PLAINTIFF'S EXHIBIT

UC-3327

ASBESTOS INTERNATIONAL ASSOCIATION

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68 GLOUCESTER PLACE, LONDON W1H 3HL, ENGLAND

MEMORANDUM

TO: MEDICAL ADVISORY PANEL

FROM: DIRECTOR GENERAL

OUR REF.: AIA/20/1/16/HAS

4 September 1984

Subject: Cohort Study of the causes of death among asbestos exposed repair shop workers - Ohlson et al (Orebo railway workshop workers)

Enclosed is an English translation of parts of this study including the Tables and Figures.

We also include a copy of the comments made by Dr K Browne.

for DIRECTOR GENERAL

01043

RECEIVED
SEP 24 1984
H. C. LEWINSOHN, M.D.

UCC 000813

Cape Industries PLC

114 Park Street London W1Y 4AB

30 AUG 1984

Memorandum to Sir Neville Stack

From Kevin Browne

Subject Orebo railway workshop workers study by Ohlson et al.

Date 28th August, 1984

This is an extremely good and valuable mortality study - one more piece in the epidemiological jigsaw. It shows increases in lung cancer appearing in workers exposed more than 25 years and after a latent period of more than 20 years with a suggestion of an increased gradient of risk in the higher exposures. It also shows definitely no increase in gastro-intestinal cancers.

I have only seen a very shortened translation of the original text, and therefore some of my comments may appear inappropriate in the light of the full text. However, these are the points to which attention should be drawn. Firstly, all the excess lung cancer deaths occurred in employees whose first exposure was before 1939 (table 6). It is true that most of the deaths occurred in this group because of the time lapse, but 5 deaths from lung cancer would still have been expected from post 1939 employees, whereas none have been observed. This effect is seen from another viewpoint in table 5; taking only men who had a minimum of 20 years since first exposure, and who had worked in areas of heaviest exposure, no increase in lung cancer risk is seen in the 10-25 years exposure category, and only in those who were exposed for more than 25 years (and were first exposed before 1939) was the risk increased. I am sure Dr. Ohlson and colleagues will have looked into this point and I would be very interested to know whether they have found any important differences, for instance in work practices, pre 1939 compared with post 1939.

In considering the significance of the increased lung cancer risk it is always desirable to have some information about the prevalence of asbestosis. My English text suggests that there probably was some. In the category of deaths from respiratory disease other than chronic obstructive in the tables, the SMR is not significantly raised, but one suspects that, bearing in mind the healthy worker effect shown and commented on elsewhere in the paper, this includes a small number of deaths in which asbestosis was a major contributory cause. The relatively small increase in lung cancer deaths despite a 50% incidence of pleural plaques, the small amount of asbestosis and 5 mesothelioma deaths (the same number as the excess of observed over expected lung cancer deaths in the whole cohort) give a pattern similar in many ways to that of the British dockyard workers.

KEVIN BROWNE

01044

UCC 000814

COHORT STUDY OF THE CAUSES OF DEATH AMONG ASBESTOS EXPOSED REPAIR SHOP WORKERS. PROJECT Nos. 79/342 and 81-1122 RESPECTIVELY.

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AIA/20/1/16/HAS
(translated on 27 6.'84)

TTS

No. 1239

RESUME

This sample study has investigated risk of lung cancer for 3442 asbestos exposed repair shop workers during the study period 1939 -1980. The study population was made up of collectively employed men, employed for a minimum of 3 weeks at the Swedish Railways main workshop in Orebro, where the repair of engines, motor carriages and passenger carriages takes place.

Asbestos has been used in the workshop as insulating material since 1902. Cumulative exposure for each sample member has been worked out on the basis of length of employment and dust contents for each department and year.

The life story has been researched in several steps, firstly through a search of the registers of National Insurance, county halls and church offices, of the NHI pension register, the regional hospitals secondary journal archives as well as the National Libraries address registers. 1053 had died, and the causes of death established through the SCBs register of causes of death. Only in 14 cases was the life story unknown, which gives a story percentage of the sample of 99.6%.

