

FILE NAME: Johns-Manville (JMA)

DATE: 1967 Aug 25

DOC#: JMA079

DOCUMENT DESCRIPTION: Memo RE Asbestos and Cancer

American Mutual, 1967

042 DB

049 DB

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INFORMATION SERVICE

American Mutual Insurance Alliance

ACCIDENT & FIRE PREVENTION DEPARTMENT

EO. 67-1

INDUSTRIAL HYGIENE SERIES NO. 8 20 NORTH WACKER DRIVE • CHICAGO, ILLINOIS 60606

August 25, 1967

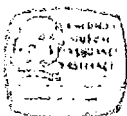
ASBESTOS AND CANCER

Asbestos has long been recognized as a material producing a hazard to the health of those who inhale its dust in excessive amounts over a long period of time. Extensive study of the relationship between degree and length of exposure and the development of the lung disease, asbestosis, has been documented by the U. S. Public Health Service in the textile industry (7).

During the past decade, more attention has been focused on the development of cancer of the lung and of other body areas following exposure to asbestos dust. Several of these studies strongly suggest the possibility that asbestos is a carcinogen, a cancer producing substance, (2, 3, 4, 5, 6, 10). However, very few of these cancer victims have been exposed to asbestos alone. Unfortunately, most of these studies are medical and statistical and there is no data respecting degree and length of exposure of those who have developed cancer.

One alarming feature of at least two of these reports (4, 10) is the fact that persons living in the vicinity of mines and mills processing asbestos have developed pleural or peritoneal mesotheliomas without any occupational exposure. Another report (7) describes two cases of pleural mesotheliomas with minimal or no asbestosis. One person living in an area of mines and mills is reported to have had no occupational exposure. These reports suggest the possibility that neighborhood exposures may be the source of cancer, but additional research is needed to evaluate these hazards.

While several of the published studies relating asbestos to lung cancer are impressive, the group of studies made by Selikoff et al, have probably had the greatest impact on the general public. The summary of one of their most recent studies is to be found below (5). In this study some 2,500 autopsies were reviewed and among them asbestosis was recorded in 26 cases. Of these 35, four died of pleural mesothelioma, three of peritoneal mesothelioma, and seven of bronchogenic carcinoma, an incidence of almost 5% per cent. This contrasts with another study of 43,000 autopsies in which 36 mesotheliomas were recorded for an autopsy incidence of 0.07 per cent. Other studies have



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revealed incidences of about 0.77 per cent mesotheliomas. In this particular study there were no mesotheliomas in the absence of asbestosis.

A second phase of the Selikoff study was concerned with the finding of asbestos particles in the lungs of victims of pleural mesothelioma. These particles were found in 12 of 43 cases. Asbestos is not easy to find in lung tissue and is often overlooked.

The third phase of this study was an analysis of 307 consecutive deaths among asbestos insulation workers, all members of unions in New York city and Newark, New Jersey. Of these 307 deaths, 53 were from bronchogenic carcinoma, four were pleural mesotheliomas, six were peritoneal mesotheliomas, 34 were gastrointestinal cancers, 27 were other neoplasias, 17 were asbestosis and 166 attributed to other causes of death. Somewhat over 3 per cent of the deaths were due to mesotheliomas, over 18 per cent were due to cancer of some variety.

In a comparative study made by the volunteer workers of the American Cancer Society involving over one million men and women, some 31,632 died. Of this number, only three died of mesothelioma of the pleura and none of mesothelioma of the peritoneum. Thus, it can be seen that an increased incidence of this particular type of cancer in the asbestos workers is quite significant.

SUMMARY

Based on the work of the U. S. Public Health Service (1), the American Conference of Governmental Industrial Hygienists has adopted a threshold limit value of five million particles per cubic foot (m.p.p.c.f.) (8). Until such time that more valid data is available concerning the exposure required to produce disease, whether cancer or asbestosis, a threshold limit of five million particles per cubic foot should be used to evaluate asbestos exposures.

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