Occupational Cancer Research Centre

Asbestos and Mesothelioma in Ontario

May 29, 2010

CARWH Conference: Worker Health in a Changing world of work

Loraine Marrett, PhD

Outline

Part I: Asbestos & its uses

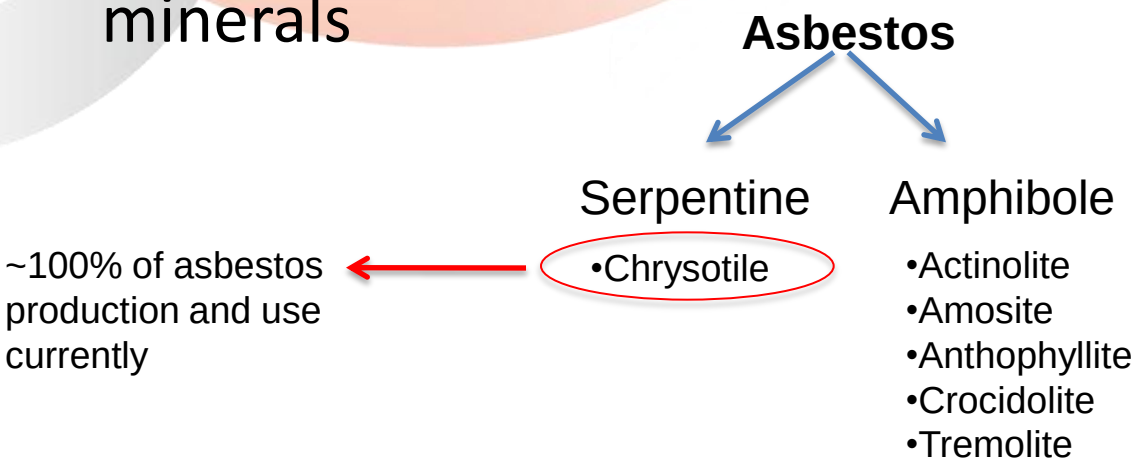
Part II: Asbestos & cancer

Part III: OCRC research

Part I: Asbestos & its uses

Asbestos – What is it?

- Refers to a group of six naturally occurring, fibrous minerals



- Historically used in a variety of products because of its useful properties:
  - high-tensile strength
  - durability
  - ability to be woven
  - heat resistant
  - chemical resistant

Examples of asbestos-containing products

Building Product	Friablity	Dates of Use
Mechanical insulation	high	1926 - mid 1970's
Spray insulation	high	1935 - 1974
Texture coat	moderate - high	1950 - mid 1970's
Floor tile	low	1950 - late 1970's
Drywall taping compound	low - moderate	1945 - late 1970's
Cement pipe	low	1935 - present
Brake linings	low	1940 - present
Duct wrap	moderate - high	1920 - mid 1970's
Textiles/gaskets	low - moderate	1920 - mid 1970's
Roofing material	low	1920 - late 1970's
Ceiling tiles	low - moderate	1950 - 1970's
Cement board	low	1930 - present

HSE, University of British Columbia: http://www.hse.ubc.ca/safety/asbestosmanagement/typicalusesofasbestos.html

Occupational exposure to asbestos

- **In the past:**
  - Mining and milling of asbestos
  - Manufacturing of asbestos products
  - Construction and shipbuilding industries
- **Today:**
  - Workers who use asbestos end products
    - Asbestos insulation workers
    - Brake repair and maintenance workers
    - Building demolition workers
    - Asbestos abatement workers
  - Construction
    - During renovations, demolitions, maintenance and repair

REF: U.S. NTP

Asbestos regulation in Ontario

- Identified as a Designated Substance under the Occupational Health and Safety Act in 1982
  - Asbestos Control Program required if potential for worker exposure
  - Ontario OEL = 0.1 f/cm^3
- Added to the Hazardous Products Act in 1985
  - Pure, loose asbestos cannot be sold as a consumer product (all friable asbestos products banned)
  - Asbestos products applied by spraying must be encapsulated within a binder to prevent release of fibers and cannot become friable after drying

Part II: Asbestos & cancer

Asbestos exposure is strongly linked to cancer

Mesothelioma

- A rare, highly fatal cancer with very long latency
- > 65% of mesotheliomas likely due to occupational asbestos exposure
  - ~135 mesotheliomas per year in Ontario related to workplace asbestos

