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Asbestos

Asbestos is a naturally occurring, fibrous material which is mined. Several forms are recognised but all are dangerous to health following inhalation of fibres. It is well known that there is a long latent period between exposure and development of disease. Although legislation has been introduced to safeguard the health of workers many were exposed beforehand. The numbers of cases of asbestos-related disease, particularly mesothelioma, will, therefore, continue to rise during the early 21st century because of past exposure.

This paper sets out the rise in the use of asbestos, its health effects, compensation arrangements for those adversely affected, and legislation to control exposure.

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Summary of main points

- Use of asbestos has been widespread in the industrialised world since the mid-nineteenth century, particularly in the shipbuilding and construction industries.
- Asbestos is a naturally occurring fibrous material which comes in several forms. All are hazardous to health, although the amphibole forms, principally amosite (brown) and crocidolite (blue), are more hazardous than chrysotile (white) asbestos.
- Asbestos-related diseases usually involve the lungs, and can result in severe disability and fatality. Decades may pass before the adverse effects on health of those exposed to asbestos become apparent.
- Because of this latent period the numbers of cases of asbestos-related diseases, most particularly malignant mesothelioma, will continue to rise.
- Ill health is usually related to occupational exposure. There is very little risk from undisturbed asbestos in good condition within the fabric of buildings.
- Health and safety legislation is in place to protect the worker from occupational exposure and to control handling and waste disposal.
- Importation, supply and use of brown and blue asbestos have been banned in the UK since the mid-1980s. Regulations banning white asbestos have been published and will come into effect on 24 November 1999. These implement a European Directive. There are derogations for safety critical applications where no suitable substitutes are available.
- Compensation for asbestos-related diseases is available through social security benefits and actions against the employer. An alternative compensation scheme is available to those who are unable to claim against an employer.

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I Introduction

A. History of use

Although asbestos has been valued since ancient times for its resistance to fire it was not until the mid 19th century that it achieved commercial importance. This occurred following its incorporation into the components of steam engines. With the materials available before that time the technical development of the steam engine had reached its limits. Further improvements awaited a breakthrough in materials technology. This was provided by asbestos which, mixed with rubber, proved to be just the right combination to make stronger internal components such as steam gaskets and packings.

In the 1860s an enterprising New York building contractor developed and patented an asbestos-based flame-resistant tar paper which became well known as an excellent fireproof roofing felt. This marked the beginning of the industry in asbestos-based construction products. Soon after, at the beginning of the 1900s, construction panels incorporating asbestos and cement were first used in buildings. This combination of asbestos and cement proved to be particularly successful and was made into a range of products including wall, roof and ceiling panels.

During the first half of the 20th century a multiplicity of products was manufactured which incorporated asbestos. It was used particularly in the new plastics industry which relied upon the addition of asbestos to reduce weight and improve thermal resistance. A notable example was floor tiles of vinyl-asbestos which became very popular.

By the outbreak of World War II the popularity of asbestos was so great that demand was on the verge of outstripping global supply. In the absence of adequate domestic reserves the superpowers became reliant upon vulnerable imports, and national restrictions were placed on non-essential uses to ensure that there was sufficient for the manufacture of the implements of war. Uses were wide-ranging including incorporation into ships' engines, army jeeps, parachute flares, bazooka shells and torpedoes.

Following World War II the boom in construction ensured that asbestos was in demand. The strength, durability and fireproof qualities of asbestos-cement products were greatly valued by structural engineers. The innovation of spray-on asbestos coating, which protected steel supports from fire-induced buckling, was a significant feature of new high-rise buildings. In short the unusual properties of asbestos led to its incorporation into thousands of products with an immense range of uses.

Although the link between asbestos and asbestosis had been known since the early decades of the 20th century and had led to the *Asbestos Industry Regulations* SI 1931/1140, it was not until the 1970s that the extent of the hazard to human health was fully documented. As a result of this the market for asbestos declined.

B. Types of asbestos

There are six types of asbestos: actinolite, amosite (also called grunerite or brown asbestos), anthophyllite, crocidolite (riebeckite or blue asbestos), tremolite and chrysotile (serpentine or white asbestos). These are all made up of long chain molecules of silicon and oxygen which are responsible for the fibrous nature of the material. Each has different physical (including colour) and chemical properties depending upon other elements such as calcium, magnesium or iron incorporated into the chemical structure.

Asbestos fibres are not only fireproof, but also stronger than steel and resilient. These properties make it suitable for a wide range of industrial applications, but in addition the strength and resilience are responsible for its hazardous nature to human health. Asbestos fibres can penetrate body tissue and become lodged, damaging delicate tissue, particularly in the lungs.

The first five types of asbestos mentioned above are members of a family of asbestos known as the amphiboles. These have the strongest and stiffest fibres which is probably the reason they are the most hazardous to health. The two most common amphiboles, amosite and crocidolite were commonly used mixed with insulation and cement in construction products until regulations prohibited their use. The other amphiboles, actinolite, anthophyllite and tremolite have never enjoyed commercial significance.

The sixth type of asbestos, chrysotile, is significantly different in composition from the amphibolic forms. Its structure is snake-like (hence its name "serpentine") and it is softer and more flexible than the amphiboles. These physical properties are probably the reason that chrysotile is less hazardous to health than the other forms of asbestos.

II Health effects of asbestos

A. Adverse effects of different forms of asbestos

Before adequate controls were introduced exposure to asbestos was greatest in those involved in mining or quarrying the material and those who handled raw fibres. Significant exposure also occurred in individuals employed in the manufacture and use of asbestos-containing products. Many workers engaged in ship-building in the 1940s and 1950s were exposed to asbestos, and it was also widely used in the building industry.

Health risks of asbestos are associated with the inhalation of dust carrying asbestos fibres and its dispersion within the lungs and other parts of the body. The adverse effects of asbestos are largely concentrated on the lungs, as fibres are inhaled. Asbestos fibres can affect the lining of the abdominal cavity and are thought to affect other organs as well. Asbestos fibres have been found, for example, in the tissues of stillborn infants.¹ Evidence that asbestos is the cause of problems in other organs is, however, disputed in some quarters, and this paper will concentrate on the main accepted medical conditions.

All forms of asbestos are recognised as being hazardous to health, but (as already mentioned) the chrysotile (white) form is less so than the amphiboles, crocidolite (blue) and amosite (brown). Exposure to asbestos is associated with increased incidences of a range of lung diseases including asbestosis (scarring of the lungs), lung cancer and mesothelioma (a cancer of the inner lining of the chest wall or abdominal cavity).

When asbestos fibres have been inhaled a large proportion will be exhaled or removed by the body's normal defence mechanisms. However, a proportion of them may stay in the lung for the rest of an individual's life. Unlike many occupational diseases there is a long latent period before disease becomes manifest. This may extend to 20 or 30 years, or, in the case of mesothelioma, as long as 40 or 50 years. Thus the current incidence of asbestos related disease is a measure of exposure to asbestos-laden dust many years ago.

Although there is no universally accepted explanation for the carcinogenicity of mineral fibres, the current view is that the major determinants of the carcinogenic potential are the dose of fibres received, the durability of the inhaled material and the dimensions of the fibres.² It is recognised from the results of numerous epidemiological studies, that amphiboles are more hazardous than chrysotile, and this is recognised in exposure limits set under UK legislation.

