Occupational Cancer Research Centre

Awareness of asbestos hazards in schools, asbestos management plans and training among Ontario school custodial workers

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Towards a cancer-free workplace

Highlights of this report:

The widespread historical use of asbestos in Canada may have placed those who work with or near asbestos containing material (ACM) at risk of exposure. Custodial workers working in schools have been identified as at-risk for potential asbestos exposure. This report summarizes the findings from an evaluation of custodial workers' awareness of asbestos management in schools following a request received by the study authors from the Prevention Division of the Ontario Ministry of Labour.

What we did

In March 2017, we administered an online survey whose link was distributed via email to 72 heads of the Canadian Union of Public Employees locals (CUPE), who distributed the survey link to their union members (Ontario school custodial workers). The purpose of this survey was to assess awareness of asbestos presence in schools (including asbestos management plans and asbestos-related training) and highlight any concerns about asbestos among custodial workers. The survey (developed in English and French) consisted of 26 questions including yes/no, multiple choice and open-ended text response questions on workplace characteristics, potential asbestos exposure in schools, asbestos management, asbestos inspections, asbestos awareness and training, and custodial concerns.

What we found

- A total of 784 survey responses were received, of which 527 were eligible (i.e. held a job involving janitorial or maintenance services).
- ACM was reported as present in 67% of the respondents' schools. A proportion of the respondents reported that that during the course of their work they interact directly (24%) or indirectly (66%) with ACM, but only about half (59%) of these respondents are able to recognize it. Of the respondents who reported interacting with ACM directly or indirectly, 63% reported using any personal protective equipment.
- 86% of respondents knew that their school had an asbestos management plan. Those who knew there was an asbestos management plan were more likely to report that they received asbestos training (74%) compared to those who did not know there was a plan (30%).
- The respondents were concerned that the existing asbestos in their schools was not well managed and that there was limited training or awareness of what to do when working with or near ACM.

What the employers can do

- Employers should follow the requirements in the Occupational Health and Safety Act regulations, O. Reg 278/05 (https://www.ontario.ca/laws/regulation/050278).
- Undamaged asbestos that is properly managed poses minimal health risk. Employers should provide and maintain an up-to-date asbestos management plan and ensure that employees have access to these documents.
- Employers should review the existing training and provide training to employees on good work practices to minimize exposure.

What employees can do

- Employees should know and follow the requirements in O. Reg 278/05.
- A visual inspection cannot conclusively identify whether a product contains asbestos. Building materials installed before 1980 should be treated as ACM. Employees should review the asbestos management plan before doing work that may disrupt ACM and if unsure, ask their supervisor for training to perform work tasks safely.
- Employees can refuse unsafe work or file a confidential complaint with the Ontario Ministry of Labour if they feel they are not being protected from asbestos exposure.

Background

Asbestos is the commercial name given to six mineral fibres that occur naturally in the environment. Asbestos was widely used around the world because of its chemical resistance, fire proofing and insulating properties.[1–6] In Canada, from the 1930s to about the 1980s, asbestos was used in many applications. It was added to building materials like floor tiles and cement pipes; sprayed on surfaces for acoustic, decorative, or fireproofing purposes; and used as insulation on pipes, boilers, and ducts.[2,4,5,7,8]

The health effects from chronic exposure to asbestos are well documented. Inhaling asbestos fibres increases the risk of lung cancer, mesothelioma, as well as other cancers.[1,4,6] The widespread historical use of asbestos places many workers at risk, particularly those who work in proximity to ACM that has deteriorated or been disturbed resulting in airborne asbestos fibres.[3,9–11] Custodial workers working in schools known to possess ACM are at risk for asbestos exposure.[3,9,12,13] They may perform tasks in their day to day activities that potentially expose them to asbestos.[3,9,11,13] For example, sweeping or dusting off surfaces may stir up settled asbestos fibres in buildings where ACM has deteriorated.[3,9,11] In addition, drilling into drywall, repairing or removing floor or ceiling tiles, or working with roofing materials, piping insulation or plumbing may disturb ACM. [3,10,11,13]

In Ontario, regulatory requirements (O. Reg 278/05) are outlined for all building owners and employers to ensure the proper management of buildings known to have ACM.[14] This includes school boards, who are expected to establish and maintain an asbestos management plan that addresses:

1) preparation and maintenance of records on building materials tested for asbestos and on the location of ACM in the school buildings,
2) routine inspection of identified ACM or other material that maybe treated as ACM in all school buildings to determine the condition,
3) notification of employees who may work near ACM or who may disturb ACM during the course of their work, and
4) asbestos training for those who may work with or disturb friable[i] and non-friable ACM during the course of their work.[14]

Little information is available to assess the implementation of asbestos management plans across schools in the province. Also, asbestos exposure among school custodial workers during normal working conditions and their awareness of the risk is unknown. This study was conducted to assess Ontario school custodial workers' awareness of the presence of asbestos, asbestos management plans and asbestos-related training, and identify custodial workers' concerns about their experiences with asbestos. The study was requested by the Prevention Division of the Ontario Ministry of Labour. The major findings from the study are summarized in this report.

