Asbestos and Cancer in Ontario and The Occupational Cancer Research Centre

March 3 2010

A Presentation to the Asbestos Surveillance & Disease Compensation Think Tank, Toronto

Dr. Loraine Marrett
Associate Director, OCRC
Sr Scientist, Cancer Care Ontario
Outline

• Mesothelioma & asbestos in Ontario
• Workers’ compensation & asbestos in Ontario
• Ontario’s new Occupational Cancer Research Centre (OCRC)
• OCRC’s current and future work re asbestos-related cancers
Mesothelioma & asbestos in Ontario
Crude estimates of Ontario workers exposed to occupational carcinogens

Mesothelioma in the Ontario Cancer Registry (OCR)

- Still a relatively difficult disease to diagnose accurately
- Effective surveillance requires accurate data
- CCO has applied enhanced logic to best available data to ensure capture of all mesothelioma cases (resulted in increased counts for recent years)
Asbestos use in Canada and Mesothelioma in Ontario

Sources: Natural Resources Canada, Canadian Minerals Yearbook 1944-2002; Ontario Cancer Registry (2009)
Rates of Mesothelioma in Ontario, 1980 - 2006

Source: Ontario Cancer Registry (2009)
Compensation and asbestos, Ontario:

Analysis of Occupational Disease Database (ODISS), WSIB
1. Descriptive Study of Cancer Compensation Claims using WSIB’s ODISS

ODISS claim records listing a neoplasm
ICD-9: 140-239
n = 6564

Restrict to compensated cancer claims
n = 3126

Restrict to filed 1990-2003
n = 1564

- overall
- by industry
- by cancer

Demographics
Claim administration
Work exposure

Towards a cancer-free workplace
Cancer distribution, allowed claims, Ontario, 1990-2003 (N=1564)

Occupational exposure, allowed claims, all cancers, Ontario, 1990-2003 (N=1564)

Primary Causal Agent

Asbestos 63%
Sintering plants 2%
Gold mining 3%
U.V. radiation 8%
Silica 1%
Uranium 3%
Combustion residues 3%
Foundry dust & emissions 3%
Benzene & other A.H.* 4%
Coke oven emissions 5%
Nickel 3%
Chemical exposure 3%
Radon 3%
Other & unknown 2%

* Aromatic Hydrocarbons

Occupational exposures, allowed claims, mesothelioma, Ontario, 1990-2003 (N = 582)

Occupational exposures, allowed claims, lung cancer, Ontario, 1990-2003 (N = 652)

Occupations with n >10

- Asbestos 45%
- Other & unknown 10%
- Radon 2%
- Nickel 2%
- Coke oven emissions 3%
- Foundry emissions & dust 3%
- Uranium 7%
- Silica 8%
- Gold mining 10%
- Sintering plants 10%

Filing rates for lung cancer & asbestos

- Ratio of lung cancer to mesothelioma compensated claims where causal agent is asbestos is $298:582 \sim 1:2$
- Cohort studies of workers exposed to asbestos report a $2:1$ ratio for lung cancer to mesothelioma cases
- Suggests that number of claims for lung cancer attributable to asbestos should be four times what it currently is

2. ODISS-Ontario Cancer Registry Linkage

- Probabilistic linkage:
  - personal identifiers: first and last name, date of birth, sex
  - claims filed 1964-2003 (ODISS)
  - cancers diagnosed 1964-2002 (OCR)

- 6564 WSIB-ODISS claim records listing a neoplasm were linked to the Ontario Cancer Registry

- Analyses restricted to cancers diagnosed in 1980-2002
  - due to OCR data quality (e.g., pathology completeness)

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


* WSIB schedule 4 disease as of May 1992
% Filing by Age at Diagnosis, Mesothelioma, Ontario, 1980-2002

Ontario’s new
Occupational Cancer
Research Centre
(OCRC)
• Workplace Safety & Insurance Board (WSIB) – funder
• Canadian Cancer Society, Ontario Division (CCS) - funder
• Cancer Care Ontario (CCO) – funder/home
• United Steelworkers - partner
The prevention of occupational cancer through the identification and elimination of exposures to carcinogens in the workplace.
OCRC Research Foci

- Surveillance of occupational cancers and workplace exposures
- Research into the causes of cancer in the workplace
- Intervention research to reduce exposures and prevent cancer
- Capacity-building for occupational cancer research
- Knowledge transfer and exchange to ensure relevance of research and effective use of research findings
OCRC’s current & future work in asbestos-related cancers
What is the future burden of mesothelioma in Ontario?

- When will the annual # of mesothelioma cases begin to decline?

- Mark Clements (Australian National University) has projected # of new cases to 2060 for Australia

- Dr. Clements has mesothelioma data (Ontario and Canada) and asbestos data (Canada) and will use to project mesothelioma cases through 2060

- Important for forecasting compensation

- Useful as a marker of asbestos exposure for predicting other asbestos-related diseases
Surveillance: Refinement of CAREX for Ontario

- Estimate numbers of workers who continue to be exposed to asbestos by industry
- Validate estimates
- Ultimately, reduce exposures
Research: 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
Thank you!

Questions?
Ontario Mesothelioma Incidence Rate by County of diagnosis, 1980-2002


*Counties where N<20 not shown
Compensated Cancer Claims by Cancer, 1937-2003

- Lung cancer (n = 1569)
- Mesothelioma (n = 800)
- Other cancers (n = 527)

Mesothelioma Claim Characteristics, 1980-2002

Of the 643 claims filed for mesothelioma cases diagnosed 1980-2002:

- 15% filed by dependants after worker’s death no time limit for filing an occupational disease claim in Ontario
- 87% of claims filed were compensated
- Reasons for not compensating:
  - Ontario worker is not WSIB-insured (self-employed, etc)
  - asbestos exposure occurred while working out of province
  - asbestos exposure not occupational
  - claim was abandoned by the worker or by his/her dependants

% Filing by County of Diagnosis, Mesothelioma, Ontario, 1980-2002

OCRC Guiding Principles

• Produce and transfer new knowledge to support community action, public education, prevention, legislation, and policy development.
• Conduct research that adheres to the highest standards – research integrity.
• Involve the partners and key stakeholders in its research agenda.
• Guided by the precautionary principle.
• The Centre will operate independently of its funders’ constraints.
OCRC Mandate & Scope

Mandate

• Conduct research on occupational cancer and carcinogens
• Bridge occupational, environmental, and public health
• Build research capacity

Scope

• Ontario-wide focus
• Nationally/internationally networked
• Multi-disciplinary approach
• Applied research