The total fatality for the entire sample was lower than expected as compared with the national average, SMR 0.82, whereas the relative risk for lung cancer was somewhat higher at SMR = 1.16. The total fatality as well as death caused by other forms of cancer was not affected by the length of employment. Through increased cumulative exposure it was established that the SMR for lung cancer increased by 0.27 for the lowest exposed to 1.62 for the highest exposed. Sample members, who at some time had been employed in departments, overhauling steam engines, have the highest excess fatality in lung cancer, SMR = 1.92 for members employed for more than 30 years.

The investigation therefore shows reasonable increase in risk for lung cancer. The risk can, however, be reckoned as trebled for the highest exposed, if it is taken into consideration that the sample's initial risk for lung cancer can have been substantially higher than for the country's men on average. The employment in workshops without contact with steam engine repairs has since the second world war not caused any significant increase in risk of lung cancer.

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BACKGROUND

Asbestos is a well known work environmental risk, which was noted already in the beginning of the 20th century. The number of scientific publications on the subject of the biological effects of asbestos fibres exceeds 3000 (1), but only a small number of epidemiological studies throw light on the risks from asbestos and cancer within groups exposed to asbestos during work. Information relating to the risk by different grades of exposure is only found in a dozen or so studies (2). The information on exposure is, however, scant and allows only rough evaluation of the connection between dosage and result.

As the conditions for exposure within industries, handling asbestos, have improved during recent years, the risk of future illness from dust in the lungs has decreased considerably, and the number of new cases of such illnesses can be expected to decrease steadily during the coming years. The risks of cancer illnesses, caused by asbestos, primarily lung cancer and mesothelioma, have therefore all the more come to the forefront.

In a noticeable American report the number of new cases of cancer, caused by asbestos, has been calculated for the period 1980-2030. These forecasts point to a steep increase and are based partly on information about the number of employees within industries, where exposure to asbestos is found, and partly on the fatality development in asbestos-related illnesses during past decades (3). The figures cannot be directly transposed to Swedish circumstances, but nevertheless they give a hint that the culmination of the fatality curve has not yet been reached. A doubtful factor in the calculations is that different types of asbestos and sizes of fibre seem to have different grades of illness-causing properties.

Several English investigations indicate that ~~Krysotil~~ Chrysotile (white asbestos), which has had a complete domineering share of the total consumption of asbestos, has less cancer causing properties than ~~amphibolus~~ amphibole asbestos types in the majority of production areas (4). The type of fibre seems for instance to be important to the risk of lung cancer. Even the type of industrial process has an influence on the health risks, which is shown in the very varied risk assessments in the literature. An investigation from an asbestos textile industry in South Carolina has thus proved high excess risks of lung cancer despite the fact that only ~~krysotil~~ Chrysotile was used there (5). The mechanical processing of fibres and the resulting fibre sizes can possibly explain such an increased pathogenesis. Such a hypothesis even has animal experimental support (6).

The purpose of this study has been to show the lung cancer risks from asbestos exposure in workshop industry with a variation in length of employment and various dust contents. During the development of the project work an evaluation of the various types of asbestos and their importance to health has stood out as significant. On the other hand the project has aimed at showing the differences in fatality patterns between the various employment samples and between short and long term employees.

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DISCUSSION

The studies show a reasonable increase in fatality from lung cancer within the sample compared with the expected values based on the national average. This fatality increases with the dust content in a regular pattern which is seen as an expression of a dose/response relationship between asbestos exposure and risk of lung cancer. During the discussion the use of national average for the calculation of expected values, the significance of smoking, and the validity of the ways of exposure will be discussed.

Expected values from the national average

The sample as a whole has a total fatality which only comes up to about 80% of the national average. Such a general below average fatality within work active groups is normally found in sample investigations and called "healthy worker effect" (17), but as a matter of fact means a failing validity in the comparison (20). The demand for a good health level at the time of employment has for long been a rule, which furthermore has diminished the comparison with national values.