Methods

An anonymous online survey was developed using Fluidsurveys, Survey Monkey Canada (Ottawa, Canada). The survey consisted of 26 yes/no, multiple choice and open-ended text response questions, organized into six sections: preliminary information (workplace characteristics), potential asbestos exposure, asbestos management, asbestos inspections, asbestos awareness training, and questions and concerns. Consultants from the Public Services Health and Safety Association reviewed the survey to make sure it was appropriate and relevant. The survey was created in English and French to allow all eligible custodial workers to participate in the study. The survey link was sent to Ontario school custodial workers in March 2017 via email through their union local leaders and responses were

[i] Friable means the material when dry can be easily crumbled with hand pressure

accepted until May 2017. All Ontario elementary and secondary school custodial workers were invited to fill out the survey. Only data from respondents who reported an eligible job title were analyzed.

Study findings

A total of 784 survey responses were received; however, the findings in this report are limited to respondents whose reported job titles indicated caretaking, custodial, janitorial, or repair and maintenance worker roles (n=527). Characteristics of the respondents and their tasks are located in Table 1 and Figure 1 respectively. Most of the respondents completed the survey in English (93%), worked in schools built before 1975 (74%), and had at least 10 years of experience at their current job title.

Table 1. Descriptive characteristics of study respondents (n=527)

Characteristics of respondents	Number of responses	Proportion (%)
Language survey completed in (n=527)		
English	489	92.8
French	38	7.2
Region (n=515)		
Central Ontario	83	16.1
Eastern Ontario	51	9.9
Greater Toronto Area	250	48.5
Northeastern Ontario	44	8.5
Northwestern Ontario	4	0.8
Southwestern Ontario	83	16.1
Age of school (n=455)		
Built after 1975	119	26.2
Built prior to 1975	336	73.9
Job title (n=527)		
Chief/head caretaker and custodian	55	10.4
School custodian, janitor or caretaker	450	85.4
School maintenance worker	22	4.2
Self-reported duration of employment (n=513)		
Less than 5 years	82	16.0
5-10 years	85	16.6
10-20 years	153	29.8
More than 20 years	193	37.6
School size (reported as number of students in school) (n=523)		
Less than 200	85	16.3
200-400	190	36.3
400-600	104	19.9
More than 600	125	23.9
Don’t know	19	3.6

Eight tasks were identified as potential sources of asbestos exposure for custodial workers (Figure 1). More than 90% of respondents who answered the question about job tasks (n=337) reported cleaning floors and dusting or wiping surfaces in their jobs. Of these, most cleaned floors or dusted and wiped surfaces daily (93 and 71% respectively) for a median duration of two and one hours respectively. All other daily reported tasks were only conducted for a median duration of 30 minutes, except repairing and maintaining walls or floors (median duration = 1 hour).

