

Abstract:

Introduction: As a preliminary step in the Workers' Compensation Board of British Columbia's (WCB of BC) effort to understand and improve on how workers diagnosed with mesothelioma may best be treated and compensated, a literature review and internal data analysis on this topic were undertaken. The internal data analysis is reported in this presentation.

Methods: Data were extracted from the WCB of BC administrative data warehouse. The extraction was based on criteria using (nature of injury code 00888 or 30000 or 31000 or 31100 or 31900 or 31901 or 33900 or 39000) and (source of injury code 05203 or 55100). Analysis was limited to data from the period 1987 - 2002.

Results: In the period 1987-2002, 325 claims were filed as mesothelioma. On average, 20 new mesothelioma cases (range from 8 - 29) were filed to the WCB of BC annually. Overall, the incidence of mesothelioma at the WCB of BC was 10.77 per 100,000 new claims per year (range 4.09 - 22.49). Overall, the mean (± SD) and median age at diagnosis of mesothelioma claimants were 64.6 (± 9.5) years and 64.0 years, respectively. 56% of the claimants were between the ages of 55 and 70 year. 316 (97.2%) of registered mesothelioma cases were males. 32% of the mesothelioma claimants worked in general construction and 27% worked in metallic and non-metallic mineral product environments. 88.6% of these claims were classified as fatal when the data was downloaded in March 2004. The median number of days of short term disability awarded to these claimants was 226 days. Overall, the median mesothelioma claim costs were \$ 165,000 Can. Comparison of the incidence and incidence rate data on mesothelioma for the Province of British Columbia between mesothelioma cases registered at the WCBBC and the British Columbia Cancer Agency (BCCA) revealed a large discrepancy. Overall, the incidence rate of mesothelioma as registered at the BCCA was twice as many as those registered at the WCB of BC, which suggest many occupational mesotheliomas were not being reported to the WCB of BC.

Conclusions: Mesothelioma represents a small number of claims at the WCB of BC. There was a discrepancy between the number of mesothelioma cases as recorded by the WCB of BC and BCCA which warrants further study.

Background:

- Mesothelioma (pleural and peritoneal) is a rare cancer associated with asbestos exposure in a very large proportion of cases. It was estimated that 70% - 80% of mesothelioma cases are related to asbestos exposure at work¹.
- It is a disease with a poor prognosis and median survival of < 1 year post diagnosis².
- Pleural mesothelioma is more common than peritoneal mesothelioma.
- Treatment of mesothelioma has proved to be disappointing regardless of the methods used³.
- Recent data show that there is an increase in the incidence of mesothelioma worldwide. This increase in the incidence of mesothelioma has been attributed to the widespread use of asbestos from the 1940s to the end of the 1970s (in developed countries)⁴.
- Mortality due to mesothelioma has been expected to increase in many countries. The projected peak incidence of mesothelioma in developed nations has been assessed as occurring between years 2010 - 2030⁵.
- In 2003, Canada produced 270,000 metric tons of asbestos (13.1% of the world's total production) and was the third largest producer in the world (after Russia and China). The majority of asbestos mined in Canada is of the chrysotile type⁶.
- Asbestos mining in Canada has taken place in the provinces of Quebec, Newfoundland, British Columbia and the Yukon⁶.
- Most asbestos mining in Canada has taken place in the province of Quebec. At its peak, Quebec had 10 of the 13 mines in Canada. Currently, there are 2 asbestos mines still operating in Quebec⁶.
- Cassiar asbestos mining was the only asbestos mine operated in British Columbia (BC). The open pit mining in Cassiar started in 1953 and produced mainly chrysotile asbestos. This mine was closed in 1992^{6,7}.

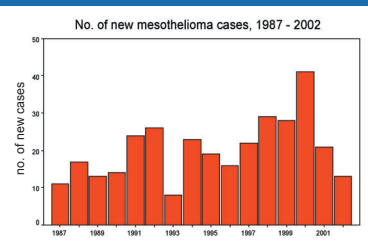
Materials and methods:

- This exercise was a part of preliminary step in the Workers' Compensation Board of British Columbia's (WCB of BC) effort to understand and improve on how workers diagnosed with mesothelioma may best be treated and compensated.
- Compensation data was extracted from the WCB of BC data warehouse by employing a combination of nature of injury and source of injury codes. Nature of injury codes identifies all cancer related diseases, while source of injury coding identifies asbestos related exposures in this extensive database.
 - The extraction was based on criteria using nature of injury code (00888 or 30000 or 31000 or 31100 or 31110 or 31120 or 31180 or 31190 or 31200 or 31210 or 31220 or 31280 or 31290 or 31300 or 31310 or 31320 or 31330 or 31340 or 31380 or 31390 or 31900 or 31901 or 32000 or 32100 or 32110 or 32120 or 32130 or 32140 or 32180 or 32190 or 32900 or 32910 or 32980 or 32990 or 33000 or 33100 or 33200 or 33300 or 33800 or 33900) AND source of injury code (05203 or 55100). These are the criteria presently being used by the Statistical Services Department, WCB of BC, to identify mesothelioma claimants.
 - It should be noted that by employing the above criteria, a small number of lung cancer cases will be identified and included in the dataset.
 - Nature of injury and source of injury coding are based on coding schemes developed by the Canadian Work Injuries Standard (CWIS) and the Canadian Standard Association (CSA).
- Data was extracted from the period 1987 - 2002, as text files, by employing Crystal Report[®] 7.0.
- The year 1987 was chosen as a starting point based on prior observations that data collected prior to this year was incomplete and likely less valid.
- Data was then translated and analyzed further by employing SPSS for Windows ver. 12.0.
- Since the majority of mesothelioma is work related and, as such, compensable in most compensation jurisdictions, a comparison was made between the incidence and incidence rate of mesothelioma for the Province of British Columbia as a whole and at the WCB of BC.
 - The British Columbia Cancer Agency registers all types of cancers diagnosed anywhere in the province, and as such, has the largest cancer database with which the WCB of BC can compare its occupationally related cancer data to.
 - Provincial mesothelioma incidence and incidence rate data were provided by the Surveillance and Outcomes Unit of the British Columbia Cancer Agency (BCCA).
- Appropriate parametric and non-parametric statistical procedures were employed in the univariate analyses subsequently undertaken.

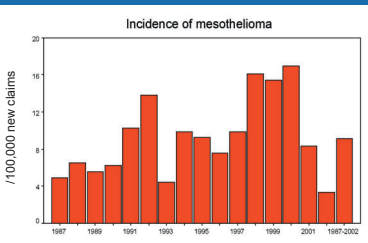
Results:

1. Mesothelioma claims at the WCB of BC:

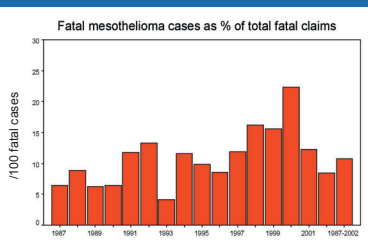
- In the years of 1987 - 2002, there were 325 claims filed as mesothelioma.
 - Prior to 1987, 87 cases of mesothelioma were recorded during the period of 1972 - 1986. Thus, overall, there were 412 mesothelioma claims recorded in the WCB of BC datawarehouse.
- In the period of 1987 - 2002, on average, 20 new mesothelioma cases were recorded annually (range 8 - 41 cases).



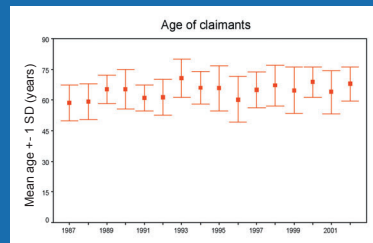
- The overall incidence rate of mesothelioma was found to be 10.8 per 100,000 new claims per year. The incidence rate of mesothelioma cases across all WCB of BC claims (cancer and non cancer claims) ranged from 4.09 per 100,000 new claims to 22.40 per 100,000 new claims.



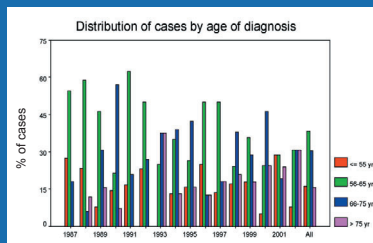
- The incidence of fatal mesothelioma among total fatal claims (again, cancer and non cancer related claims) was 9.13% and ranged from 3.35 to 17.01 per 100 new fatal cases during the same period.



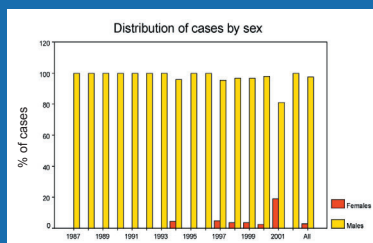
- Overall, the mean age (± SD) of mesothelioma claimants was 64.6 ± 9.5 year. The average age (± SD) ranged from 58.8 ± 8.9 year in 1987 to 70.6 ± 9.4 year in 1993.