The brittle comparison is shown in the SMR for lung cancer for the lowest exposure categories, which lie among 0.5. Amongst employees employed for a period under one year the especially significant below average fatality can be attributed to short-term employees who are later transferred to completely unexposed supervisory jobs. An even more important explanation to the general below average fatality can be the relatively low incidence rate for lung cancer in the borough of Orebro, which for the years 1975-1980 was 72% of the national average (21).

A maximum risk estimate of SMR = 1.92 (table 7) should therefore be adjusted upwards, allowing for the lower risk level for lung cancer, from which the sample started. Roughly calculated the highest exposure categories can therefore be said to have approx. three times as high a risk of lung cancer compared with unexposed Swedish Rail workshop employees.

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Smoking habits and lung cancer

The smoking habits of the sample are important to consider when the risk of lung cancer is discussed. During earlier decades smoking was prohibited in the departments. Information is, however, missing as to whether the smoking habits of the sample are different from the national average. Within a sample of employees at the end of the 1970s whose lung function was examined with regard to pleuraplaque, 36% stated that they had never smoked, which would be over and above the general population's proportion of "never" smokers.

Another measure of smoking habits during previous decades can be the fatality from chronical obstructive lung diseases, which mainly reflects the exposure to cigarette smoke. Tables 208 show a pronounced below average fatality in this diagnosis, which probably indicates that the sample as a whole during earlier decades had a higher proportion of non-smokers than the national average.

Asbestos exposure and smoking work together as risk factors for lung cancer in a way which is normally called multiple synergy (19). As the role of exposure to asbestos in the risk of lung cancer is evaluated, consideration should be given to this tendency to under evaluation, as the sample can be presumed to have been smoking less than the national average.

Measure of exposure and dose response

SMR for lung cancer is higher in the highest exposure category, as the categories are based on dust intensity (3 or 4 dust points) or cumulative dust exposure (point years) compared with the exposure measurement years of employment. Dose response reaction is therefore more distinct when the measurement for asbestos exposure is refined.

The comparatively low risk increases for lung cancer ought to be the result of a rather low-graded average exposure. The diagnosed illnesses of the respiratory organs, where chronical obstructive lung diseases are substracted, ought to reflect the risk for other asbestos related lung diseases apart from lung cancer. As is shown in tables 3-5 it seems that

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with increased exposure a slight increase in the fatality in the diagnosis takes place, which hardly would have been the case if the exposure to asbestos had been continuously low graded. Furthermore, the predominant pleuraplaque in a selected group of voluntary participants in a health control totalled approx. 50%.

Amphibole and serpentine asbestos

For data technical reasons the importance of various types of fibre to the risk of lung cancer has not been evaluated properly. However, the highest risk was ascertained for persons who at some time had worked with repairs to steam locomotives and who had been employed for minimum 30 years. Repairs to steam locomotives entail regular exposure to amphibole sorts of asbestos, which certainly are more carcinogenic than ordinary chrysotile. The interpretation was complicated by the fact that the repairs to steam locomotives also were highly dusty, wherefore the high dust contents in itself also can be an explanation for the high risk of lung cancer within this subsample. Five cases of mesothelioma have been found, which is a low figure compared with other samples exposed to different types of asbestos fibre. Three of the five cases had been exposed to amphibole dust from overhauls of steam locomotives, but in the other two cases no sure exposure of this kind could be demonstrated.

Sundry information:

A slight increase in the number of deaths from pancreas cancer has been observed amongst 15-30 year old employees. It is possible that a few cases of peritoneal mesotelium can be hidden under this diagnosis. The increased fatality in pancreas cancer is however not related to the length of asbestos exposure, and this lack of dose response connection means that the explanation to the increased fatality in pancreas cancer conceivably depends on other factors, or is haphazard. Within the group employed during 1930-1935 a lot of former shoe workers were found. In spite of possible exposure to petrol, no increased risk of leukemia could be observed within this group.

