INDUSTRIAL HYGIENE FOUNDATION OF AMERICA, INC.

MELLON INSTITUTE, 4400 FIFTH AVENUE

PITTSBURGH 13, PA.

May 21, 1956

PLAINTIFF'S EXHIBIT

ATI-217

Memorandum on

PROPOSED EPIDEMIOLOGICAL STUDY OF LUNG CANCER IN ASBESTOS WORKERS

for the

ASBESTOS TEXTILE INSTITUTE

INTRODUCTION

The rapidly increasing incidence of cancer of the lung has become a matter of concern to investigators in all branches of health as well as to the general public. Although it would appear to be inevitable that some cases would develop in any group of workers, its occurrence in persons who also had asbestosis has been specifically noted by a number of authors over the past twenty years. (Lynch and Smith, Angrist, Desmeules et al, Cartier, Gloyne, Merewether, Kennaway and Kennaway, Doll, and others.) Hueper, of the National Cancer Institute, U.S. Public Health Service, has stated that cases of lung cancer superimposed upon asbestosis now number about 600. Like many of the above authors, Hueper refers to 'asbestosis cancer' of the lung and claims a definite relationship between the two conditions. Although most of the attempts at correlation

Asbestos Textile Institute document ATI-217: Industrial Hygiene Foundation of America, Memorandum on Proposed...
Published by AsbestosClaims.Law
ACL Doc 21222 · Page 1 of 13
asbestosclaims.law/library/21222/1

have been limited to lung cancer and asbestosis, a connection with mere exposure to asbestos fiber and dust has been inferred. Therefore, it now appears that when lung cancer occurs in an asbestos worker, it may be looked upon as an occupational disease by some Workmen's Compensation Boards.

Because of these considerations and motivated by a desire to determine the true facts, the Asbestos Textile Institute, through its Air Hygiene Committee, approached Industrial Hygiene Foundation regarding the feasibility of a statistical and epidemiological study having as its objective to prove or disprove, if possible,

1. Whether there is a relationship between lung cancer and asbestosis, and

2. Whether a relationship exists between lung cancer and any considerable exposure to asbestos fiber and dust.

The representatives of the Air Hygiene Committee pointed out that only two to three thousand employees were engaged in textile production and because of this relatively small number, it was felt that a preliminary survey should be undertaken to find the extent and reliability of data before stating definitely that the larger study would be practical and productive.

AHD 0002910

ATI-000217_0002

RESULTS OF PRELIMINARY SURVEY

During the weeks of April 23 and May 7, 1956, visits were made to seven member plants of the Asbestos Textile Institute and conferences were held with representatives of management at each. In some cases, there was also an opportunity to meet the physician for the plant. The purpose was to determine the extent and availability of medical records and employment records, and the period of time covered by them. Total employment as well as the number of those engaged in textile manufacturing was ascertained and attention was given to the relative exposure of employees in different operations. At the same time, inquiry was made regarding life insurance records which might be useful in fixing the causes of deaths among the employed group. Each plant was questioned regarding the number of known cases of asbestosis and of lung cancer, if any. It can be assumed without investigation that official sources of vital statistics as they apply to the general population exist in all of the locations with which we are concerned.

As a result of this preliminary survey, it is apparent that considerable information is available or obtainable with respect to the textile workers and to others with potential exposure. For example,

1. Pre-employment records exist at all plants, in most for a considerable number of years.

2. Periodic x-rays of the chest are made at all but one plant.

Asbestos Textile Institute document ATI-217: Industrial Hygiene Foundation of America, Memorandum on Proposed... Published by AsbestosClaims.Law
ACL Doc 21222 · Page 3 of 13 asbestosclaims.law/library/21222/3

3. Records of employment can be studied for periods varying from six to 56 years.

4. All the plants except one have a group life insurance program which would provide data on causes of death.

5. Autopsy protocols are available on at least a limited number of lung cancer cases.

It would seem that at least 1300 textile workers have been employed under observable conditions for periods sufficiently long to give a total of no less than 15,000 person-years. From a statistical point of view, this should be an adequate basis on which to predict with 90% accuracy, providing the plant incidence is actually higher than that in the general population. In addition, this study would be considerably enhanced by virtue of the fact that comparable information will be at hand from a similar study to be made for the asbestos mining industry. Results from the latter will provide extremely valuable confirmatory evidence for deductions drawn from the present material.