- ± of mesothelioma cases were diagnosed at the age of 55 - 65 years, ... at the age of 66 - 75 years and ... at the age of ≥ 55 years or > 75 years.
 - Over the time of the study period, more people were diagnosed at older age, particularly those aged > 75 years.



- The majority of mesothelioma cases occurred among males. During the period 1987 - 2002, 97.2% of mesothelioma cases were males.

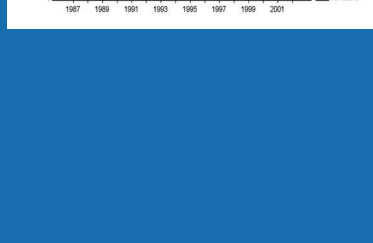
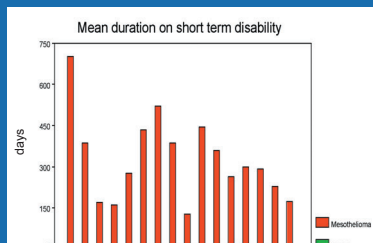


- Overall, 32.3% of mesothelioma occurred among workers involved in general constructions, 26.8% among workers in metal and non-metallic mineral product related industries and 5.2% in other service industries. Almost 5% of cases were found among workers in wood and paper product related businesses.
 - This pattern of industry source remained consistent over the study period (data not shown).

Type of industry	% of cases
Accommodation, Food, and Leisure Services	0.5
Administrative Services	0.5
Deposit Services (Formerly Class 10)	0.5
Deposit Services II (Formerly Class 11)	0.5
Federal Government	0.5
Finance	0.5
Food and Beverage Products	0.6
General Construction	32.3
Health Care and Social Assistance	0.6
Heavy Construction	26.8
Metal and Non-Metallic Mineral Products	5.2
Oil & Gas or Mineral Resources	4.9
Other Products (not elsewhere specified)	2.1
Other Services (not elsewhere specified)	5.2
Pharmaceutical, Coal, Rubber, Plastic & Chemical	0.6
Professional, Scientific, & Tech Service	0.5
Public Administration	0.5
Retail Construction or Maintenance	0.5
Transportation and Related Services	4.8
Wholesale	1.2
Wood and Paper Products	4.9

- Of the 325 mesothelioma claims in 1987 - 2002:
 - 321 (98.8%) were fatal claims.
 - 2 (0.6%) were on long term disability benefits.
 - and 2 (0.6%) were still on short term disability payments.

- In general, mesothelioma claims have significantly longer mean and median duration of short term disabilities (STD).
 - Mesothelioma claims have significantly longer mean duration of STD as compared to all claims (cancer and non cancer) of the same periods. The overall mean duration of STD between mesothelioma and all claims were 316 days and 15 days, respectively.



Mesothelioma claims

at the Workers' Compensation Board

of British Columbia, Canada,

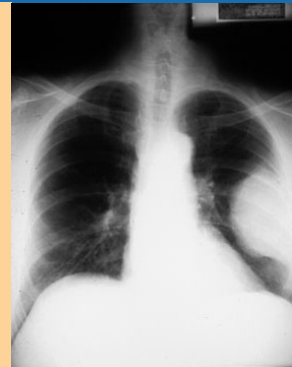
1987 - 2002

C.W. Martin, K. Noertjojo, C.T. Dunn

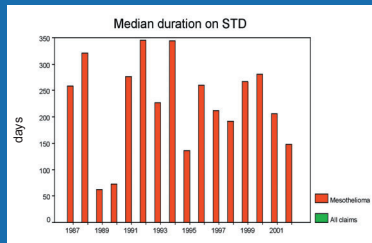
The Evidence Based Practice Group, Clinical Services, Program Design Division

The Workers' Compensation Board of British Columbia

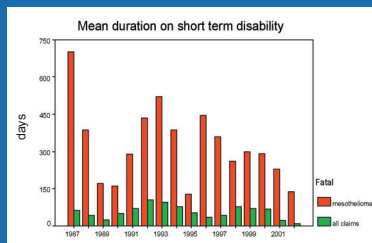
Richmond, British Columbia, CANADA



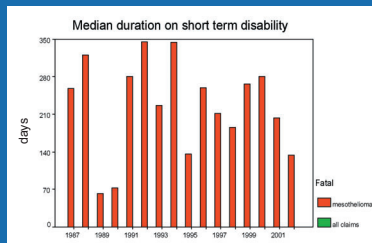
- Mesothelioma claims have significantly longer median duration of STD as compared to overall claims of the same periods. The overall median duration of STD between mesothelioma and all claims were 230 days and 9 days, respectively.