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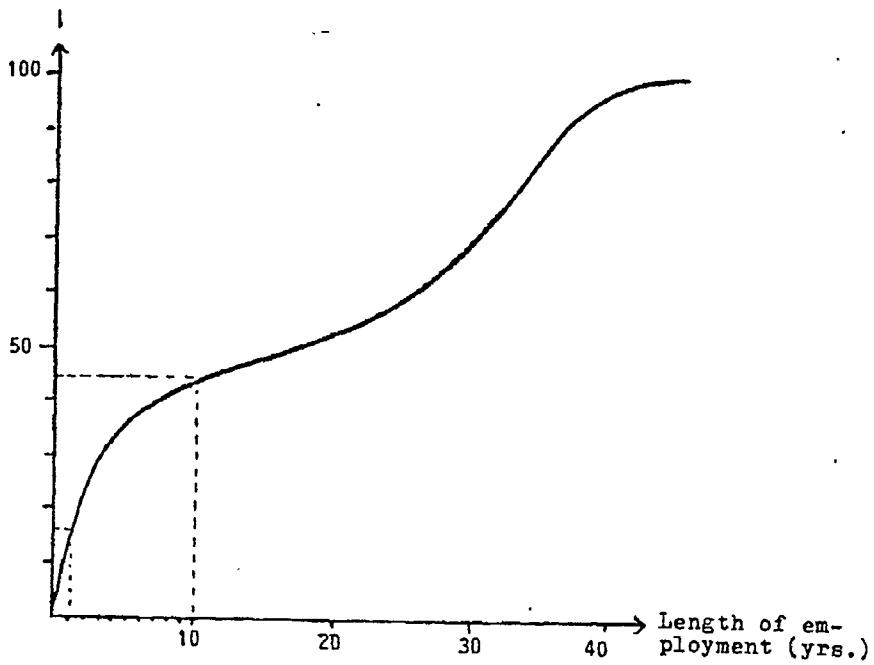
Conclusion

This sample investigation of 3297 workshop employees exposed to asbestos shows a comparatively low graded increase in risk of lung cancer in comparison with the national average. The risk can however be calculated as being approx. trebled for the highest exposed, when it is taken into consideration that the starting risk of lung cancer for the sample could have been considerably lower than the average for the country's male population. Relative risks by exposure to different types of fibre could not be calculated, but the results indicate that several decades of mixed exposure (steam locomotive repairs) have resulted in an approx. threefold increase in risk, whereas shorter periods of employment without contact with the highest dust intensities have not resulted in a significant increase in the risk of lung cancer. Employment in workshop activities without contact with steam locomotive repairs has since the second world war not resulted in any significant increase in the risk of lung cancer.

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Fig. 1. Distribution of length of employment within the CV-cohort