¹ Haque AK, Vrazel DM, Burau KD, Cooper SP, Downs T, "Is there transplacental transfer of asbestos? A study of 40 stillborn infants", *Pediatr Pathol Lab Med*, November-December 1996, pp 877-892

² *Hunter's Diseases of Occupations*. 8th edition 1994, p 643

Amphibole forms of asbestos consist of stiff needle-like non-soluble fibres that collect in the lungs, where they form asbestos bodies. Chrysotile consists of flexible curly white fibres. This difference in shape may enable the amphiboles to create more cell damage, and difference in fibre size and strength may result in persistence in the lungs, increasing the level of risk. Chrysotile is rapidly cleared from the lungs.³

Scientific opinion on the level of risk associated with chrysotile asbestos varies. There is uncertainty about the cancer risks of pure chrysotile at low levels of exposure. Contamination of chrysotile with amphibole fibres may account for part of this risk.⁴

In July 1996 an expert panel of INSERM, France's national biomedical research agency, released a report that concluded that all forms of asbestos are carcinogenic. This report was subsequently criticised in a scientific report commissioned under the auspices of the Royal Society of Canada (RSC), which was asked for a critical analysis of the INSERM report. This was used in Canada to suggest that INSERM had overestimated the dangers of asbestos. However, F Kenneth Hare, the chairman of the RSC panel and a professor emeritus at the University of Toronto, while stating that "although the French unquestionably have a problem, it isn't quite as grave as the [INSERM] report says", also emphasises that the panel agreed with much of the INSERM report, including its conclusion that all forms of asbestos are carcinogenic.⁵

Professor Julian Peto (Institute of Cancer Research, London) is reported in *The Lancet*:

"Chrysotile is rapidly cleared from the lungs and could be less dangerous than amphiboles for this reason, especially for short exposures. But prolonged exposure certainly causes lung cancer, and my view is that it is not worth taking the risk...Any exposure to chrysotile might increase the risk in anyone whose lungs already contain amphibole asbestos, such as most middle aged building workers."⁶

In addition, The World Health Organisation International Programme of Chemical Safety has recommended that safer substitutes for chrysotile should be used where possible. It concluded that:

"exposure to chrysotile asbestos poses increased risks for asbestosis, lung cancer and mesothelioma in a dose-dependent manner" and "no threshold has been identified for carcinogenic risk."⁷

³ "Scientific opinion on toxicity, Ecotoxicity and the Environment (CSTEE) - Opinion on chrysotile asbestos and candidate substitutes expressed at the fifth CSTEE plenary meeting, Brussels, 15 September 1998", http://europa.eu.int/comm/dg24/health/sc/sct/out17_en.html

⁴ McDonald JC, McDonald AD, "Chrysotile, tremolite and carcinogenicity", *Ann Occup Hyg*, December 1997, pp 699-705

⁵ "Canada and France fall out over the risks of asbestos", *Nature*, 31 January 1997

⁶ "Asbestos - the legacy lives on" *The Lancet*, 17 April 1999

⁷ *ibid*

B. Asbestos-related diseases

Inhalation of asbestos can give rise to several medical conditions. Asbestosis, a fibrous scarring of the lungs, is the condition most generally known to the public. It's incidence is beginning to fall following legislation to reduce occupational exposure to asbestos. However, incidence of the less well known malignant mesothelioma is likely to continue to increase because of the lengthy latent period before disease becomes apparent, and the lower level of exposure needed to cause disease.

Asbestosis, bilateral diffuse pleural thickening, carcinoma of the lung and mesothelioma are accepted as asbestos-related diseases for the purposes of Industrial Injuries Disablement Benefit. A fourth condition where pleural plaques are seen is not a cause of ill health in itself, but a sign that there has been exposure to asbestos.

1. Asbestosis

This is a type of pneumoconiosis - the term used for fibrosis or scarring of the spongy lung tissue caused by inhalation of mineral dust.⁸ It occurs in people exposed regularly over years to airborne asbestos. There is a high level of anxiety amongst the general public about exposure to asbestos. As a general rule asbestosis tends only to occur in people working regularly with asbestos for years. Small and occasional exposures are unlikely to entail an important risk.⁹

Although the disease normally occurs while the person is still exposed, it may first become apparent after exposure has ceased. These spongy lung tissues are responsible for extraction of oxygen from the air breathed and removal of carbon dioxide from the blood. When scarring occurs lung function becomes restricted and the individual suffers increasing shortness of breath and dry cough. The speed of progression and increase in disability is probably related to the dose of asbestos inhaled. Eventually the heart and lungs can fail (cardiopulmonary failure). Asbestosis increases the risk of lung cancer, and smoking appears to multiply this risk. About half of those with asbestosis die of either lung cancer or malignant mesothelioma.

2. Diffuse pleural thickening

The pleura is the membrane that lines the lungs and allows smooth movement during breathing. Any irritation, such as that produced by asbestos, increases the amount of lubricating (pleural) fluid. A 'pleural effusion' may form, and when this fluid is gradually reabsorbed the pleural membrane becomes thickened. This diffuse pleural thickening is often slowly progressive, causing increasing breathlessness. However, lack of progression ten or

⁸ Other types of pneumoconiosis include silicosis, due to inhalation of silica, and coal-worker's pneumoconiosis, due to inhalation of coal mine dust - a mixture of coal, kaolin, mica, silica and other minerals

⁹ *Oxford Textbook of Medicine*, 3rd Edition, 1996, p 2845

more years after the condition first became obvious may mean that the chances of further deterioration are not large. Those with diffuse pleural thickening are at risk of lung cancer or mesothelioma, although to a lesser extent than those with asbestosis.¹⁰

3. Pleural plaques

These are localised areas of pleural thickening which are usually asymptomatic and can be found accidentally on X-ray. Pleural plaques rarely cause disablement or themselves lead to other disease, but as a marker of previous exposure to asbestos, indicate that the individual may be at risk of the other conditions discussed here, and therefore they can cause anxiety.

4. Lung cancer

The association of asbestos with lung cancer (carcinoma of the bronchus) is firmly established; various studies have identified a risk of 4.9 to 7.3 times the risk for those who have not been exposed to asbestos.¹¹ It is generally accepted that if an individual has had sufficient exposure to asbestos to cause asbestosis or diffuse pleural thickening, this risk is increased about fivefold.

There is a much greater risk of cancer of the lung in those exposed to asbestos who also smoke cigarettes:

A 20 a day smoker has a risk of lung cancer about 15 times greater than that of a lifelong non-smoker. In addition if he has had asbestos exposure sufficient to cause asbestosis, this risk is multiplied fivefold, so he is about 75 times more likely to get lung cancer than a non-smoking non-asbestos exposed individual.¹²

In Norway it is illegal to employ a smoker in an asbestos-related job.¹³

However, opinions differ as to whether there is an increased risk for those who have been exposed to asbestos, but who have no obvious sign of asbestosis or diffuse pleural thickening.¹⁴ The Oxford Textbook of Medicine advises:

..individuals who do not smoke and who only have asbestos fittings in their houses can be reassured that their risks of the disease [lung cancer] are negligible.¹⁵

¹⁰ Dr John Moore-Gillon, Consultant Physician, St Bartholomew's and Royal London Hospitals and Chairman British Lung Foundation, *Asbestos-related diseases*, 1997

¹¹ *Oxford Textbook of Medicine*, 3rd Edition, 1996 p 2844

¹² Dr John Moore-Gillon, Consultant Physician, St Bartholomew's and Royal London Hospitals and Chairman British Lung Foundation, *Asbestos-related diseases*, 1997

¹³ *Oxford Textbook of Medicine*, 3rd Edition, 1996, p 2880

¹⁴ Dr John Moore-Gillon, Consultant Physician, St Bartholomew's and Royal London Hospitals and Chairman British Lung Foundation, *Asbestos-related diseases*, 1997

¹⁵ *Oxford Textbook of Medicine* 3rd Edition, 1996, p 2845

5. Malignant mesothelioma

This malignant tumour arises from the thin membrane called the *pleura* which surrounds the lungs although it may also very rarely arise from the *peritoneum* (the membrane lining the abdominal cavity and covering the abdominal organs) or the *pericardium* (the similar membrane which lines the heart).

It has been estimated that the annual incidence of developing a mesothelioma in persons with no history of asbestos exposure is about 1 per million.¹⁶ In the majority of cases there is good evidence of exposure to asbestos and the risk is proportional to the duration of exposure. The incidence is highest in those who have worked directly with asbestos. However, the degree of exposure necessary to cause mesothelioma is considerably less than that associated with asbestosis and lung cancer, and it may be a risk for people who may have had regular contact through washing workers dust-laden clothes, or those who have lived close to asbestos factories in the past.

