Asbestos in Ontario: Leveraging existing environmental administrative databases to assess potential carcinogen exposure

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Background

Toxics use reduction (TUR) is an approach to pollution prevention that requires improving / changing industrial processes to reduce the use and release of contaminants in the environment [1]. This can be accomplished by:
- Using less toxic starting materials
- Reformulating to make less toxic by-products and end-products
- Redesigning, modifying, or upgrading production units and equipment
- Improving operations and maintenance
- Recycling, reusing, or extending the use of toxics.

TUR was proposed as a beneficial option that may contribute to reversing the cancer epidemic [2]. Typically TUR programs are implemented under state / provincial legislations.

The Ontario Toxics Reduction Act (TRA) is a TUR legislation that came into effect on January 1, 2010 [3]. The Ontario Ministry of the Environment & Climate Change requires manufacturing and mineral processing companies that report releases to Environment Canada to additionally track the use and production of 360 toxic chemicals including asbestos. It was modelled after the Massachusetts Toxics Use Reduction Act (TURA 1989)[4]. The Mass TURA has been effective in TUR with reports of 93% decline in carcinogen release and 58% reduction in toxic chemicals use [5].

Chronic occupational asbestos exposure increases one’s risk of developing lung cancer and mesothelioma [6,7]. Although asbestos is not being produced in Canada, it is predicted that asbestos associated cancers and mortality will not level off for several more years because of their long latency period (20-50 years). In Canada, approx. 500 mesotheliomas are diagnosed annually [8].

Methodology

Ontario TRA data was used to assess potential asbestos exposure in Ontario workers. Data was obtained from Ministry of Environment & Climate Change TRA website (available reporting years = 2010 - 2012). The analysis was restricted to asbestos (friable form).

Results and Discussion

• Of approx. 1000 facilities that reported to the Ministry of Environment annually, 12 facilities reported using, storing or disposing of asbestos (2010, N=11; 2011 and 2012, N=8) (Figure 1). No reports of asbestos production in Ontario.

• These facilities are located in Sarnia ON, one in Hamilton ON and the other in Mississauga ON.

• Reductions were reported in landfill disposal in 2011 and 2012 for more than half of the facilities when compared with 2010 (Figure 2).

• Most facilities cited historical asbestos storage & presence of asbestos containing building materials.

• The data also revealed that the facilities that reported using asbestos still use asbestos end products such as asbestos gaskets; however, they developed reduction plans to reduce asbestos use after 2012.

• Only select manufacturing and mineral processing facilities report under the TRA, this implies that other non-manufacturing as well as small-medium sized facilities are not captured in this analysis.

Limitations and Conclusions

The TRA is still in its infancy – only 3 years of data are available. Although asbestos has been banned by most developed countries, and its production has declined in Canada, the analysis showed that asbestos is still being used or disposed of in landfills in Ontario. Facility reporting should nonetheless be perceived as a positive step towards pollution prevention. The study revealed that the TRA database can be used to address potential exposures for other carcinogens in Ontario.

References