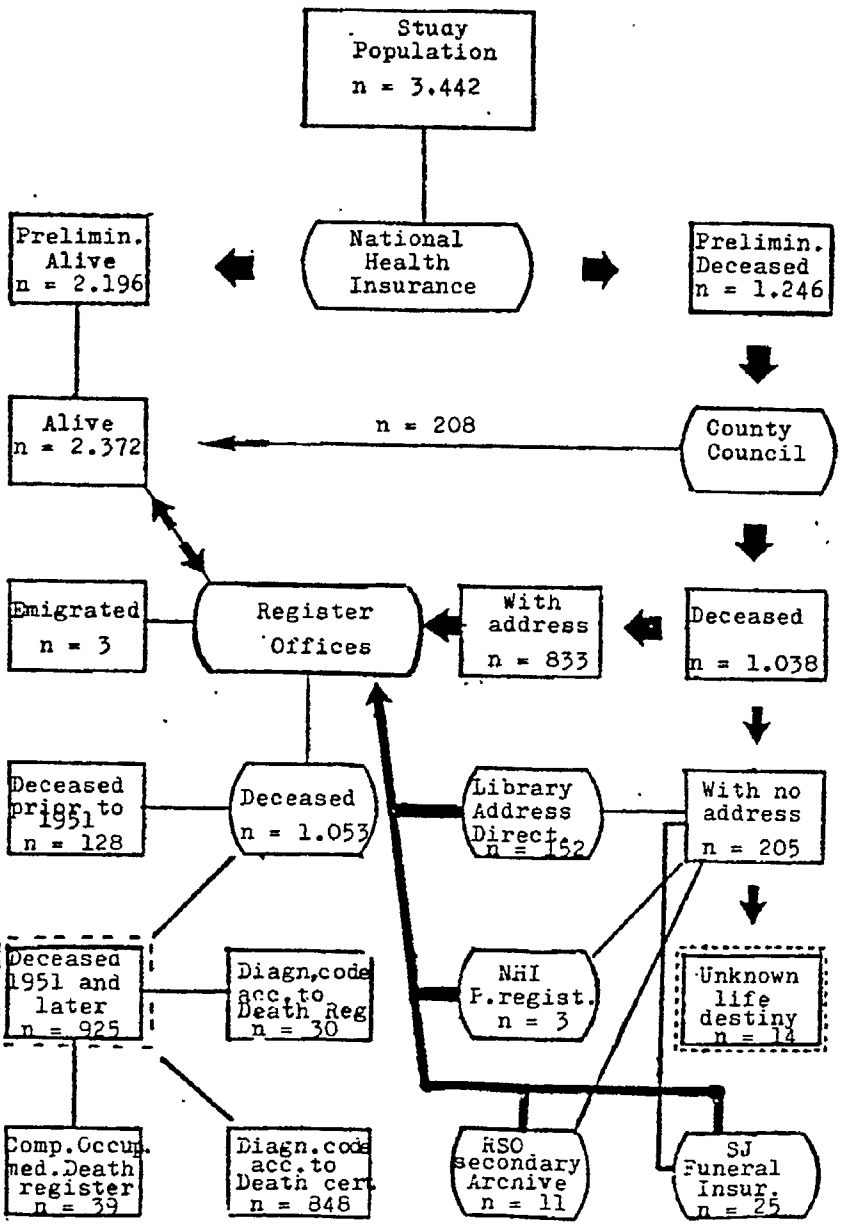


Median length of employment = 16 years

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Fig.2. Flow chart for the tracing of the life destiny of the study population's 3.442 persons.



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Table 1.

Estimate of the relationship between dust points and fibre contents in the air

Dust points		Fibres/ml Type value	Spread
0	-	0	0
1	-	0.5	0.5 - 1
2	-	3	1 - 5
3	-	7	5 - 10
4	-	15	10 - 20

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Table 2

Mortality/causes of death for the entire CV-cohort without latent time or age limit and sub-cohort with 20 yrs.latent time to 79 yrs.

	Total cohort without latent time			Sub-cohort demanding 20 yrs. latent time ≤ 79 years of age		
Cause of death	obs.	exp.	SMR	obs.	exp.	SMR
Total mortality	925	1132,6	0,82	586	727	0,81
All cancer	199	234,2	0,85	144	166	0,87
Lung cancer	37	31,8	1,16	27	25,7	1,05
Pancreas cancer	17	15,3	1,11	13	11,5	1,13
Gastro-intestinal cancer	41	71,6	0,57	30	51,1	0,59
Illness of circ.organs	489	538,9	0,91	310	339,9	0,91
Sciatical heart disease.	317	355,1	0,89	210	232,4	0,90
Chron. obstruct. lung diseases	6	16,8	0,36	5	11,3	0,44
Respir.organ diseases (excl. chron.obstr.dis.)	48	45,9	1,05	18	22,8	0,79
Violent death or poisoning	62	89,1	0,70	34	51,0	0,67

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Table 3

Mortality for various causes of death before 80 years of age by various lengths of employment and demand for 20 years latent time (if the length of employment has been shorter than 20 years).

