

293 men had first been exposed between the beginning of 1923 and the end of 1942. All of these men were successfully traced through Dec 31, 1962, and 262 of them were found to have died up to that time. Of the 262 deaths, seven occurred prior to the 20th anniversary of the man's first exposure to asbestos dust and 255 occurred after the 20th anniversary. Thus, of the 632 men, 370 were still living on Jan 1, 1963.

These 370 men were the subjects of the present investigation. Table 1 shows their age distribution as of Jan 1, 1963, and the lapsed time from first exposure up to that date. All of them have been traced, and 94 of them were found to have died during the four-year and four-month interval from Jan 1, 1963, to April 30, 1967.

Beginning in October 1962, we made arrangements to examine these men periodically, once every six to twelve months; the interval depended upon age and physical condition. The examinations include chest x-ray films as well as physical examination and cover past and present smoking habits, occupational history, medical history, and current physical complaints. Altogether, we have examined 338 (91.4±) of the men at least once and have repeatedly examined most of those who are still living.

Information on smoking habits was obtained by personal interview with the 338 men who were examined. Of the 32 men who were not examined, six told us their smoking habits by telephone and five gave us the information by mail. The local union secretaries (who personally knew these men well) ascertained the smoking habits of 18 men, and family members supplied the information on the remaining three men. This accounts for all of the 370 men. Table 2 shows their smoking habits on or about Jan 1, 1963, the men being classified by their ages on that date, even though some changed their smoking habits between 1963 and 1967.

Of the 370 men, 48 never smoked regularly, 39 smoked or had smoked pipes or cigars but never smoked cigarettes regularly, and 283 had smoked cigarettes regularly. Some of those with history of cigarette smoking also smoked pipes or cigars. Of the 283 with a history of regular cigarette smoking,

Table 1.—Subjects Classified by Age as of Jan 1, 1963, and by Years From First Occupational Exposure to Asbestos Dust up to Jan 1, 1963

Age, Yr	Total No. of Subjects	No. of Years Since First Exposure to Asbestos							No. of Deaths, 52 Mo
		20-24	25-29	30-34	35-39	40-44	45-49	50+	
35-39	2	2	...	...	...	...	...	...	...
40-44	13	12	1	...	...	...	...	...	1
45-49	32	17	2	13	...	...	...	...	2
50-54	109	...	1	80	28	...	...	...	18
55-59	60	...	1	16	34	8	1	...	11
60-64	42	...	1	3	11	19	8	...	16
65-69	49	...	...	1	10	18	18	2	17
70-74	38	...	...	...	3	12	6	17	18
75-79	21	...	...	...	...	1	5	15	8
80-84	4	...	...	...	...	1	1	2	3
Total	370	31	6	113	86	59	39	36	94

Table 2.—Subjects Classified by Age and by Smoking Habits on or about Jan 1, 1963

Age, Yr	Total No.	Never Smoked Regularly	Pipe, Cigar Only	Ex-cigarette Smokers*	Current Cigarette Smokers*			
					1-9 a Day	10-19 a Day	20-39 a Day	40+ a Day
35-39	2	1	...	1	...	...	...	...
40-44	13	2	...	2	...	...	5	4
45-49	32	2	1	5	...	...	12	12
50-54	109	12	6	26	3	5	33	24
55-59	60	6	5	16	...	3	20	10
60-64	42	7	4	15	1	...	11	4
65-69	49	6	8	17	...	4	9	5
70-74	38	7	7	12	1	4	4	3
75-79	21	3	7	6	...	1	3	1
80-84	4	2	1	1	...	...	...	...
Total	370	48	39	101	5	17	97	63

*Includes cigarette smokers who also smoked pipes or cigars.

101 were excigarette smokers, five currently smoked one to nine cigarettes a day, 17 smoked 10 to 19 cigarettes a day, 97 smoked 20 to 39 cigarettes a day, and 63 smoked 40 or more cigarettes a day.

The smoking habits of the 370 subjects were compared with the smoking habits of a large number of men selected from the general population.³ There were proportionally more cigarette smokers among the 370 subjects than were found in the general population sample; age was taken into consideration.

Causes of Death.—A copy of the death certificate was obtained for each of the 94 deaths. In addition, we examined hospital records, postmortem findings (41 cases), as well as the surgical and pathologic reports when surgery was performed (39 cases). We also reexamined histologic specimens. It was found that the death certificate was inaccurate in 14 instances. However, this did not alter the picture as much as might have been expected since there were several compensating errors. For example, in one instance the death certificate indicated bronchogenic carcinoma as the cause of death while a review of the histologic specimen showed that death was due to pleural mesothelioma; but in another instance exactly the reverse was found. Likewise, review in one instance resulted in changing the reported cause of death from bronchogenic carcinoma to cancer of the stomach with metastasis to the lungs while review in another instance resulted in exactly the opposite change. The 94 deaths were ascribed to the following causes: bronchogenic carcinoma, 24; pleural