smoke or occupational exposures may decide to undergo testing for early lung cancer detection on an individual basis after consultation with their physicians."⁷

The ACS statement emphasized the importance of informed decision making for individuals who opted for such early detection and recommended that testing should be done only in experienced centers characterized by multidisciplinary specialty groups with experience in testing, diagnosis and follow-up.

2006 - Expert Panel Report to the Chief Medical Officer of Ontario: "At this time, there is insufficient evidence of mortality reduction to recommend population-level screening with any modality for asbestos-related lung disease."³

"There may be other types of benefit 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."

2007 - American College of Chest Physicians: "For high-risk populations, no screening modality has been shown to alter mortality outcomes. We recommend that individuals undergo screening only when it is administered as a component of a well-designed clinical trial with appropriate human subjects' protections."

While there is insufficient evidence to recommend for or against screening CT for populations as a whole, some major bodies suggest there may be benefit in LDCT screening in certain individuals following a full discussion of risks and potential benefits

What's a Clinician to Do?

The definitive answer to the mortality question is not expected until at least 2009 when early results of a large (50,000 subjects) randomized trial

(the National Lung Screening Trial or NLST) are expected to be available.

Knowing that asbestos-exposed workers are at higher risk of lung cancer and mesothelioma (albeit a less treatable cancer than lung cancer), we address the issue of LDCT screening on an individual basis. We begin by offering participation in the study we are involved with at Princess Margaret Hospital in Toronto (see box page 4). There is complete support for patients having screening LDCT in the context of a study.

For those with exclusions to study participation (typically due to a history of cancer) our approach is individualized. We assess the patient's risk of lung cancer (from smoking, asbestos, other occupational and non-occupational exposures, family history) and level of concern. We then have a full discussion of the potential, but as yet unproven, benefits of LDCT screening while also disclosing the associated risks (see box below).

Issues to discuss with patients regarding LDCT screening:

Pros

- Early detection of lung cancer (mortality benefit unknown)
- Alleviation of anxiety

Cons

- Detects small peripheral cancers but does not reliably detect centrally located ones
- Radiation risk (see box page 4)
- Relatively high false positive rates
- Invasive follow-up procedures
- Finding facility to do test

How Much Radiation, How Much Risk?

Radiation dose of LDCT of the chest is roughly 5 -10 times that of posterior-anterior and lateral chest x-ray (conventional CT of the thorax is equivalent to over 100 chest x-rays).

It has been estimated that yearly LDCT scans for 25 years could result in a 0.5 - 5.5% increase in lung cancer.⁹ The author of this paper suggested that CT screening may need a mortality benefit of considerably more than 5% to justify the additional radiation exposure.

Low-Dose CT Study Partnership Between Princess Margaret Hospital and OHCOW

Since May 2005 Princess Margaret Hospital in Toronto and OHCOW Sarnia-Lambton have collaborated in a study of LDCT for the early detection of Mesothelioma and Lung Cancer in asbestos-exposed individuals. To date 414 individuals have enrolled for screening LDCT's through the Sarnia clinic.

The current inclusion criteria are:

1. 30 years of age or older AND
2. General good health AND
3. 1st asbestos exposure at least 20 years ago

OR documented pleural plaques.

Exclusions include any history of cancer other than non-melanotic skin cancer. Any patients you think may qualify and would be interested are welcome to contact our office to arrange an appointment with our study nurse.

References

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Occupational Health Clinics for Ontario Workers (OHCOW) is a pro-active team of health professionals committed to promoting the highest degree of physical, mental and social well being for workers and their communities. At five clinics in Ontario (Sudbury, Toronto, Hamilton, Sarnia and Windsor) a team of nurses, hygienists, ergonomists and physicians see patients and identify work-related illness and injuries, promote awareness of health and safety issues, and develop prevention strategies.

Contact us for the clinic nearest you.