Causes of death	Exposure category: < 2 år			2 - < 5 år			5 - < 15 år			15 - < 30 år			30 - år		
	obs.	exp.	SMR	obs.	exp.	SMR	obs.	exp.	SMR	obs.	exp.	SMR	obs.	exp.	SMR
Total mortality	42	83,5	0,50	20	26	0,77	43	59,1	0,73	166	148,0	1,12	315	410,4	0,77
Lung cancer	0	3,7	-	1	1,2	0,83	0	2,47	-	6	5,36	1,12	20	13,0	1,54
Gastro-intestinal cancer	0	4,94	-	1	1,56	0,64	2	3,7	0,54	10	10,47	0,96	17	30,4	0,56
Chron. obstruct. lung diseases	0	1,52	-	2	0,53	3,77	0	1,0	-	1	2,36	0,42	2	5,89	0,34
Respir.organ diseases (excl. chron.obstr. diseases)	0	1,98	-	1	0,57	1,75	0	1,52	-	6	4,57	1,31	11	14,2	0,77

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Table 4

Mortality for various causes of death before the age of 80 and at different point-years and a demanded 20 years latent time

Causes of death	Poin-years category: < 25 obs.	exp.	SMR	25 - < 50 obs.	exp.	SMR	50 - < 75 obs.	exp.	SMR	≥ 75 obs.	exp.	SMR
Total mortality	104	168,0	0,62	75	93,3	0,80	121	139,2	0,87	286	326,6	0,88
Lung cancer	2	7,48	0,27	2	3,74	0,53	6	4,48	1,34	17	10,0	1,62*
Gastro-intestinal cancer	3	10,17	0,29	6	6,22	0,96	7	10,14	0,69	14	24,55	0,57
Chron. obstruct. lung diseases	2	3,04	0,66	0	1,58	-	1	1,99	0,50	2	4,6	0,43
Respir.organ diseases (excl. chron.obstr. diseases)	1	3,94	0,25	1	2,55	0,39	5	4,71	1,06	11	11,7	0,94

* p 0,05

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Table 5

Mortality for various causes of death before the age of 80 at different number of years in highly-exposed work (= 3 dust points) and a demanded 20 years latent time.

	Number of years in highly-exposed work											
	< 5			5 - < 10			10 - < 25			25 -		
Causes of death	obs.	exp.	SMR	obs.	exp.	SMR	obs.	exp.	SMR	obs.	exp.	SMR
Total mortality	161	221	0,73	234	260	0,90	23	23,4	0,98	163	211,6	0,77
Lung cancer	4	8,6	0,47	9	8,8	1,02	1	1	1,0	13	6,9	1,89*
Gastro-intestinal cancer	8	14,6	0,55	12	18,8	0,64	2	1,5	1,3	8	15,5	0,52
Chron. obstruct. lung diseases	2	3,7	0,55	1	4,0	0,25	0	0,9	-	1	3,1	0,33
Respir.organ diseases (excl. chron.obstr. diseases)	1	6,3	0,16	9	8,5	1,06	2	1,4	1,4	7	7,1	0,99

* p = 0,05

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Table 6

Mortality for various causes of death before the age of 80 at different periods of employment and a demanded 20 years latent time.

Causes of death	New employees prior to 1939			Employed 1939 - 54			Employed after 1954			Terminated employment prior to 1970		
	obs.	exp.	SMR	obs.	exp.	SMR	obs.	exp.	SMR	obs.	exp.	SMR
Total mortality	432	483	0,89	69	107,5	0,64	6	8,1	0,74	526	591,2	0,89
Lung cancer	27	14,4	1,88*	0	4,7	-	0	0,37	-	25	19,1	1,31
Gastro-intestinal cancer	25	36,7	0,74	1	6,4	0,16	1	0,42	2,38	26	43,2	0,60
Chron. obstruct. lung diseases	2	6,8	0,29	1	1,9	0,53	1	0,15	6,5	4	8,7	0,46
Respir.organ diseases (excl. chron.obstr. diseases)	16	17,5	0,91	1	2,6	0,38	0	0,18	-	17	20,3	0,84

* $p < 0,05$ (1,23-2,73)

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Table 7

Mortality for various causes of death before the age of 80 for sub-cohort of those, who one time or another had worked with overhaul of steam locomotive boilers. Exposure categories acc.to length of employment and 20 years latent time.