PROPOSAL

Careful consideration of the type and probable reliability of available data permits the conclusion that a study of this problem in the asbestos textile industry is feasible, and should result in statistically valid deductions.

AHD 0002912

ATI-000217_0004

several methods of approach suggested themselves, and a final choice of method should depend upon more detailed study of the data which the preliminary survey has shown to exist. In general, however, it is suggested that as large as possible a group or cohort of workers who entered the industry at a specific time be selected and followed, through the use of existing records. The incidence of asbestosis in this group should be determined by studying the results of the periodic examinations, and incidence of lung cancer through records of the insurance carriers and official vital statistics. This method would approach the conditions of a controlled experiment and the information derived would be of great importance.

Following this, a comparison of the rates found in this group of workers and the incidence in the general population would be made. Experience for segments of the general population (selected so as to eliminate biases and control variables) would be obtained from study of official vital statistics records and from published reports regarding incidence of cancer of the lung. It is, of course, necessary to place considerable reliance upon death certificates regarding the diagnosis, but in most borderline cases it should be possible to refine the data by more extensive search. It would be helpful, also, if the group under study could be enlarged by the inclusion of workers who are exposed to asbestos fiber and dust even though they are not employed in the textile departments. It is our understanding that in some of the companies

AHD 0002913

ATI-000217_0005

employees have exposure in other areas, and a study of the records of workers in such areas would increase the value of the study.

This type of survey obviously necessitates detailed analysis of the work history, medical records, and insurance company experience as they relate to all workers presently employed, as well as those no longer employed but whose records are available. It will also require examination of insurance company records in all death claims with follow-up in each case in which cancer is a possible cause. In addition, it will be necessary to study vital statistics records for the areas in which the various plants are located. The incidence of lung cancer, although increasing rapidly, is still comparatively low, and for this reason, there is no substitute for the type of approach outlined if meaningful results are to be obtained.

It is anticipated that the field work for such a study would consume approximately six months, and analysis of the data, any necessary review, and preparation of the report, an additional six months. On this basis, cost of the study is estimated at $17,500, including travel and out-of-pocket expenses.

AHD 0002914

Asbestos Textile Institute document ATI-217: Industrial Hygiene Foundation of America, Memorandum on Proposed... Published by AsbestosClaims.Law
ACL Doc 21222 · Page 6 of 13 asbestosclaims.law/library/21222/6

NOTE: The following was dictated by DCB on May 16, 1955 for possible future reference re Asbestos Textile Institute

Calculations and Logic on Which a Prospectus to the Asbestos Textile Institute May be Based . . . .

The preliminary survey of the seven member companies of Asbestos Textile Institute reveals that approximately 1831 employees are exposed to asbestos in the manufacturing of textiles. In the same companies, there are 7547 employees total. Undoubtedly, there are some in addition to the textile workers who have exposure to asbestos. The figures for each company are tabulated in the file. (Table I).

Employment records of the various plants extend over varying times and these are also tabulated in Table I. Multiplying the number of "exposed" employees by the number of years for which records exist in the same company, we arrive at 51,485 man-years of observed exposure. Obviously, not all of the present "exposed" employees have been employed for the period covered by employment records and it will be necessary to check the records for actual exposure times.

However, if we consider only those employed at present, and multiply a figure representing the recorded employment [illegible] 20 years, we arrive at a figure of 15,525. This may serve as a possible benchmark of man-years of exposure in the present population.