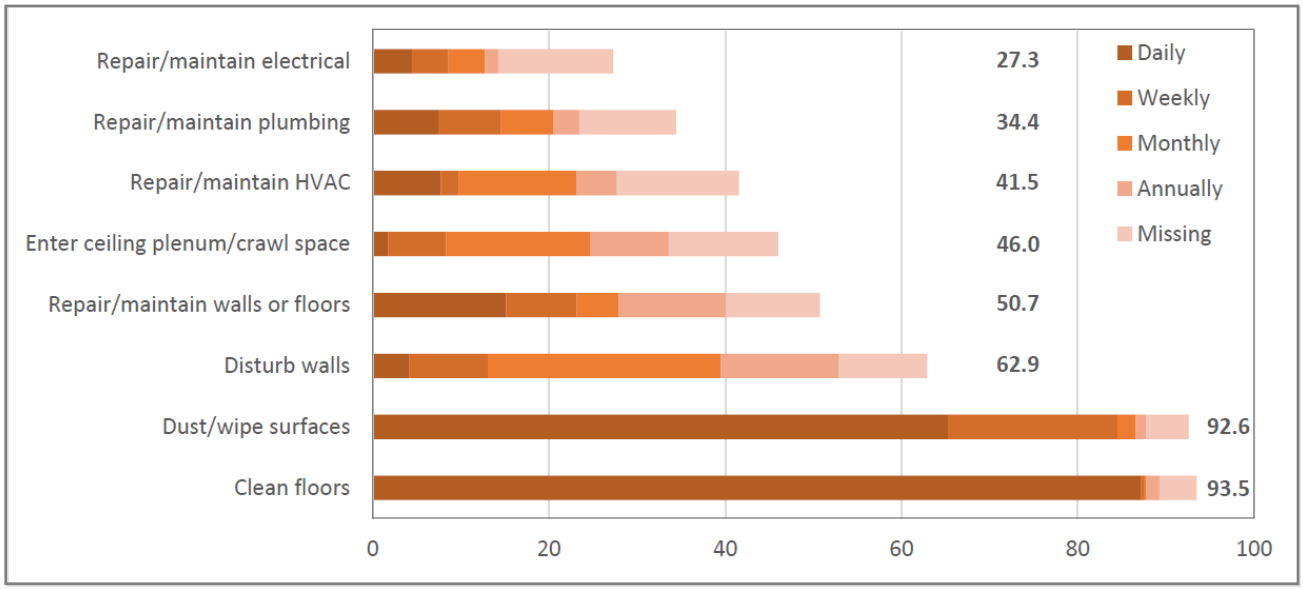

Figure 1. Proportion of respondents (n=337) who perform common tasks during their regular job that may put them at risk of exposure to asbestos, stratified by frequency with which they perform this task.

Summary results of respondents' reported awareness of asbestos, and knowledge and use of work practices and control measures to reduce exposure are presented in Table 2.

Table 2. Awareness and interactions with asbestos and ACM in Ontario schools as reported by survey respondents[ii]

Self-reported asbestos experiences	Number of responses (n)	Proportion Yes (%)
Awareness of asbestos presence in school:		
Asbestos or ACM is present in the school	519	67.4
Respondents directly interact with ACM at school	350	23.7
Respondents indirectly interact with ACM at school	261	66.3
Respondents are able to recognize ACM at school	325	60.9
Knowledge of asbestos management plan		
Respondents know that their school has an asbestos management plan	318	85.5
Respondents are aware of its location at their school	315	85.7
Respondents know when the asbestos management plan was last updated	312	55.5
Resources for workers to determine if work tasks involve interaction with ACM		
Respondents know from 'asbestos binder'/book /map/survey reports	260	46.2
Respondents know from experience	260	32.3
Respondents know from labels/signs/postings of asbestos warnings on walls	260	20.8
Respondents ask supervisor/manager/employer	260	18.9
Practices in place to minimize exposure		
Major renovations were conducted within the last 10 years at their school	492	62.2
Special action has been taken to remove all asbestos or ACM at their school	319	29.8
Special action has been taken to remove badly damaged asbestos or ACM at their school	313	52.7
Special action has been taken to repair badly damaged asbestos or ACM	310	50.7
School has ever been inspected for asbestos	314	71.7
Engineering controls		
Areas around damaged or deteriorating ACM are enclosed	301	61.1

[ii] Table is not nested, each item represents a unique question.

Self-reported asbestos experiences	Number of responses (n)	Proportion Yes (%)
Administrative controls		
School board requires that one undergoes asbestos related training	467	67.9
Reports/records on asbestos related work are updated	303	62.4
All soiled equipment and debris is sealed for proper disposal	295	61.0
Use properly maintained equipment	297	59.9
HEPA vacuum area after remediation	295	52.9
ACM is sprayed/wet down before removal	295	50.2
Undamaged asbestos/ACM has been labelled at their school	315	42.2
Personal protective equipment use (PPE)		
Any PPE	243	63.4
Gloves	165	77.6
Dust masks	165	70.3
Respirators	165	33.3
Coveralls	165	30.3

When asked about the presence of asbestos in schools, respondents who work in schools built before 1975 (who may be at higher risk of exposure to asbestos) reported knowing ACM was present in their school more often (82%) than respondents working in schools built in 1975 or later (25%). Of the 67% of respondents who reported that there was ACM in their school, only 59% reported that they were able to recognize it and 63% reported using any personal protective equipment.

Over half of the respondents reported that their current school underwent renovations within the last ten years. Of these, 69% were from schools built before 1975, and 47% of these reported working in the area during renovations. When asked about asbestos management plans, 86% of respondents were aware that their school had an asbestos management plan. Almost all of those who were aware of the asbestos management plan knew where to locate it. However, only about half of these respondents reported using their schools' asbestos management plan as a resource to identify areas where asbestos exposure is likely.