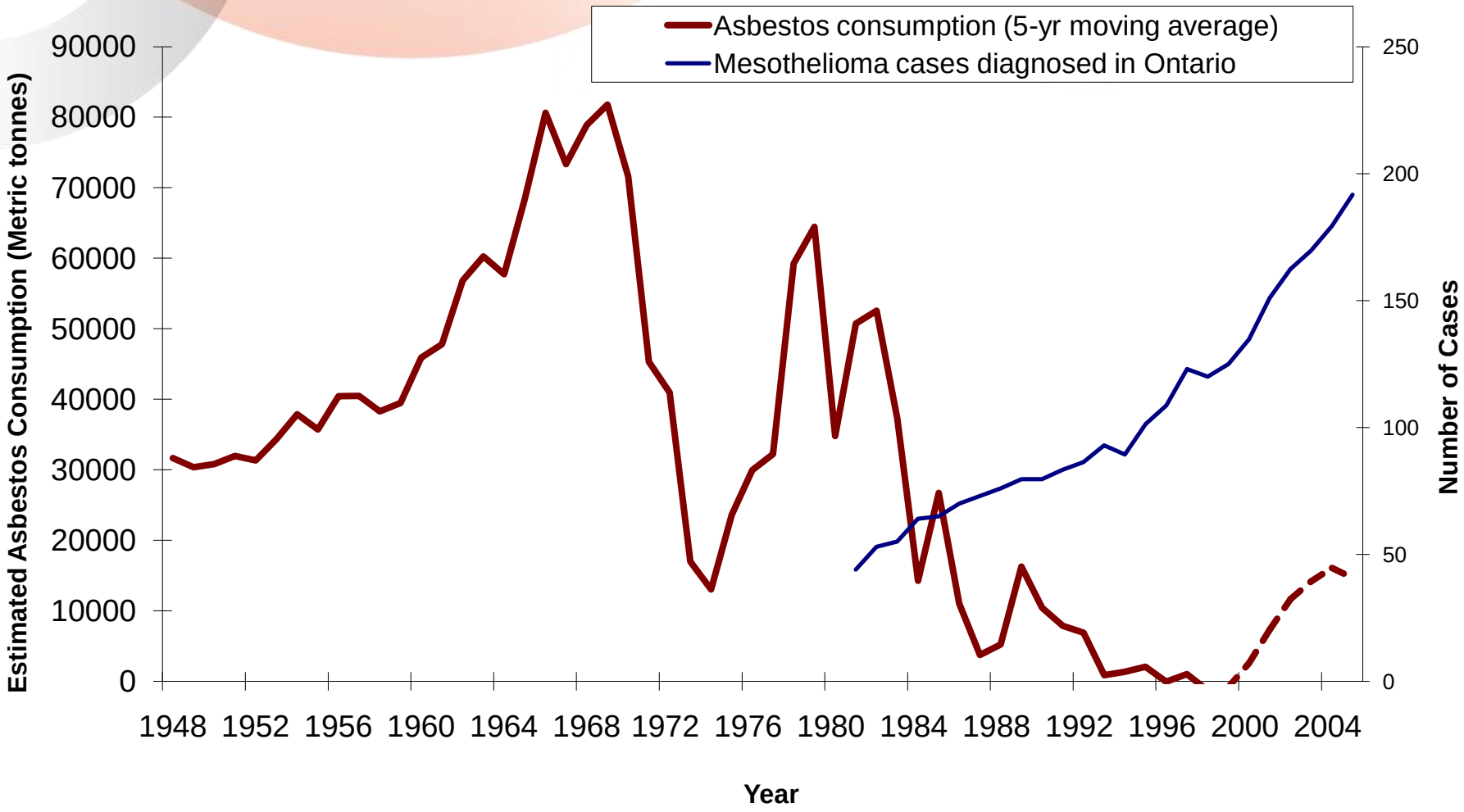
Lung cancer

- Synergistic effect of asbestos and smoking
- ~2 lung cancers for every case of mesothelioma
  - ~270 lung cancers per year in Ontario related to workplace asbestos

Other cancers (IARC 2009)