In most cases the relevant exposure to asbestos occurs some 20 to 40 years before diagnosis and, most importantly, even trivial and unremembered exposure to amphiboles has been established as sufficient to result in mesothelioma.

Endemic pleural mesothelioma has been reported in certain areas of Turkey, Cyprus and Greece. Materials regarded as responsible were locally mined zeolite and other environmental asbestos minerals.¹⁷

Malignant mesothelioma is an invariably fatal disease, almost all cases dying within two years from the time of diagnosis.¹⁸ The average survival time from diagnosis is some three to twelve months. There are, however, a few patients who seem to have fairly indolent disease and may survive for periods of up to 5 years.¹⁹ The tumour may have been present for 10 - 12 years before becoming clinically evident.

This depressing outlook was emphasised by Dr John Moore-Gillon speaking at a conference on asbestos induced diseases in 1997:

People with mesothelioma all die, usually after a few months of increasing pain and breathlessness. There can be no condition which is more distressing to the patient, relative and to the completely powerless doctor as these individuals plough inexorably downhill.²⁰

¹⁶ *Oxford Textbook of Medicine*, 3rd, Edition, 1996

¹⁷ *ibid*

¹⁸ *British Medical Journal*, 7 September 1996

¹⁹ *Oxford Textbook of Medicine*, 3rd Edition, 1996

²⁰ Dr John Moore-Gillon, Consultant Physician, St Bartholomew's and Royal London Hospitals and Chairman British Lung Foundation, *Asbestos-related diseases*, 1997

C. Undisturbed asbestos in buildings

A review carried out by the Institute for Environment and Health (IEH) revealed a ubiquitous exposure of humans to background levels of asbestos and man-made mineral fibres. The report states:

There is ubiquitous exposure of humans to low levels of fibres, some of which are of completely natural origin (from rock outcrops), and the small burden of fibres resulting from this background exposure seems to be well tolerated. Exposure to fibres inside most dwellings is not significantly different from background exposure and so should not constitute a health risk. However, where fibrous materials are in poor condition (in the case of asbestos) or are disturbed or actively worked upon, higher fibre levels can be generated and exposures will be greater. Such elevated exposures are unlikely to add markedly to total lifetime 'ambient' exposure and are probably not significant in health terms, although some uncertainty remains with regard to amphibole asbestos and the associated risk of mesothelioma. To avoid the possibility of adverse health effects, high peak exposures, especially to asbestos fibres, should always be avoided.²¹

Asbestos content within buildings is widespread:

"This exposure occurs principally in: schools built before 1975; commercial buildings, such as offices, shops, restaurants, warehouses, factories and stores; flats, traditionally built homes; and hospitals. An estimated two thirds of commercial buildings, measured by floor area, contain asbestos material.²²

However, the small burden of fibres that results from this exposure seems to be well tolerated. The risks from well maintained structural asbestos, incorporated into the fabric of a building are very slight. Risks arise where there is disintegrated lagging, crumbling asbestos panels and work being carried out which disturbs the asbestos fabric. The IEH report stresses the potential for significant exposure to asbestos of those undertaking maintenance operations, and with regard to asbestos concludes:

- that existing asbestos in good condition must, where practical, be managed *in situ*;
- removal is justified where asbestos and fibre release is occurring, if removal results in a reduction in exposure;
- a general policy of asbestos removal would result in more, not less, exposure and is therefore strongly discouraged; and
- judgement of the management of asbestos materials must cover the perception of risk as well as the risk itself.²³

²¹ "Fibrous materials in the environment", *Institute for Environment and Health*, University of Leicester, January 1998, p 5

²² "Undisturbed asbestos and mineral fibres in buildings pose little risk to occupants", *Health and Safety Bulletin* 265, January 1998

²³ *ibid*

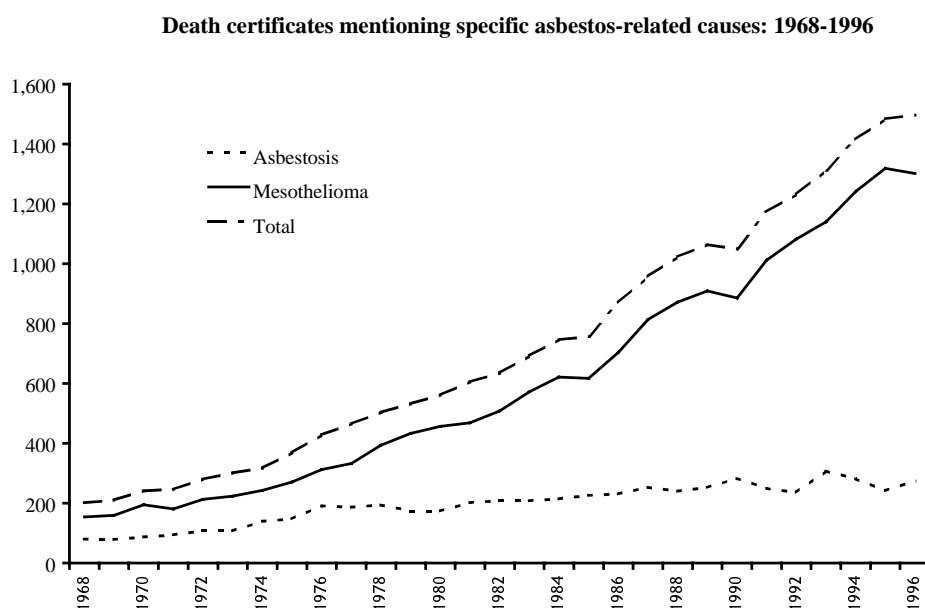
D. Asbestos substitutes

It is important that any product used as a substitute should have a high degree of safety.

A critical evaluation of the risks posed by substitute fibres has been undertaken by the Institute of Environment and Health (IEH) at the University of Leicester, and this was considered by the Department of Health's Committee on Carcinogenicity of Chemicals in Food, Consumer Products and the Environment (CoC) along with other evidence. CoC concluded that, for the most part, the carcinogenic risks posed by substitute fibres²⁴ were likely to be less than those posed by chrysotile.²⁵ This evidence has been examined in turn by the European Community's independent Scientific Committee on Toxicity, Ecotoxicity and Environment (CSTEE) which reached a consensus that with regard to carcinogenesis and fibrosis, the risk was likely to be lower, but warned that environmental control of substitute fibres should not be relaxed. It called for more research on the toxicology and epidemiology of the substitute fibres and the development of new, less respirable fibres.²⁶

E. Trends in Asbestos-related diseases (author Bryn Morgan)

The chart and Table 1 show the trend in the number of death certificates mentioning asbestosis and mesothelioma.



²⁴ cellulose, PVA and p-aramid

²⁵ UK Committee on the Carcinogenicity of Chemicals in Food, Consumer Products and the Environment (COC): Statement for Health and Safety Executive (HSE) on carcinogenic risk of three chrysotile substitutes, London July 1998

²⁶ "Safer substitutes pave way for UK asbestos ban", *Health and Safety Bulletin*, November 1998, pp 19-21

Table 1

Death certificates mentioning specified asbestos-related diseases: 1968-96

	Asbestosis ^(a)			Mesothelioma			Total
	Total	with lung cancer	with mesothelioma	Males	Females	Total	
1968	80	25	32	115	39	154	202
1969	78	24	27	123	36	159	210
1970	87	26	40	145	49	194	241
1971	94	32	29	141	40	181	246
1972	108	44	40	169	43	212	280
1973	107	43	30	182	42	224	301
1974	139	33	65	185	58	243	317
1975	147	49	50	219	52	271	368
1976	191	53	75	256	56	312	428
1977	186	59	53	272	60	332	465
1978	194	60	84	330	63	393	503
1979	174	45	75	341	92	433	532
1980	174	57	69	354	102	456	561
1981	202	77	65	395	73	468	605
1982	208	75	80	415	92	507	635
1983	208	58	88	477	95	572	692
1984	214	58	89	536	85	621	746
1985	226	66	86	532	85	617	757
1986	231	84	65	603	101	704	870
1987	253	57	110	708	106	814	957
1988	240	78	89	759	113	872	1,023
1989	252	74	97	774	135	909	1,064
1990	283	76	119	768	117	885	1,049
1991	249	57	86	862	149	1,011	1,174
1992	236	70	86	950	132	1,082	1,232
1993	307	70	135	995	145	1,140	1,312
1994	282	70	108	1,089	152	1,241	1,415
1995	242	62	76	1,139	179	1,318	1,484
1996	274	61	79	1,145	156	1,301	1,496

Notes: (a) Including asbestosis with mesothelioma

Sources: *Health and Safety Statistics: 1997/98, HSC*

There has been a steady upward trend in deaths from mesothelioma over the period shown. This trend is projected to increase for at least 15 years, and more likely 25, reaching a peak of up to 3,300 deaths annually.²⁷ During the same period the increase in asbestosis deaths has been less steep.