The respondents' concerns about working with asbestos were qualitatively reviewed (n=26). The respondents felt that ACM was not properly managed and that better training was needed for working with asbestos and using the asbestos management plan. Specifically, respondents felt that the schools were not inspected often enough and the records were out-of-date. Some respondents suggested that the ACM should be removed from the school. The respondents also felt that workers doing tasks near ACM or work that might disturb ACM were not notified in a timely or effective manner. As well, respondents felt that more frequent comprehensive asbestos training was required for all workers who might directly or indirectly interact with ACM, including casual workers, cable installers, and others. There was a reported need for more awareness of best practices when working in these areas and who to go to if they thought they had been exposed now or in the past.

Discussion and recommendations

We are not aware of other studies that aimed to assess school custodial workers' awareness of asbestos exposure and how asbestos is managed in their schools. Based on the survey findings, approximately two thirds of the respondents work in older schools that are more likely to have ACM. However, the results suggest that some workers may not be aware of their risk and may not have the skills to work safely in areas containing asbestos. This is a matter of importance as over half of the respondents reported that some action had been undertaken to manage existing asbestos in their schools, including renovations. These renovations were more prevalent in schools built prior to 1975 where

the risk of exposure to asbestos is likely higher. About a half of the respondents reported working in the area during renovations.

The survey found that the most commonly performed tasks (cleaning floors and wiping surfaces) are unlikely to break or damage intact ACM. However, these tasks may disturb settled asbestos fibres in areas where ACM has deteriorated. The results suggest that some workers are not using existing resources to identify whether the work they are doing takes place near ACM or involves interaction with ACM.

A large proportion of the respondents were aware their school had an asbestos management plan. Those who identified having an asbestos management plan were more likely to report that they received asbestos training (74%) compared to those who did not know there was an asbestos management plan (30%). This suggests that training enhanced their knowledge of the asbestos management plan. However, less than half of the respondents reported using the asbestos management plan as a resource to determine if their work tasks involve ACM. Although 32% of respondents reported not receiving asbestos training, it is possible that some of these individuals work in buildings that do not contain asbestos. It is also possible that they received asbestos training at some point but do not remember it. This may occur if the training is not effective, or if it has been a long time since the training took place.

Schools must take appropriate action to minimize exposures. Undamaged asbestos that is intact and properly managed poses minimal health risk. Proper management of existing asbestos in buildings is key to preventing exposure.[15] The Ontario Ministry of Labour defines the methods and procedures for protecting workers from asbestos in Ontario regulation 278/05. As required by the regulation, school boards should provide and maintain an up-to-date asbestos management plan. School boards also have a legal duty to provide training to the employees at risk of exposure to asbestos. Given that only 68% of the respondents reported receiving asbestos training, schools should review the existing training. It is recommended that:

- Asbestos training be provided multiple times during a workers' career and include information on the health effects of asbestos, the asbestos management plan (including amount, condition and location of known or suspected ACM), how to recognize damaged or deteriorated ACM and the proper response if one encounters friable ACM.
- All maintenance and custodial workers should receive asbestos training if they work directly or indirectly with ACM, or near to ACM that may be damaged or deteriorated. Special effort should be put forth by the school board to ensure casual or rotating staff receive training as it is likely they may be less familiar with the work environment and location of ACM in the schools they are stationed at.
- Training programs should highlight the need for workers to review the asbestos management plan prior to conducting work that may disrupt ACM and clearly outline the steps and resources available to them if they are unsure whether their work will involve disturbing asbestos.

Limitations

There were a few study limitations that could affect the generalizability of the findings. The survey was only available to those who could read English or French and those who had access to email. The majority of the responses were from the Greater Toronto Area, which may not be representative of schools in smaller district boards. We used self-reported data, which is prone to social desirability bias (respondents answering in a way that they believe is appropriate or acceptable to others, rather than truthfully). Respondents who have an emotional interest in the topic might have participated in the survey which would skew the study findings.

Although there was a large proportion of missing responses to some of the questions in this survey, overall the study findings are reflective of the respondents' experiences and provide evidence that recommended practices for managing asbestos are not well adopted across the schools.

Conclusions

There is epidemiological and exposure data that suggests that there has been, and continues to be, a potential risk to those whose work might disturb ACM in buildings.[3,11,13] As there isn't sufficient comprehensive surveillance reporting how exposures in schools are monitored, it may be necessary to collect more data to understand how well asbestos is currently being managed and to further identify and address the concerns of those who work with or near ACM.

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