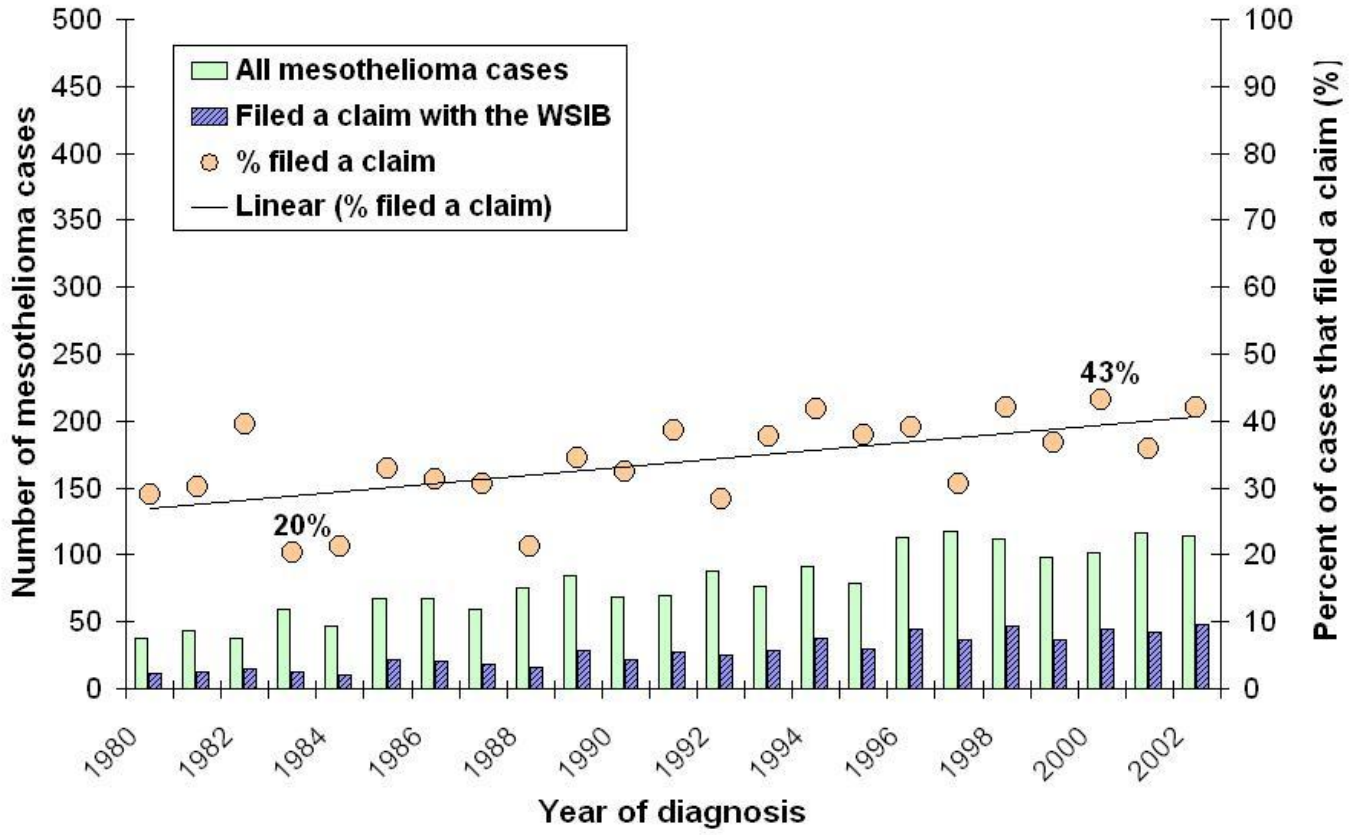
- Ovary and larynx (sufficient evidence)
- Colorectum, pharynx and stomach (limited evidence)

Asbestos use in Canada and Mesothelioma in Ontario



Sources: Natural Resources Canada, Canadian Minerals Yearbook 1944-2002; Ontario Cancer Registry (2009)

Filing for workers' compensation, Ontario mesothelioma* cases, 1980-2002



* WSIB schedule 4 disease as of May 1992

Source: Payne J, Pichora E. Filing for workers' compensation among Ontario cases of mesothelioma. Cdn Respiratory J 2009; 16:148-52.

Actual and expected compensation claims for asbestos, Ontario, 1990-2003

Cancer Type	Number of allowed claims	Workplace Agent	Actual Number of Allowed Claims	*Expected Number of Allowed Claims, Asbestos**	*Minimum unclaimed cases*
Lung	652				
		Asbestos	**298**	***~2107***	***1809***
		Sintering Plants	67		
		Gold mining	64		
		Silica	49		
		Other	174		
Mesothelioma	582				
		Asbestos	**578**	***~1054***	***476***
		Other	4		

*Underestimate – 65% of mesothelioma cases diagnosed 1990-2003 and 2X this number of lung cancers.

Adapted from: Pichora E, Payne JI. Trends and characteristics of compensated occupational cancer in Ontario, Canada, 1937-2003. Am J Ind Med 2007; 50: 980-91.

Part III: OCRC research

Future mesothelioma burden in Ontario

- Important for forecasting compensation
- Useful as a marker of asbestos exposure for predicting other asbestos-related diseases
- Dr. Mark Clements (Australian National University) has projected # of new cases for Australia and is doing for Ontario

Increasing physician awareness of asbestos-related cancers

- Pilot project submitted to WSIB with Centre for Research Expertise in Occupational Disease (CREOD) (Linn Holness)
  - Physicians in one Ontario lung cancer clinic will distribute exposure questionnaire (asbestos only) to lung/mesothelioma patients
  - Physicians of mesothelioma patients elsewhere will distribute same questionnaire to their mesothelioma patients
  - Patients who indicate asbestos exposure will be offered assistance in reviewing exposure as regards filing a claim
  - OHCOW clinic cooperating
- Ultimate purposes:
  - To increase physician awareness of asbestos as a workplace carcinogen for lung cancer and mesothelioma
  - To increase filing for compensation where appropriate

Occupational Cancer Research Centre

Thank you!

Questions?