²⁷ "Continuing increase in mesothelioma mortality in Great Britain", *The Lancet*, 4 March 1995, pp 535-539

Among men, around two-thirds of mesothelioma deaths in the period 1993 to 1995 were in those aged 65 and over. A cohort analysis of age-specific death rates from mesothelioma does give some evidence of lower age-specific rates in those born after 1945.²⁸

Using data from 1979 to 1990, excluding 1981²⁹, production fitters, carpenters and plumbers & gas fitters were found to each account for four per cent or more of all male mesothelioma deaths. These groups were also found to have proportional mortality rates³⁰ significantly above those for other occupations.³¹ The job group at highest risk of mesothelioma was metal plate workers, with a rate over seven times the average.³²

Data on new Industrial Injuries Disablement Benefit claims are given in Table 2. These show upward trends in claims for both asbestosis and mesothelioma. An analysis of claims for disablement benefit between 1991 and 1993 found that 82% of diagnoses related to first exposure to asbestos prior to 1960.³³

Table 2

**Prescribed industrial diseases assessed by
Special Medical Boards:** New cases of
assessed disablement: 1986-96

	Diffuse mesothelioma	Asbestosis
1986	305	312
1987	399	247
1988	479	202
1989	441	368
1990	462	306
1991	519	330
1992	551	354
1993	608	418
1994	583	376
1995	685	427
1996	642	479
1997	553	344

Health and Safety Statistics: 1997/98, HSC

²⁸ *Occupational Health: Decennial Supplement, OPCS, Series DS no 10, Figure 9.7*

²⁹ Data from 1981 is unavailable.

³⁰ The proportional mortality rate is calculated by applying the proportion of deaths in the general population from a specific cause to the total number of deaths in an occupation group to calculate an expected number of deaths from that cause in the group. The actual number of deaths from the cause in that group is divided by this expected number and then multiplied by 100 to give the PMR.

³¹ The mesothelioma register database provides for only one occupation code to be recorded for each death. For males and single women this is always their own last full-time occupation

³² *Occupational Health: Decennial Supplement, OPCS, Series DS no 10, pp 135-136*

³³ *ibid* p 169

A recent article in the *British Journal of Cancer* compared mesothelioma deaths in a number of European countries. Of the countries for which figures were given, the Netherlands had the highest male standardised death rate of 23.9 per million population for the period 1990-1994. This was double the rate in Britain. France (14.2 per million), Switzerland (13.5 per million) and Italy (12.4 per million) also had higher rates than Britain's 12.0 per million.³⁴

³⁴ Peto et al, "The European mesothelioma epidemic", *British Journal of Cancer*, 1999, pp 666-672

III Compensation

A. When were the dangers of asbestos known?

The association between asbestos and fibrosis of the lungs was made during the early decades of the twentieth century and led to the introduction of regulations to control asbestos in 1931 (see section IV). The risks were initially thought to be limited to the textile industry.

The first clear epidemiological evidence of an increased risk of lung cancer from exposure to asbestos (in the textile industry) came in the early 1950s, and by 1960 it was recognised that over 50 per cent of men certified as suffering from asbestosis were dying from primary lung cancer.³⁵ By the end of the 1960s it was shown that lung cancer excess, in many circumstances of exposure to asbestos fibres, reflected an interactive effect of asbestos and tobacco smoking.³⁶

The existence of a malignant mesothelioma arising from the pleura was first recognised in the 1950s. During the 1960s much evidence accumulated indicating a strong link between exposure to asbestos and development of a mesothelioma.

B. Industrial Injuries Disablement Benefit (IIDB)

Industrial injuries benefits are payable in certain circumstances to those disabled as a result of a disease caused by an individual's job. The main benefit is disablement benefit, but individuals may also qualify for reduced earnings allowance or retirement allowance.

Industrial Injuries Disablement Benefit (IIDB) is payable to people disabled through a prescribed industrial injury and who were *employed* earners. A disease is prescribed for social security purposes if there is a recognised risk to workers in a particular occupation and the link between disease and occupation can reasonably be presumed or established in individual cases. IIDB is normally payable only if a person is at least 14 per cent disabled. In the case of asbestosis and diffuse mesothelioma, however, benefit can be obtained if disablement is assessed at one per cent or more.

Industrial Injuries Disablement Benefit can be claimed by people with one of the following four prescribed conditions whose work involved exposure to asbestos *after 4 July 1948*:³⁷

³⁵ *Hunter's Diseases of Occupations*, 8th edition, 1994, p 443

³⁶ *Hunter's Diseases of Occupations*, 8th edition, 1994, p 669

³⁷ Those with asbestosis, diffuse mesothelioma or primary carcinoma of the lung with evidence of asbestosis or diffuse pleural thickening *exposed before 5 July 1948* can claim an allowance under the Pneumoconiosis, Byssinosis and Miscellaneous Diseases Benefit Scheme

- D1 Pneumoconiosis (asbestosis);
- D3 Diffuse mesothelioma (primary neoplasm of the mesothelium of the pleura or of the pericardium or of the peritoneum);
- D8 Primary carcinoma of the lung where there is accompanying evidence of one or both of the following (a) asbestosis, (b) bilateral diffuse pleural thickening; and
- D9 Bilateral diffuse pleural thickening.³⁸

The occupations for which these conditions are prescribed are as follows:

- (a) working or handling asbestos, or any admixture of asbestos;
- (b) manufacture or repair of asbestos textiles or other articles containing or composed of asbestos;
- (c) cleaning of any machinery or plant used in any of the foregoing operations and of any chambers fixtures and appliances for the collection of asbestos dust; and
- (d) substantial exposure to dust arising from any of the foregoing operations.³⁹

C. Actions against the employer for asbestos-related diseases

In addition to being prescribed occupational diseases, asbestosis and mesothelioma may give rise to actions against the employer for breach of statutory duty and the common law duty of care (negligence). For example

Bryce v Swan Hunter Group [1987] 2 Lloyd's Rep 426 concerned a painter, employed for most of his working life by various shipbuilding employers, who died, aged 60, from mesothelioma. The defendant employers were held liable for breach of statutory duty for failing to take all practical measures to reduce exposure of employees to asbestos dust (under the Asbestos Regulations 1969), but not for breach of duty at common law because, applying the standards of knowledge of the time (1947), it could not be suggested that the defendants had to prevent the employee from all exposure to dangerous quantities of asbestos dust.⁴⁰

Businesses carrying out work involving asbestos may also be liable in negligence to members of the public who suffer foreseeable pulmonary (lung) injury, following exposure to airborne dust:

Margerson and Hancock v JW Roberts Ltd, The Times, 17 April 1996 where the defendant, a former factory owner, was held liable to two plaintiffs who contracted mesothelioma as a result of playing, when children, in a factory loading bay, where there were high concentrations of asbestos dust. As stated by Lord Lloyd in *Page v Smith, The Times, 12 May 1995*, 'the test in every case ought to be whether the defendant can reasonably foresee that his conduct will expose the plaintiff to the risk

³⁸ Social Security (Industrial Injuries)(Prescribed Diseases) Regulations 1985 (SI 1985 No 967), Sch 1 as amended by the Social Security (Industrial Injuries) (Miscellaneous Amendments) Regulations 1997 (SI No 801)

