

LUNG CANCER IN ASBESTOS WORKERS

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TABLE 5

NUMBERS OF MEN EMPLOYED FOR DIFFERENT PERIODS BEFORE 1933 AND NUMBERS KNOWN TO HAVE ASBESTOSIS AND LUNG CANCER IN ASSOCIATION WITH ASBESTOSIS DIVIDED BY TOTAL DURATION OF EMPLOYMENT IN A SCHEDULED AREA AND BY AGE

Total Length of Employment in "Scheduled Area" (Years)	Age at June 30, 1953, or at Death (Years)	Length of Employment before January 1, 1933									All Lengths of Employment before January 1, 1933		
		0-9 Years			10-14 Years			15+ Years			No. of Men	No. of Men with Asbestos	No. of Men with Cancer of Lung
		No. of Men	No. of Men with Asbestos	No. of Men with Cancer of Lung	No. of Men	No. of Men with Asbestos	No. of Men with Cancer of Lung	No. of Men	No. of Men with Asbestos	No. of Men with Cancer of Lung			
20-24	35-	1	—	—	1	1	—	0	—	—	2	1	—
	40-	4	—	—	1	1	—	0	—	—	5	1	—
	45-	7	1	—	0	0	—	1	1	1	8	2	—
	50-	3	2	—	3	3	1	3	3	2	9	8	1
	55-	3	3	—	2	1	—	0	0	0	7	4	0
	60-	3	1	—	1	1	—	1	1	1	5	3	0
	65-	2	0	—	0	—	—	1	1	1	3	1	0
	70-	0	0	—	0	—	—	1	1	—	1	1	1
25-29	35-	1	—	—	0	—	—	0	—	—	1	—	—
	40-	3	—	—	0	—	—	0	—	—	3	0	—
	45-	10	2	—	0	0	—	0	—	—	12	3	—
	50-	6	2	1	0	0	—	0	—	—	6	2	1
	55-	6	1	—	8	4	—	1	—	—	15	6	—
	60-	3	—	—	1	1	—	3	3	1	7	4	1
	65-	1	—	—	1	1	—	0	—	—	2	1	—
	70-	0	—	—	0	—	—	1	1	0	1	0	1
30-34	35-	2	—	—	0	—	—	0	—	—	2	0	—
	40-	2	—	—	0	—	—	0	—	—	2	0	—
	45-	1	—	—	1	—	—	2	—	—	3	0	—
	50-	1	—	—	1	—	—	3	2	1	5	2	1
	55-	0	—	—	0	—	—	2	1	—	3	1	—
35+	60-	0	—	—	0	—	—	0	—	—	0	0	—
	65-	0	—	—	0	—	—	1	—	—	1	0	—
	70-	0	—	—	0	—	—	1	—	—	1	0	—
	75-9	0	—	—	0	—	—	2	—	—	2	0	—
All lengths of employment in a "scheduled area" (20 yrs. +)	35-	1	—	—	1	1	—	0	—	—	2	1	—
	40-	7	—	—	1	1	—	0	—	—	8	1	—
	45-	19	3	—	2	3	—	1	1	—	22	5	—
	50-	11	4	1	8	5	1	3	3	1	24	10	4
	55-	12	4	—	11	5	0	5	3	2	28	12	1
	60-	7	1	—	2	2	—	7	5	1	16	8	1
	65-	3	0	—	1	1	—	3	1	1	7	2	2
	70-	0	0	—	0	—	—	3	2	0	3	2	0
	75-	1	1	—	0	—	—	1	1	—	2	2	1
	80-4	0	—	—	0	—	—	1	0	—	1	0	—
All men		61	13	1	26	14	3	26	16	7	113	43	11

been employed for 20 to 24 years in the areas in which they might be exposed to asbestos dust were found to have asbestosis and lung cancer. Since three men had worked for under 10 years in the pre-1933 conditions, three had worked for 10 to 14 years, and three had worked for 15 or more years, the expected number of cases in each of the pre-1933 employment groups would have been the same, i.e., $3 \times 3/9$, or 1. In fact, the numbers of cases found were 0, 1, and 2. The total numbers expected in each pre-1933 employment group are obtained by adding the numbers calculated for each of the age and total employment groups within it. The results are as follows:

The differences between the numbers of men observed and the numbers expected in each employment group, had the incidence of the conditions remained steady throughout, are statistically signi-

ficant (total asbestosis, $\chi^2 = 7.52$, $n = 2$, $P = 0.025$; asbestosis and lung cancer, $\chi^2 = 8.74$, $n = 2$, $P = 0.01^*$). They are highly so if the trend, that is,

	Length of Employment before January 1, 1933		
	Under 10 Years	10-14 Years	15 Years and Over
Total number of men with asbestosis	13	14	16
Number of men with asbestosis and lung cancer	1	3	7
Expected	21.9	10.3	10.6
Expected	5.5	2.6	3.1

* The expected numbers of lung cancer are small and the probability that the differences could arise by chance has consequently been somewhat, but not seriously, underestimated. If all men with more than 10 years pre-1933 employment are grouped together and Yates' correction made for small numbers, $\chi^2 = 5.82$, $n = 1$, $P = 0.02$.