- Among fatal claims only, the mean duration of STD between fatal mesothelioma and all fatal claims were 316 days and 56 days, respectively.



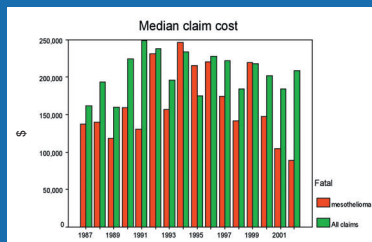
- The median duration of STD between fatal mesothelioma and all fatal claims were 226 days and 0 days, respectively.



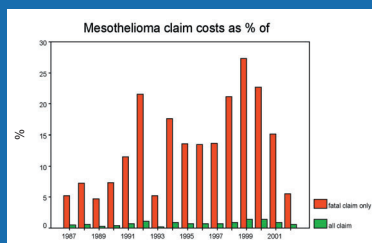
- Fatal mesothelioma cases had lower mean claim costs compared to all fatal claims. On average, fatal mesothelioma claim cost \$ 207,040 Can compared to \$ 244,292 Can for all fatal claims.



- The median fatal mesothelioma and all fatal claims were \$ 164,863 Can and \$ 206,688 Can, respectively.

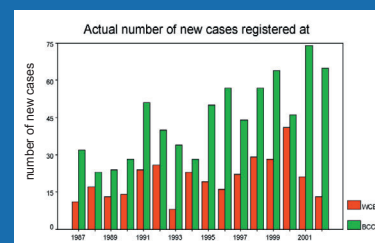


- Annually, mesothelioma claims represent between 4% and 27% of the total fatal claims costs paid by the WCB of BC. The cost of mesothelioma claims represent between 0.2% and 1.4% of the total claims paid by the WCB of BC.

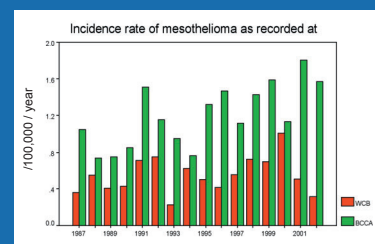


2. Mesothelioma cases recorded at the WCB of BC and the BC Cancer Agency.

- The number of new mesothelioma cases registered at the BC Cancer Agency (BCCA) is at least double the number of new mesothelioma cases registered at the WCB of BC (with the exception of the year 2000).



- A similar pattern is also found when the incidence rate was calculated. Incidence rate was calculated by employing the number of BC residents for the respective calendar year as the denominators.



- While the discrepancy in the incidence and incidence rate observed between the WCB of BC and BCCA may be, in part, explained by the fact that the BCCA also treats out of Province residents, the fact that such a large discrepancy exists warrants further investigation to insure all workers diagnosed with this fatal disease receive appropriate compensation.

Summary:

- Mesothelioma represents a small number of new claims at the WCB of BC. On average, 20 new mesothelioma claims are filed at the WCB of BC each year. The incidence rate of mesothelioma varies from 4 to 22 per 100,000 new claims per year.
- The majority of mesothelioma claims are fatal. Almost 99% of mesothelioma claimants seen over the 1987 - 2001 study period have died.
- Mesothelioma largely affects males. Across time, more people were diagnosed at an older age, particularly those aged > 75 years. This pattern of age distribution is in accordance with large epidemiological studies.
- The majority of mesothelioma cases occurred among workers in the general construction, metal and non-metallic mineral product, other service industries and wood and paper production industries.
- Even though the mean and median duration of STD among fatal mesothelioma claims were significantly longer than all (cancer and traumatic) fatal claims, this fact is not necessarily associated with higher mean or median claim costs.
- The costs of mesothelioma claims represent 0.2% to 1.4% of total claim costs paid by the WCB of BC annually.
- There is a large discrepancy in the number of new mesothelioma cases registered at the WCB of BC and the BC Cancer Agency (BCCA). From 1987 - 2002, the number of new mesothelioma cases registered at the WCB of BC is consistently less than those registered at the BCCA. While this discrepancy may reflect, in part, the fact that the BCCA treats out of province mesothelioma patients, it merits further study and attention.
- As a result of this short review, the WCB of BC and the BC Cancer Agency are in the process of designing a program to ensure all mesothelioma patients and their physician(s) are made aware of the significant association of asbestos related exposure and this invariably fatal disease, to ensure all workers with this diagnosis receive all benefits they are entitled to under Workers' Compensation Law and Policy.

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