³⁹ *ibid*

⁴⁰ *Tolley's Health and Safety at Work Handbook 1999*, 11th edition, A 5032

of personal injury'. On this basis, the defendant was liable if, as here, he should reasonably have foreseen the risk of some pulmonary injury, not necessarily mesothelioma.⁴¹

The *Limitation Act 1980* provides a limit of three years for initiating action for damages in respect of personal injuries, applying from the date on which the cause of action is accrued or the date of knowledge (if later) of the person injured.⁴² However, in the case of asbestos claims, statutory time limits can be excluded if the court thinks it equitable to allow an action to proceed.⁴³

D. Ex-service personnel

In 1987 there was a non-retrospective repeal of the *Crown Proceedings Act 1947* which gave service personnel the right to claim common law compensation from the MoD for asbestos-related disease. Personnel who have developed symptoms since then, but as a result of exposure before 1987, are not so covered. Such people may feel a sense of injustice even though they are eligible for some benefits of a different type. The Government states that it is trying to resolve the issue, but this is proving complicated due to the interrelationship of various types of pension and compensation arrangements. This has been discussed in answer to a Parliamentary Question:

Asbestos (Compensation)

Mr. Andrew Dismore (Hendon): If he will make a statement on compensation arrangements for service personnel and former service personnel who suffer from asbestos-related conditions, contracted before the amendment of the *Crown Proceedings Act 1947*.

The Parliamentary Under-Secretary of State for Defence (Mr. John Spellar): Compensation arrangements for service personnel and former service personnel who suffer illness as a consequence of exposure to asbestos are the same as for those killed, those injured or those who develop a disease from any other cause related to their service. The non-retrospective repeal of the *Crown Proceedings Act 1947* on 15 May 1987 by the *Crown Proceedings (Armed Forces) Act 1987* gave service personnel the right to claim common law compensation from the Ministry of Defence. Compensation arrangements for former service personnel for illness caused before the repeal of the 1947 Act is paid in the form of a war pension and other allowances by the Department of Social Security's War Pensions Agency. The Government's arrangements for compensating former service personnel are broadly comparable with those for former civilian MOD employees.

Mr. Dismore: Is my hon. Friend aware of the sense of injustice felt by many who are now being diagnosed as suffering from asbestos-related conditions such as mesothelioma, which is invariably fatal and invariably painful, and results in the rapid onset of symptoms leading to death? Does my hon. Friend agree that sense of injustice

⁴¹ *Tolley's Health and Safety at Work Handbook 1999*, 11th edition, A 5032

⁴² *Limitation Act 1980*, s 11(4)

⁴³ *Limitation Act 1980*, s 33

is highlighted by the 1987 Act? People who were exposed to asbestos before 1987, but are experiencing symptoms now, may feel somewhat hard done by in comparison with people who have suffered other injuries since 1987.

As my hon. Friend knows, I have campaigned on this issue for some time, along with my hon. Friends the Members for Plymouth, Devonport (Mr. Jamieson) and for Portsmouth, North (Mr. Rapson). Will my hon. Friend try to devise a method of compensating, in particular, those who are suffering from the most disabling asbestos-related conditions?

Mr. Spellar: I recognise the difficulties and distress suffered by those who have contracted this awful disease, but my hon. Friend must accept that there are complicated interlocking relationships between the war pension, the war widow's pension and compensation arrangements--and, indeed, between asbestos-related and other diseases. The Ministry of Defence is considering those matters, but there are no easy answers.

I understand that my hon. Friend discussed the issue with the last Minister for the Armed Forces, and that my hon. Friend the current Minister will meet him soon to try to unravel some of the problems.⁴⁴

E. Payment of compensation under the Pneumoconiosis etc (Workers' Compensation) Act 1979

In the cases of asbestos related diseases prescribed for the purposes of social security benefits (D1, D3, D8 and D9),⁴⁵ where an employee has been entitled to disablement benefit and is unable to recover damages against an employer (for example, if the previous employer has become insolvent) he is entitled to claim payment of a lump sum under the *Pneumoconiosis etc. (Workers' Compensation) Act 1979*.⁴⁶ This statutory compensation resembles damages against an employer at common law and/or for breach of statutory duty, except that under this act fault (or negligence) need not be proved. There are no requirements that the employee must have worked in a particular industry to be able to claim compensation under the scheme. Coal miners are exempt from the scheme because they have their own statutory compensation scheme. Amounts payable in respect of specified diseases were laid down in regulations which came into force in August 1997.⁴⁷

Time limits which apply (12 months from the date when disablement benefit first became payable, or in the case of a claim by a dependent, within 12 months from the date of the worker's death⁴⁸) may be extended at the discretion of the Secretary of State.⁴⁹

⁴⁴ HC Deb 2 November 1998 c 545

⁴⁵ and other industrial diseases caused by dust

⁴⁶ *Pneumoconiosis etc (Workers' Compensation) Act 1979*, s 1 (1)

⁴⁷ Pneumoconiosis etc (Workers' Compensation) (Payment of Claims) Amendment Regulations 1997 (SI 1997 No 16910)

⁴⁸ Pneumoconiosis etc (Workers' Compensation) (Determination of Claims) Regulations 1985, Reg 4 (3)(4)

⁴⁹ *Tolley's Health and Safety at Work Handbook 1999*, 11th edition, C 6048-9

IV Legislation to control exposure

A. History

The first regulations controlling exposure to asbestos were the *Asbestos Industry Regulations* SI 1931/1140. At the time the risks of contracting lung cancer and mesothelioma from asbestos were not fully documented nor were the differing risks from the various types of asbestos. As a result these regulations, which were designed to protect asbestos textile workers from asbestosis, were limited and applied only to asbestos factories handling and processing raw fibre. Some workers, notably those associated with the thermal insulation industry, where the most hazardous type of asbestos, crocidolite, was handled did not fall under its control. This situation was remedied by the *Asbestos Regulations* SI 1969/690 which applied to a wider range of factories. It was not until the enactment of the *Health and Safety at Work etc Act 1974* (HSWA) and associated regulations that employees in all workplaces were protected.

B. Current legislation

1. Principal measures

There are general duties under the HSWA that require all employers to provide for the safety of their employees and non-employees who might be at risk from their undertaking. Section 2(1) of the Act states:

“It shall be the duty of every employer to ensure, so far as is reasonably practicable, the health, safety and welfare at work of all his employees”.

Sub-section 2(2)e states that the duty extends in particular to:

"The provision and maintenance of a working environment for his employees that is, so far as is reasonably practicable, safe, without risks to health, and adequate as regards facilities and arrangements for their welfare at work".

Section 3(1) states:

“It shall be the duty of every employer to conduct his undertaking in such a way as to ensure, so far as is reasonably practicable, that persons not in his employment who may be affected thereby are not exposed to risks to their health and safety”.

There are similar provisions in section 3(2) regarding the self-employed:

"It shall be the duty of every self employed person to conduct his undertaking in such a way as to ensure, so far as reasonably practicable, that he and other persons (not being his employees) who may be affected thereby are not exposed to risks to their health and safety".

In relation to asbestos this means preventing the exposure of employees and others or, where this is not reasonably practicable, reducing it to the lowest levels that are reasonably practicable.

Under the HSWA there are a range of regulations which set down specific statutory requirements for protection against exposure to asbestos. These are:

- *The Control of Asbestos at Work Regulations* SI 1987/2115 (in force from 1 March 1988) as amended by the *Control of Asbestos at Work (Amendment) Regulations* SI 1992/3068 (from 1 January 1993). These control all activities in which workers are exposed to asbestos dust and require that exposure is prevented or reduced to the lowest level reasonably practicable. Employers are obliged to assess the risk to employees and others affected by the work before the work begins to ensure effective control measures can be taken.
- *The Asbestos (Licensing) Regulations* SI 1983/1649 (in force from 1 August 1984). Under these, asbestos contractors are required to obtain a licence from the HSE to permit them to carry out work with asbestos insulation and coating, including the hazardous activities of asbestos stripping and removal. The regulations allow employers to undertake unlicensed work if it is in premises that they occupy and their own employees carry it out. Notice in writing to the enforcing authority is required 28 days in advance.
- *The Asbestos (Prohibitions) Regulations* SI 1992/3067 (in force from 1 January 1993). These ban the import, supply and use of all amphibole types of asbestos crocidolite (brown) and amosite (blue)- which are the most hazardous forms. They also ban asbestos spraying and some specific uses of chrysotile (white), which is now the only type of asbestos that can be supplied and used within the EU (but see later). These regulations give effect to the provisions of EU directive 91/659/EEC which restricts the range of asbestos products which may be manufactured, imported, supplied and used in the UK.