AHD 0002915

Asbestos Textile Institute document ATI-217: Industrial Hygiene Foundation of America, Memorandum on Proposed... Published by AsbestosClaims.Law
ACL Doc 21222 · Page 7 of 13 asbestosclaims.law/library/21222/7

According to tables for the determination of sample size (Cutler, et al, American Journal of Public Health, Sept. 1954), a 93% assurance can be obtained with 12,500 person-years of observation (if the plant rate is three times as high as the general population).

Referring to the idea expressed above that there may be other employees with considerable exposure in these same companies, it would enhance the study considerably if all such employees could be included. Since the entire company holds membership in ATI, we can see no reason why records on these employees should not be included.

Admittedly, a study covering only two or three thousand employees will be on the borderline of validity. This is especially true since our preliminary survey indicated that only 86 cases of asbestosis and three cases of lung cancer were admitted by our contacts at the time of that survey. There are two considerations which may make this picture more favorable. The first is that the actual survey probably will reveal many more cases of both asbestosis and lung cancer. The second is that this smallsurvey will be greatly enhanced when it is considered along with the larger survey contemplated for the QAMA.

Asbestos Textile Institute document ATI-217: Industrial Hygiene Foundation of America, Memorandum on Proposed… Published by AsbestosClaims.Law
ACL Doc 21222 · Page 8 of 13 asbestosclaims.law/library/21222/8

1. Asten Hill Manufacturing Company, Philadelphia, Pa.

Contact: Mr. D. R. Holmes, General Superintendent

Pre-employment examinations are made on all employees before placement. Prior to July, 1955, these examinations were made by Dr. Maxwell White at his office. Since that time they have been made at Woman's Medical College. Dr. White's examinations are filed at the office of the company and date back to 1946. Records prior to that date are incomplete.

Periodic examinations, including physical examination and chest x-ray are done yearly on all employees. Occasionally, however, the x-ray is overlooked. Timed vital capacity and fluoroscopy are also included. The x-ray (11 by 14) is made at Woman's Medical College and the physical is done by Dr. White at the plant. Records are retained at the plant. These records are fairly complete as far back as 1950. In 1949 they were lost during moving and prior thereto are spotty except for 1943 and 1946.

Group life insurance covers all employees after 90 days; has been in effect since 1935; and is underwritten by Connecticut General Life Insurance Company, Broad and Chestnut Streets, Philadelphia, where all records are available including cause of death. The company's experience rating is normal or better. They pay no extra premium for occupational hazard.

I examined specimens of each type of examination and record. The pre-placement examination is minimal, very sketchy, and not signed by the physician. There is a report from Woman's Medical College on the yearly x-ray and vital capacity study. There are, in addition, numerous individual reports from Dr. Theodos on individual cases of asbestosis. I obtained a mimeographed copy of the routine examination done at Woman's Medical College Hospital.

Asbestos Textile Institute document ATI-217: Industrial Hygiene Foundation of America, Memorandum on Proposed... Published by AsbestosClaims.Law
ACL Doc 21222 · Page 9 of 13 asbestosclaims.law/library/21222/9

hospital records for all cases of possible asbestosis. Mr. Holmes was unable to find this report but will forward it to me. He does have a file of half-yearly reports on a small group of asbestotics. This file also contains one autopsy report.

Total employees in this plant equals 346, 313 of which are factory employees. Of the latter 263 are considered to work under conditions of exposure to asbestos fiber and dust. As of this date there are 21 known cases of asbestosis (all three stages). One case of lung cancer is known to have occurred over a period of 25 years that the company has been in business. This was a night superintendent, age 47, employed 20 years, who died 8/30/52.

2. American Asbestos Textile Corporation

Contact: Mr. Weber, Vice President and General Manager

Pre-employment examinations are made on all employees over the past three years. They are performed by Dr. E. Myers, Norristown, Pa., at his office. Records are kept there; reports, only, are filed in the plant. X-rays are made by Dr. Tomkins in Norristown. Periodic examinations, yearly, including physical and x-ray, have been performed for five years on everybody, including office workers. They are made by the same two physicians.

