Results of the 2010
University of Manitoba
Asbestos Survey

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Introduction: In 2002 the University of Manitoba initiated a medical surveillance program of its staff because of concerns raised by the identification of trace amounts of asbestos in a maintenance/storage building, the knowledge that asbestos is present in other locals in the university complex, and the discovery of three cases of malignant mesothelioma in current and former anthropology staff at the University. The administration of the University decided not to restrict staff participation based on either, length of service at the University, or likelihood of contact with asbestos. The survey did not identify any evidence of asbestos related effects in the 228 participants, although many of the staff had not worked at the University for a long enough period of time to account for the latency period of asbestos related health effects. In the spring of 2004 a repeat survey was conducted and again offered to all staff regardless of their job title or duration of service at the University. A total of 116 individuals participated in the second survey. No evidence of asbestos related health effects was identified. A repeat survey was performed in the spring of 2006 in which 70 individuals participated, again no evidence of asbestos related effects were observed. In May 2008 a survey was performed but due to communication problem only 6 workers results were analyzed. No evidence of asbestos related effects was observed. In May 2010 a repeat survey was performed. This report summarizes the result of that survey.

Since the last survey the province has prepared a “Fibrogenic dust exposure worker’s medical screening guideline” (http://www.safemanitoba.com/uploads/guidelines/fibrogenicdust.pdf) to guide surveillance of workers. According to this guideline worker’s who may have 100 hours of exposure above the occupational exposure limit regardless of the use of respiratory protective equipment need to have a baseline assessment and reassessment every two years. The baseline assessment consists of a respiratory history, an occupational history, a physical assessment with emphasis on the respiratory system, pulmonary function testing and a chest radiograph. The biannual evaluation is similar without the need for the physical assessment. According to the guidelines chest radiographs are required every four years for the first fifteen years from the start of exposure. The frequency of chest radiographs increases to every two years after fifteen years from the start of exposure. The Environmental Health and Safety Office, reports that no workers at the university currently meet the guideline for ongoing surveillance. The University of
Manitoba asbestos survey thus exceeds the suggestions in this guideline for ongoing assessment of asbestos exposure.

Methodology: The methodology used was similar to that which was used in the previous surveys. The survey consisted of a questionnaire which provided information on occupational exposures. Since asbestos related disorders only surface many years, usually at least fifteen to twenty, after the start of exposure, the potential latency period of asbestos exposure at the University was calculated. This period was calculated as the number of years since the individual began working at the University. Some basic health information was also collected in the questionnaire. The questionnaire was administered by the staff of the Manitoba Lung Association. A chest radiograph and lung function testing were performed by the Manitoba Lung Association. Standard American Thoracic Society procedures were used for the lung function testing. Forced Vital Capacity (FVC), Forced Expiratory Volume in 1 second (FEV₁) and the ratio of FEV₁ to FVC were determined. The chest radiographs were interpreted by an experienced radiologist. The lung function tests were interpreted by a respirologist. Dr. A. Kraut, a specialist in occupational and internal medicine, reviewed all of the reports and summarized the data.

Each participant was subsequently sent a letter informing them of the results of their chest radiograph and lung function tests and an explanation of the findings.

Results:

In total 43 individuals participated in the survey. Twenty eight individuals (65%) had participated in prior surveys and 15 (35%) participated for the first time. Approximately 86% of the participants were men. The participants were classified by job group. All of the participants were maintenance and trades workers or were managers who had worked in these areas. No participants in this round were academic or support staff. In the previous surveys in 2002 and 2004, approximately 50% of the participants were maintenance or trades workers or managers and the other 50% were academic or support staff. On average the workers were 50.4 +/− 8.4 years old and had begun working at the University 13.8 +/− 98.6 years before the survey. The
range of duration of time since beginning employment was two to 37 years. Twenty eight of the workers (63%) had been working for the University less than 15 years and 15 (37%) for longer than 15 years. Eight workers (18%) had worked for the university for at least 25 years, prior to the survey. The duration of time since beginning employment at the University is summarized in the accompanying table. No individual reported ever working on large jobs that involved disturbing asbestos while at the University. Thirty (70%) reported working on small jobs, which may have led to the disturbance of asbestos. Almost everyone, 42 individuals, reported potential contact with undisturbed asbestos at the University.

In each survey the number of participants has decreased from 228 in 2002 to 116 in 2004 to 70 in 2006 and 43 in the current survey. The survey of 2008 is difficult to interpret due to the small number of participants. The per cent age of individuals working in jobs with potential for asbestos exposure has increased over the time. In this survey 30 of the 43 workers (70%) reported working directly with asbestos while in previous surveys only 44% and 34% and 64% of the workers did. Thus it appears appropriately, that many individuals who do not have direct contact with asbestos are no longer participating in the surveillance program.

Of the 43 individuals who participated, fourteen declined to have a chest radiograph. Only two of the remaining 29 radiographs were reported as abnormal. These individual’s findings were not consistent with asbestos related effects. No radiograph was reported to show interstitial or pleural fibrosis which may be related to asbestos exposure.

All of the workers had pulmonary function testing. In 33 cases the results were reported as normal. Two individuals had obstruction in the larger airways and two in the smaller airways in their lung function. This is most commonly related to cigarette smoking or asthma. This type of change is not due to asbestos exposure. Six individuals had lung function testing consistent with mild restriction. In three of these cases the worker was of Asian origin and the lower per cent predicted in lung function that was observed may have been due to the use of Caucasian control values. One worker’s decrement could have been due to technical issues. Of the two remaining worker one had a chest radiograph change that could have influenced the PFT results. The final worker had no clear explanation for the changes observed in his lung function and full lung
function testing was recommended. Only one of these workers worked for the university for more than 15 years and none had chest radiograph findings suggestive of asbestos related disease. Two workers were contacted and further follow-up recommended.

**Conclusions:** No evidence of asbestos related diseases was identified in the survey population. No individual had evidence of asbestos related pleural fibrosis, the most common current finding of asbestos exposure. Although six workers did have changes in their lung function tests compatible with asbestos exposure, the remaining test results and history suggested that these findings were likely due to other causes. Over half of the workers who participated in this survey did not have a 15-year latency period from the start of their employment at the University to demonstrate asbestos related effects. Given that no workers are currently reported to require ongoing surveillance according to the provincial guideline, the university may wish to limit the survey to workers who have had a minimum of 15 years of potential exposure to asbestos to maximize the likelihood of finding abnormalities and minimize the number of chest radiographs that are being performed.
Table. Duration of time since the start of employment at the University of Manitoba of participants in the 2010 medical surveillance survey, in years.

<table>
<thead>
<tr>
<th>Duration of time since start of employment (years)</th>
<th>Number of Workers</th>
<th>Percentage of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 4.99</td>
<td>6</td>
<td>14.0</td>
</tr>
<tr>
<td>5.0 – 9.99</td>
<td>10</td>
<td>23.2</td>
</tr>
<tr>
<td>10.0 – 14.99</td>
<td>11</td>
<td>25.6</td>
</tr>
<tr>
<td>15.0 – 19.99</td>
<td>3</td>
<td>7.0</td>
</tr>
<tr>
<td>20.0 – 24.99</td>
<td>5</td>
<td>11.6</td>
</tr>
<tr>
<td>25.0 +</td>
<td>8</td>
<td>18.6</td>
</tr>
</tbody>
</table>