A wide ranging review of health and safety legislation was undertaken by the Health and Safety Commission (HSC) in 1993-4, the results of which were published in 1994. Following this the HSC published a discussion document about the future of asbestos regulations in May 1996.⁵⁰ In April 1998 a major consultative document was issued.^{51,52} The measures in this were designed to provide greater protection for workers from exposure to asbestos. The main proposals were a tightening of the *Control of Asbestos at Work Regulations* 1987 (CAW) and the *Asbestos*

⁵⁰ HSC Press Notice C30:96, *HSC Discussion Document on Options for Future of Lead and Asbestos Regulations*, 2 May 1996

⁵¹ HSC, Press Notice CD129, *Proposals for amendments to the Asbestos Regulations and Supporting Approved Codes of Practice*, April 1998

⁵² HSC Press Notice C17:98, *HSC Publishes Consultative Document on the Asbestos Regulations*, 17 April 1998

(Licensing) Regulations 1983 (ASLIC). The consultation period ended in June 1998 and changes to these two sets of regulations were implemented by the *Control of Asbestos at Work (Amendment) Regulations SI 1998/3235* and the *Asbestos (Licensing)(Amendment) Regulations SI 1998/3233*, both coming into force on 1 February 1999. The principal changes to CAW are:

- reductions of the action level and control limit for exposure to chrysotile (white asbestos);
- clarification of the extent of the application of CAW to make it plain that all workers who are liable to be exposed to asbestos are covered; and
- a requirement that respiratory protective equipment should be chosen to reduce exposure to a level that is as low as reasonably practicable.⁵³

The two Approved Codes of Practice (ACoPs) which provide guidance on CAW were also amended. Further changes to CAW include:

a requirement for laboratories which carry out asbestos-related analysis work to be accredited to the standard EN45001. HSC proposes a six-month lead in period for this requirement, to give laboratories time to apply to the United Kingdom Accreditation Service (UKAS) for formal accreditation and to give UKAS time to consider the applications. The regulations would retain the current requirement for a licence to work with asbestos coating, paints and finishing plasters.⁵⁴

The amendments to ASLIC:

bring asbestos insulating board into the scope of the regulations for the first time. This means that contractors would need to get a licence from the Health and Safety Executive (HSE) before they began any work on this material. HSC proposes that there will be a six-month lead in period for this requirement, which will provide people with the opportunity to apply for licenses and for HSE to consider the applications.⁵⁵

Contractors who need licences for the first time are advised to apply to HSE in good time. Queries on application for licences should be addressed to:- The Asbestos Licensing Unit, Belford House, Belford Road Edinburgh EH4 3UE. Applications for laboratories seeking accreditation should be addressed to - United Kingdom Accreditation Service, 21-27 High Street, Feltham, MIDDLESEX TW13 4UN.

At the same time it was also announced that the HSC has asked HSE to begin work to develop detailed proposals for regulations to require the identification and management of risks from asbestos in buildings.

⁵³ HSC Press Notice C47::98, *Important Advice for Laboratories and Others Working with Asbestos Insulation Board*, 12 November 1998

⁵⁴ *ibid*

⁵⁵ *ibid*

2. Labelling

Besides the regulations detailed above, the labelling of asbestos products used at work is required under the *Chemical (Hazard Information and Packaging for Supply) Regulations* SI 1992/3247, the *Carriage of Dangerous Goods by Road Regulations* SI 1996/2095 and the *Carriage of Dangerous Goods (Classification, Packaging and Labelling)* and *Use of Transportable Pressure Receptacles Regulations* SI 1996/2092.

3. Handling and fly-tipping

Controls on handling and fly-tipping exist under the *Special Waste Regulations* SI 1996/972 which were made under the *Environment Protection Act* 1990. These place duties on a person (consignor) who removes asbestos (which is classed as a special waste) from a building, the carrier of such waste and the person to whom it is delivered (consignee). The Environment Agency or Scottish Environment Protection Agency exercise overall control of a system of consignment notes on which are recorded details of the waste and its movements by the consignor, carrier and consignee. Each must keep a register of such notes for a specified period. Any person who disposes of asbestos on land must be licensed and record its location, keep the record until his waste management licence is revoked or surrendered, and then send it to the relevant Agency.

C. Proposed ban on white asbestos

As mentioned above controls on asbestos have increased since the mid 1980s. Importation, supply and use of crocidolite and amosite, and the supply and use of chrysotile for insulation have been prohibited since then. This prohibition was extended to certain other uses of chrysotile in 1992. Over the past few years the possibility of an EC-wide ban on all uses of chrysotile, except for a few that are considered essential, has become a topical issue. Currently white asbestos is used principally in brake linings, gaskets and seals for industrial plant, asbestos cement, and composite materials like textiles (e.g. asbestos gloves).

During a debate in 1997 on asbestos imports, the Parliamentary Under-Secretary of State for the Environment, Transport and the Regions (Angela Eagle) said:

Supply of the most hazardous forms of asbestos has already been banned, and we believe that the time has come to phase out remaining uses of the material altogether. There is a European Union proposal, which has been on the table for some years, for a complete ban on the supply of asbestos, with only limited derogations for genuinely essential uses. We must watch the derogations loophole carefully.

No agreement has yet been reached. It is interesting that, originally, the failure to reach agreement arose because France blocked support. Now, as my hon. Friend pointed out, the French have taken action and we believe that there is now greater urgency and a real chance to achieve an agreement that will ban white asbestos within Europe. Such a move will have our full and active support.⁵⁶

⁵⁶ HC Deb 18 June 1997 c 284

The French action referred to above was a ban (effective from 1 January 1997) on the manufacture, import and sale of products containing asbestos, including white asbestos.⁵⁷ According to a report in *Nature*, France is one of eight European countries to impose a total ban; the other countries to have done so are Germany, Denmark, Italy, Norway, Holland, Sweden, and Switzerland.⁵⁸ The only exceptions to the ban could be in relation to uses of white asbestos for which no safer alternative exists (brake linings of lorries and protective clothing of fire crews are possible examples). Establishing whether alternatives to white asbestos are safer was an area of difficulty which has slowed progress towards a total ban.⁵⁹

Canada is the world's largest exporter of asbestos. Before the ban, 6% of exports went to France. Concerned that other countries may follow suit, the Canadian Prime Minister (Jean Chrétien) reportedly indicated his intention to take the matter up with the World Trade Organisation.⁶⁰ The French ban followed the findings of an expert panel of their national biomedical research agency INSERM. A contrary report from the Royal Society of Canada indicated, according to Mr Chrétien, that "there were ways to use asbestos safely."⁶¹

A written answer in March 1998 set out the UK's position:

Mr. Hancock: To ask the Secretary of State for the Environment, Transport and the Regions what research he has commissioned into the protection of workers from white asbestos; what representations he has received from the Health and Safety Commission on such protection; and if he will make a statement.