Employment records extend over six years of operation of this corporation. Some employees, however, have been here 25 or 26 years. Under the predecessor's companies (Philadelphia Asbestos Company) (American Asbestos Company), employment records exist on these people but no medical records.

There is no group life insurance plan. Vital statistics will have to be obtained from the public records.

Total employment equals 111, of which 8 are office workers. Of the remaining 103, 20 work in the management, shop, steel wool manufacture, etc., and are not exposed to asbestos. 83 remaining factory workers are exposed, of which approximately 47 are females.

AHD 0002918

Asbestos Textile Institute document ATI-217: Industrial Hygiene Foundation of America, Memorandum on Propose...
Published by AsbestosClaims.Law
ACL Doc 21222 · Page 10 of 13
asbestosclaims.law/library/21222/10

DEPARTMENT OF PREVENTATIVE MEDICINE
WOMAN'S MEDICAL COLLEGE HOSPITAL
Philadelphia, Pa.

PLAN II. PREPLACEMENT AND PERIODIC SCREENING EXAMINATIONS

1. History – medical and work.
2. Physical examination.
3. Chest roentgenegram* (miniature photofluorogram).
4. Timed vital capacity (pulmonary function test) on men engaged in dusty work or whose chest films suggest abnormality.
5. Vision tests (near and far acuities).
6. Urine tests (albumin and sugar).
7. Report of findings to individual and his personal physician.
8. Report of employability to employer. In instances in which persons are found to be unemployable, appointments with these persons will be made by the Dept. of Preventative Medicine, the situation will be explained and indicated steps for correction outlined. Emphasis will be placed on the good fortune of the individual in having applied for a job at a place where health inventories on applicants are paid for by the Company.
9. Reports to managment on health maintenance examinations will be confined to group reports unless infectious disease is discovered and the individuals infected refuse proper steps so that there may be a menace to fellow employees.

Charge: $15.00

*The Miniature film will be developed while the balance of the examination is conducted. If any abnormality is noted, a 14 x 17 film and fluoroscopy will be ordered (to be done by Dr. Jacob Vastine). The charge for this additional service will be $5.00

AHD 0002919

Asbestos Textile Institute document ATI-217: Industrial Hygiene Foundation of America, Memorandum on Propose...
Published by AsbestosClaims.Law
ACL Doc 21222 · Page 11 of 13
asbestosclaims.law/library/21222/11

Mr. Lucia Hill Dr. A. R. Heiss, Sr. Sgt.

Employment exams - Every employee upon employment.

Periodic exams - Every employee upon anniversary of his employment. Since July 1954 date of transfer.

Exit physical by Dr. Lucia or Asst. Dr. Hall. Last X-ray 1956 for Heiss and 2 years + for Hill.

Periodic yearly - both physical & X-ray. Doctor will send in X-ray. Copy of chemo test if X-ray. Need CC of physical copy also.

Physical by Dr. Lucia or Asst. Record in file. Records split for 1954 except X-ray. CC may suffice for placement info. Original X-ray + CC report from Dr. Lucia file KS C.

Heiss - Chest pain

Over all employees after 12 days in effect since 1954

AHD 0002920

ATI-000217_0012

Report by Illinois Textile

Council all employees for autopsies

The deaths were from May 4 to May 28.

The Illinois has file of two reports on a small group of asbestosis among Illinois Textile workers, autopsy report

Employment records lost in move to new plant 1945

(Insurance records cover 1935 to present)

Rating 343

Employees: Total: 346 Exposed: 263

Mortality (known): 21 as of this date (all autopsies)

Since cases first were noted in testing in Council has caused three deaths (one 3 years)

One case of lung cancer 25 yrs in Textile

2 Killed Dec 5/30/51

Right Supt. agent. Exp. 2 years

AHD 0002921

ATI-000217_0013

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