Causes of death	Exposure category: < 5			5 - < 15			15 - < 30			30 -			Total		
			SMR			SMR			SMR			SMR	obs.	exp.	SMR
Total mortality	10	24,7	0,40	13	15,1	0,86	52	42,5	1,22	147	168,2	0,87	222	250,5	0,89
Lung cancer	1	1,10	0,91	0	0,58	-	3	1,64	1,83	10	5,21	1,92	14	8,53	1,64
Gastro-intestinal cancer	0	2,43	-	0	0,95	-	3	2,95	1,02	9	12,58	0,72	12	18,91	0,63
Chron. obstruct. lung diseases	0	0,43	-	0	0,23	-	0	0,68	-	1	2,38	0,42	1	3,72	0,27
Respir.organ diseases (excl. chron.obstr. diseases)	0	0,53	-	0	0,41	-	0	1,21	-	3	5,83	0,51	3	7,98	0,38

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Table 8

Mortality for various cases of death before the age of 80 for sub-cohort of those, who had never worked with overhaul of steam locomotive boilers. Exposure categories according to length of employment and a demanded 20 years latent time.

Causes of death	Exposure category: < 5			5 - < 15			15 - < 30			30 -			Total		
	obs.	exp.	SMR	obs.	exp.	SMR	obs.	exp.	SMR	obs.	exp.	SMR	obs.	exp.	SMR
Total mortality	52	84,8	0,61	30	44,0	0,68	114	105,5	1,08	168	242,2	0,69	364	476,5	0,76
Lung cancer	0	3,8	-	0	1,89	-	3	3,72	0,81	10	7,79	1,28	13	17,2	0,76
Gastro-intestinal cancer	1	4,07	0,25	2	2,75	0,73	7	7,52	0,93	8	17,82	0,45	18	32,16	0,56
Chron. obstruct. lung diseases	2	1,62	1,23	0	0,77	-	1	1,68	0,60	1	3,51	0,28	4	7,58	0,53
Respir.organ diseases (excl. chron.obstr. diseases)	1	2,02	0,50	0	1,11	-	6	3,36	1,79	8	8,37	0,96	15	14,86	1,01

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Table 9

The influence of different demands of latent time for the mortality amongst people employed 10 years at CV 79 years of age.

Causes of death	Latent 10 years obs.	exp.	SMR	20 years obs.	exp.	SMR	30 years ob.	exp.	SMR
Total mortality	524	621,9	0,84	502	585,1	0,86	438	491,7	0,89
Lung cancer	27	20,5	1,32	26	19,4	1,34	25	15,7	1,59
Gastro-intestinal cancer	28	44,6	0,62	27	42,6	0,63	24	36,6	0,66
Chron. obstruct. lung diseases	3	9,08	0,33	3	8,69	0,34	2	7,3	0,27
Respir.organ diseases (excl. chron.obstr. diseases)	17	20,1	0,85	17	19,5	0,87	16	17,6	0,91

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ASBESTOS INTERNATIONAL ASSOCIATION
(Limited by Guarantee)

68 GLOUCESTER PLACE, LONDON W1H 3HL

MEMORANDUM

TO: Member Associations

FROM: Director General

AIA/20/1/HAS

14 September 1984

Smoking and the Workplace

AIA Information Memorandum (AIM) No.2/83 dated 10 September 1984 'Smoking and the Workplace' is enclosed.

for Director General

cc Medical Advisory Panel / Executive Committee

01063

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AIA INFORMATION MEMORANDUM (AIM)
No. 2/83

SMOKING AND THE WORKPLACE

This AIM represents the views of the Medical Advisory Panel endorsed by the Executive Committee on the question of Smoking and the Workplace and is intended as a guideline for employers.