Mr. Meacher: I have asked the Health and Safety Commission to develop proposals on a full range of regulatory measures to provide further protection for workers from all forms of asbestos. These measures include consideration of a mechanism and timetable for introducing a domestic ban on the import, supply and use of white asbestos. I will be making an announcement shortly on how the Government intend to proceed.⁶²

The issue is addressed further in the consultation document (CD), mentioned previously, which includes proposals to lower the workplace exposure limits for white asbestos.⁶³ However, in so far as a ban on imports is concerned, the CD notes linkages with single market legislation and adds:

⁵⁷ "France announces asbestos ban", *Financial Times*, 4 July 1996

⁵⁸ "France bans asbestos", *Nature*, 13 July 1996

⁵⁹ "Asbestos ban is delayed not forgotten", *Health and Safety Bulletin*, April 1998

⁶⁰ "Canada and France fall out over the risks of asbestos", *Nature*, 30 January 1997

⁶¹ *ibid*

⁶² HC Deb 3 March 1998 c 547W

⁶³ HSC Press Notice CD129:98, *Proposals for amendments to the Asbestos Regulations and Supporting Approved Codes of Practice*, April 1998

Until the EC [independent scientific] Committee has come to a robust scientific conclusion, HSC and Ministers consider there could be insurmountable legal problems in proceeding with a proposal to prohibit chrysotile [white asbestos]. Once the scientific evidence becomes clearer, HSC will act accordingly.

On 17 July 1998 *The Opinion of the Department of Health's Committee on Carcinogenicity* was published and reported to the HSC at its meeting on 21 July. This concluded that the most commonly used asbestos substitutes are safer than chrysotile. On the strength of this the HSC announced that it would be publishing a consultative document setting out regulatory proposals to further restrict the importation, supply and use of chrysotile:

HSC believes that, together with the proposals for tightening the Control of Asbestos at Work Regulations 1987 and the Asbestos (Licensing) Regulations 1983, which were the subject of consultation ending on 31 July, these proposals will significantly reduce future potential for asbestos related diseases.

In the light of *The Opinion of the Department of Health's Committee on Carcinogenicity*, the Health and Safety Executive (HSE) will move quickly to publicise the availability of safer substitute products. HSE will also pursue an active enforcement policy to ensure compliance with Regulation 8 (1)(a) of the Control of Asbestos at Work Regulations which require employers to substitute safer non-asbestos products where practicable to do so.⁶⁴

Duly, the HSC published the Consultative Document

The consultative document proposes prohibiting all importation, supply, and new and second-hand use in the workplace of all chrysotile-containing products, apart from a few essential uses where adequate substitute materials have not yet been developed.^{65,66}

The consultation period lasted for three months and on 16 December 1998 the HSC published guidance⁶⁷ outlining the available substitutes for chrysotile asbestos products:

The leaflet is aimed at importers, suppliers, manufacturers, buyers and installers of new or second-hand white asbestos products. It identifies the factors to be taken into account when considering substitution, the range of alternative materials that can be used and the sources of information available on substitutes.⁶⁸

⁶⁴ HSC Press Notice C37:98, *HSC Agree To Publish Consultative Document on Further Restrictions on Importation, Supply and Use of White Asbestos*, 18 August 1998

⁶⁵ HSC Press Notice CD140, *Proposals for Amendment to the Asbestos (Prohibitions) Regulations 1992*, September 1998

⁶⁶ HSC Press Notice C40:98, *HSC Publish Consultative Document on Further Restrictions on Importation, Supply and Use of White Asbestos*, 17 September 1998

⁶⁷ HSC Press Notice MISC155, *Substitutes for Chrysotile (White) Asbestos*, 16 December 1998

⁶⁸ HSC Press Notice C55:98, *HSC Publishes Guidance on Substitutes for White Asbestos*, 16 December 1998

The outcome of the consultation was that HSC decided to recommend a ban on the importation, supply and use of white asbestos:

The consultation exercise produced overwhelming support for regulations to introduce a ban - subject to derogations for safety critical applications where no suitable substitutes are available.

HSC's decision follows a meeting on 4 May 1999 when member states of the European Community voted at a Technical Committee meeting for an amendment to the Marketing and Use Directive to ban white asbestos by 2005 throughout Europe. Subject to adoption by the EU Commission, this allows member states to introduce domestic bans before 2005.

HSC has asked the Health and Safety Executive to finish drafting regulations for a domestic ban, reflecting both HSC's discussions today and points arising from the consultation. HSC expects to pass proposals for regulations to Ministers by the end of the month.

It is not yet clear when the EU Commission will formally adopt the amendment to the Directive. Following adoption, the amended Directive only comes into force on the 20th day following its publication in the Official Journal. A period of 30 days between adoption and publication in the Official Journal can be expected.⁶⁹

Progress on the issue was set out in written answers to parliamentary questions. The HSC approved draft regulations to implement a ban and Mr Meacher received advice from the HSC about the form of the draft regulations. Due to legal problems in formally making the regulations before the European Commission ratified the vote of the technical committee, Mr Meacher awaited their final decision before doing so.^{70,71,72}

The ratification took place on 27 July 1999⁷³ and led to the updating of Annex 1 of Directive 76/769/EEC on dangerous substances and preparations. The effect of this is to extend the European ban on asbestos products which are already in place:

...to chrysotile in asbestos cement products (mainly pipes and roofing), friction products (e.g. brake and clutch linings for heavy vehicles) and seals and gaskets as well as various specialist uses. The directive requires the ban to be brought fully into force across the EU by 1 January 2005 at the latest. Many Member States are likely to bring it in earlier or have already done so. The Directive does not require existing asbestos in buildings to be removed. The risk to health from asbestos in buildings is usually very low, if it remains undisturbed.(...)

⁶⁹ HSC Press Notice C019:99, *HSC Recommends Early Ban on White Asbestos*, 11 May 1999

⁷⁰ HC Deb 26 May 1999 cc 170-1W

⁷¹ HC Deb 17 June 1999 c 200W

⁷² HC Deb 1 July 1999 c 237W

⁷³ OJL 207, 6 August.1999, Directive 1999/77/EC

The only exception to the ban is for chrysotile in diaphragms which are used for electrolysis in certain chlorine plants. The diaphragms are a special case because they are the only current use of chrysotile asbestos for which it is not technically possible to substitute without creating a safety problem (ie.a risk of explosion). On the other hand, the risk to human health and the environment from the use of chrysotile is extremely low because it is undertaken in a closed system on-site. Diaphragms are not marketed. This derogation will be reviewed (on the basis of an independent scientific risk assessment) both during the planned general review of the Directive in 2003, and specifically again in 2008.⁷⁴

On 24 August 1999 the regulations which will implement the European Directive in Great Britain were announced and published. These are the *Asbestos (Prohibitions) (Amendment) Regulations SI 1999/2373* which will amend the *Asbestos (Prohibitions) Regulations SI 1992/3067*. They ban the importation, supply and use of chrysotile and will come into force on 24 November 1999:

The Regulations list a number of mostly time-limited derogations which permit the use of chrysotile in safety critical applications where there is no substitute currently available... The Schedule... lists eight separate instances of asbestos use where there is a derogation, allowing continued use for a limited time. These include: the use of compressed asbestos fibre (CAF) gaskets when used with particularly hazardous substances, where there is a derogation until January 2001 (January 2003 in cases of use with chlorine); and the use of asbestos for the manufacture of protective clothing used in very high temperatures, where there is a derogation until January 2005...

The supply of asbestos for purposes of disposal, and the importation, supply and use of chrysotile for the purposes of research, development or analysis will be allowed. The Regulations also allow the continued use of products containing chrysotile until they reach the end of their service life, if they were in use before the Regulations came into force.

The Regulations also ban the supply and use of second-hand asbestos cement products and of boards, tiles and panels which have been painted or covered with paints and textured plasters containing asbestos.⁷⁵

D. Prosecutions

Prosecutions under the HSWA and associated asbestos-related regulations are brought on a regular basis, and convictions occur in a significant number of cases. Details of the numbers of these for each of the past ten years and the regulations under which the informations were laid were set out in answer to a recent parliamentary question:⁷⁶

⁷⁴ EC Commission Press Release ip/99/572, 27 July 1999

⁷⁵ HSE Press Notice C035:99, *New regulations will ban white asbestos*, 24 August 1999

⁷⁶ HC Deb 7 December 1998 c 42W

	Information laid	Convictions
1987-88		
Asbestos (Licensing) Regulations 1983	32	27
Asbestos Regulations 1969	14	8
1988-89		
The Control of Asbestos at Work Regulations 1987	21	21
Asbestos (Licensing) Regulations 1983	14	13
Asbestos Regulations 1969	4	3
1989-90		
The Control of Asbestos at Work Regulations 1987	52	47
Asbestos (Licensing) Regulations 1983	14	7
Asbestos (Prohibitions) Amendments Regulation 1988	1	0
1990-91		
The Control of Asbestos at Work Regulations 1987	57	48
Asbestos (Licensing) Regulations 1983	7	7
1991-92		
The Control of Asbestos at Work Regulations 1987	47	39
Asbestos (Licensing) Regulations 1983	8	7
1992-93		
The Control of Asbestos at Work Regulations 1987	24	23
Asbestos (Licensing) Regulations 1983	3	3
1993-94		
The Control of Asbestos at Work Regulations 1987	31	20
Asbestos (Licensing) Regulations 1983	5	5
1994-95		
The Control of Asbestos at Work Regulations 1987	37	29
Asbestos (Licensing) Regulations 1983	7	6
1995-96		
The Control of Asbestos at Work Regulations 1987	51	33
Asbestos (Licensing) Regulations 1983	13	11
1996-97		
The Control Asbestos at Work Regulations 1987	37	31
Asbestos (Licensing) Regulations 1983	5	4
1997-98 (1)		
The Control of Asbestos at Work Regulations 1987	42	38
Asbestos (Licensing) Regulations 1983	3	3

(1) Provisional

Notes:

1. From 1996-97 data includes proceedings instituted by HSE's FOD, CHID (excluding explosives and pipelines) and NSD (conventional safety only).
2. The information HSE has from Local Authorities on proceedings they have taken under legislation for which HSE is responsible does not separately identify the asbestos-related prosecutions.

Although the HSWA provides a good framework for guidance and policing of health and safety issues at work, it is generally considered that the level of penalties imposed following successful prosecutions is too low. This has been noted recently in the House of Commons, particularly in relation to fines for asbestos-related offences:

Mr. Worthington: To ask the Secretary of State for the Environment, Transport and the Regions what action he takes to monitor the level of fines or other sanctions in asbestos-related court cases; and if he will make a statement.

Mr. Meacher: The Health and Safety Commission (HSC) keeps me informed of the level of penalties imposed for health and safety offences. The general level of penalties imposed for these crimes, including those related to asbestos, does not in my view or that of the HSC match their seriousness. However, I welcome the demonstration in a recent case related to asbestos removal in Birmingham that the courts are willing to imprison individuals who have committed serious health and safety offences. I also welcome the Court of Appeal judgement on 6 November which said that health and safety fines are too low. I hope this judgement will help the courts reflect the full gravity of such offences when they decide future sentences.⁷⁷

A ten minute rule Bill was introduced on 21 July 1999⁷⁸ by Harry Cohen, Member for Leyton and Wanstead. The debate raised similar concerns about the level of penalties. The Bill sought to:

create new offences relating to negligent or malicious practice involving work with asbestos; to increase the penalties available to the courts for existing offences; to confer new powers on the Health and Safety Executive; to amend the law with regard to the employment rights of health and safety representatives; and for connected purposes.⁷⁹

Penalties following recent court cases brought for asbestos-related offences, including the one in Birmingham mentioned in the above parliamentary question, indicate that attempts are being made to rectify the situation in some cases. Details of these follow.

1. First custodial sentence

The first ever custodial sentence for malpractice in relation to asbestos was passed on Roy Hill at Bristol Crown Court on 23 January 1996. He was convicted for breaches of the *Control of Asbestos at Work Regulations* 1987 and the *Asbestos (Licensing) Regulations* 1983 and received a sentence of three months.

⁷⁷ HC Deb 7 December 1998 c 43W

⁷⁸ HC Deb 21 July 1999 c 1197-1200

⁷⁹ Bill 147 1998-99

2. Second custodial sentence

The second custodial sentence, and the longest, was handed down by Birmingham Crown Court to Paul Anthony Evans on 4 September 1998. He received a sentence of nine months. This was part of a wider prosecution brought jointly by the HSE and the Environment Agency following an investigation by them both into the removal of asbestos from the premises of Rollco Screw and Rivet Co, of Blews Street, Aston, Birmingham during September 1997.^{80,81} During the case the court was told that:

Bernard and Phillip Rose had needed to renew their factory roof and, having obtained several quotes from contractors, chose a quote from James McNeill and Martyn Joyce.

They undertook to strip the roof of the asbestos and dispose of it, sub-contracting to Paul Evans to do the work – they hired skips in which to dump it but when those were full, leaving about 300 bags of asbestos behind, Paul Evans hired a van which was then used to dump the bags at different locations around the city.

Some of the bags... had been left open and others burst on inspection, releasing the asbestos fibres into the air...⁸²

Children were found playing with the asbestos, some of which had been dumped on a school playground and some near a supermarket:

It was also made clear that the Environment Agency, working closely with the city council and the emergency services, had taken urgent steps to find the children who had been playing with the asbestos but that no-one had come forward in response to appeals.⁸³

Evans admitted to 11 charges, eight relating to the dumping of asbestos around Birmingham and one to the keeping or disposing of waste incorrectly (under the *Environmental Protection Act 1990*). He also pleaded guilty to failing to ensure that people not employed by him were not exposed to health and safety risks (Section 3(1) of the HSWA) and carrying out work on asbestos without a licence (Section 3(1) of the *Asbestos (Licensing) Regulations 1983*).

Besides Evans, four other people were ordered to pay fines and costs totalling £98,000. Two of these were Martyn Joyce and James Anthony McNeil both of M&M Joyce Ltd. They pleaded guilty to failing to ensure the health and safety of their own employees (Section 2(1) of the HSWA) and others not in their employment while carrying out re-roofing at the Rollco premises, and undertaking work with asbestos without a licence. They also admitted other charges under the *Environmental Protection Act 1990* relating to the keeping or disposal of

⁸⁰ HSE Press Notice E198/98, *HSE Birmingham Asbestos Prosecution Result*, 4 September 1998

⁸¹ Environment Agency Press Notice Ea98132, *Prison and £98,000 penalty for Birmingham asbestos Dumping*, 7 October 1998

⁸² *ibid*

⁸³ *ibid*

controlled waste in a way that could pollute the environment or harm human health. They were each ordered to pay a £6,000 fine and £1,000 costs.

Two other convictions were of Bernard and Phillip Rose, Company Secretary and Managing Director respectively of Rollco Screw and Rivet Company for failing to ensure the health of the companies employees and those not in their employment. They were fined £6,000 plus £2,000 costs and £4,000 plus £2,000 costs respectively. Furthermore, Rollco Screw and Rivet Company was fined £40,000 plus £30,000 costs and had to pay an additional £50,000 to complete the asbestos removal work as well as losing six weeks' production and having its credit rating compromised.

3. Recent prosecution

The most recent significant prosecution was of two brothers, Neil Peter Medley and Andrew Craig Medley, who ran a company, Medleys Limited.⁸⁴ The HSE carried out a year-long investigation after a tip-off that the company had employed schoolboys to remove asbestos tiles from the ceiling of AE Turbines of Yeadon, Leeds. During its investigation HSE discovered that health and safety legislation had been ignored on a regular and consistent basis, and both employees and the public had been put at risk.

Neil Medley was ordered to do 240 hours community service and pay costs of £4,000 while his brother was ordered to do 120 hours and pay £2,000 costs.

The Environment Agency also carried out an investigation and charged the brothers in respect of disposal of asbestos from AE Turbines. Details of other Environment Agency prosecutions regarding asbestos are available in press notices on their web site.⁸⁵

A recurrent feature of these prosecutions is that many problems would be avoided if clients satisfied themselves that asbestos contractors were in possession of a valid licence before employing them. Once work is underway a client should ensure that the contractors follow their "method statement" or agreed method of work, and if there is any doubt specialist advice should be sought.

⁸⁴ HSE Press Notice E079/99, *Medley Brothers Sentenced for Asbestos Offences*, 16 April 1999

⁸⁵ <http://www.environment-agency.gov.uk>