There is an adverse synergistic effect between smoking and asbestos. Therefore asbestos workers should not smoke.

A ban on smoking at home or in private cannot be enforced, but smoking in the workplace proper should be discouraged and progressively reduced until it is eliminated.

The benefits of not smoking in the workplace extend not only to the worker who normally smokes but also to his co-workers who do not smoke but who may otherwise be at risk as "passive smokers".

The example of management is of great importance and their implementation of a policy of non-smoking in the workplace is vital.

The programme of enlightenment of the worker concerning the hazards of smoking and the adverse synergistic effect between smoking and asbestos, is essential. This education needs to be given at an individual level by doctors and management, by written statements given to the worker at the time of enlistment, and by notices at the entrance to the plant and in the workplace; it should be reinforced to individuals and groups at every opportunity.

The pre-employment examination should also be used to educate the worker by personal discussion of the reasons why he should not smoke.

AIA/20/1/HAS

10 September 1984

C1661

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Table 8

Mortality for various cases of death before the age of 80 for sub-cohort of those, who had never worked with overhaul of steam locomotive boilers. Exposure categories according to length of employment and a demanded 20 years latent time.

Causes of death	Exposure category: < 5			5 - < 15			15 - < 30			30 -			Total		
	obs.	exp.	SMR	obs.	exp.	SMR	obs.	exp.	SMR	obs.	exp.	SMR	obs.	exp.	SMR
Total mortality	52	84,8	0,61	30	44,0	0,68	114	105,5	1,08	168	242,2	0,69	364	476,5	0,76
Lung cancer	0	3,8	-	0	1,89	-	3	3,72	0,81	10	7,79	1,28	13	17,2	0,76
Gastro-intestinal cancer	1	4,07	0,25	2	2,75	0,73	7	7,52	0,93	8	17,82	0,45	18	32,16	0,56
Chron. obstruct. lung diseases	2	1,62	1,23	0	0,77	-	1	1,68	0,60	1	3,51	0,28	4	7,58	0,53
Respir.organ diseases (excl. chron.obstr. diseases)	1	2,02	0,50	0	1,11	-	6	3,36	1,79	8	8,37	0,96	15	14,86	1,01

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Table 9

The influence of different demands of latent time for the mortality amongst people employed 10 years at CV 79 years of age.

Causes of death	Latent 10 years obs.	exp.	SMR	20 years obs.	exp.	SMR	30 years ob.	exp.	SMR
Total mortality	524	621,9	0,84	502	585,1	0,86	438	491,7	0,89
Lung cancer	27	20,5	1,32	26	19,4	1,34	25	15,7	1,59
Gastro-intestinal cancer	28	44,6	0,62	27	42,6	0,63	24	36,6	0,66
Chron. obstruct. lung diseases	3	9,08	0,33	3	8,69	0,34	2	7,3	0,27
Respir.organ diseases (excl. chron.obstr. diseases)	17	20,1	0,85	17	19,5	0,87	16	17,6	0,91

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Table 9

The influence of different demands of latent time for the mortality amongst people employed 10 years at CV 79 years of age.

Causes of death	Latent 10 years obs.	exp.	SMR	20 years obs.	exp.	SMR	30 years ob.	exp.	SMR
Total mortality	524	621,9	0,84	502	585,1	0,86	438	491,7	0,89
Lung cancer	27	20,5	1,32	26	19,4	1,34	25	15,7	1,59
Gastro-intestinal cancer	28	44,6	0,62	27	42,6	0,63	24	36,6	0,66
Chron. obstruct. lung diseases	3	9,08	0,33	3	8,69	0,34	2	7,3	0,27
Respir.organ diseases (excl. chron.obstr. diseases)	17	20,1	0,85	17	19,5	0,87	16	17,6	0,91

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