

Asbestos related disease statistics – FAQ

What is asbestos?

Asbestos is a term used for a number of naturally occurring minerals that have crystallised to form long thin fibres and fibre bundles. Most common is the serpentine group, which includes chrysotile (white asbestos) and which has been the most frequently mined. A second asbestos group known as the amphiboles includes crocidolite (blue asbestos) and amosite (brown asbestos). The fibres have high tensile strength, and chemical, electrical and heat resistance - properties that made asbestos extremely useful as a building/insulation material. Asbestos has been used extensively throughout the world.

Why is it a problem?

Although asbestos is a hazardous material it can only pose a risk to health if the asbestos fibres become airborne and are then inhaled. Therefore, most asbestos materials pose little risk unless they are disturbed in some way that allows the fibres to be released into the atmosphere. Inhalation of asbestos fibres can lead to serious diseases such as lung cancer, mesothelioma (a cancer of the lining of the lungs or lower digestive tract) and asbestosis (a chronic fibrosis of the lungs). Many cases of these diseases occurring now are a result of exposure in industries which used asbestos extensively in the past. However, the fact that asbestos was also installed in many buildings means that a wider range of people still have the potential to be exposed – particularly building and maintenance workers. For this reason the latest revision of the Control of Asbestos at Work Regulations introduces (from May 2004) a new duty on those responsible for non-domestic premises to manage the asbestos contained in them.

Why was asbestos used so extensively if it is such a hazard?

The asbestos minerals ability to resist high temperatures is what made it so useful. Asbestos is ideal for any process involving the conservation or preservation of heat. The fibre gives protection against fire, corrosion, cold, acids, alkalis, electricity, noise, energy loss, vibration, salt water, frost, dust and vermin. For a long time the dangers of asbestos use were not widely understood. Asbestos related disease generally takes many years, some cases several decades, to develop after exposure. Thus, the scale of the health risks were only becoming known after asbestos had already been widely used and many people had already been exposed.

Who is currently at risk of being exposed to asbestos?

If disturbed, asbestos material may release asbestos fibres which can be inhaled into the lungs. The fibres can remain there for a long time as they are not easily destroyed or degraded. Asbestos material that would crumble easily if handled, or that has been sawed, scraped, or sanded into a powder, is more likely to create a health hazard. Persons most likely to be currently exposed to asbestos are those working in building and maintenance trades, and to a lesser extent those involved in asbestos removal (where risks potentially exist unless rigorous precautions are taken.)

What diseases are caused by asbestos exposure?

As asbestos fibres accumulate in the lungs, several types of diseases may occur.

- **Mesothelioma** is a cancer of the pleural and peritoneal lining. It is considered to be exclusively related to asbestos exposure. By the time it is diagnosed, it is almost always fatal. Mesothelioma has a long latency period (time between exposure and onset of disease) of at least 15 and sometimes as long as 60 years.
- **Asbestosis** is a scarring of the lung tissue. This scarring impairs the elasticity of the lung and hampers its ability to exchange gases. This leads to inadequate oxygen intake to the blood. Asbestosis restricts breathing leading to decreased lung volume and increased resistance in the airways. It is a slowly progressive disease with a latency period of 15 to 30 years.
- **Lung Cancer** is a malignant tumour of the bronchi covering. The tumour grows through surrounding tissue, invading and often obstructing air passages. Again, the disease has a long latency period – typically at least 20 years.
- Another disease associated with asbestos exposure is **diffuse pleural thickening** - a non-malignant disease in which the lining of the lung (pleura) becomes scarred. Small areas of scarring are called pleural plaques. It normally takes at least 10 years after the first exposure to develop asbestos related pleural disease. The disease is a chronic condition with no cure.

How many cases of asbestos related disease are there each year?

- There were 1862 deaths from mesothelioma in 2002.
- It is estimated that there are around as many asbestos related lung cancer deaths each year as mesotheliomas.
- Based on death certificates where asbestosis is described as being the underlying cause of death there were 97 deaths due to the disease in 2002. In 2003 there were 655 disablement benefit cases.
- There were 400 new cases of disablement benefit for diffuse pleural thickening in 2003.

What are the trends in the annual number of cases of asbestos related disease?

- The annual number of mesothelioma deaths has increased from 153 in 1968 to 1633 in 2000, 1860 in 2001, and 1862 in 2002. The latest projections suggest that the annual total number of mesothelioma deaths in Great Britain is estimated to peak at around 1950 to 2450 deaths some time between 2011 and 2015.
- The annual number of new cases of asbestosis according to the Department of Work and Pensions (DWP) Industrial Injuries Scheme (IIS) (which compensates workers for prescribed occupational diseases) has risen erratically, but rather strongly since the early 1980s, reaching the current level of 655 in 2003. This is likely to be an underestimate of the total number of cases.
- In heavily asbestos exposed populations there have typically been at least as many, sometimes up to five times as many, excess lung cancers as there have been mesotheliomas. The ratio depends on a range of factors so one cannot be too precise about the overall ratio for Great Britain. However, the fact that an appreciable number of mesotheliomas have occurred in workers other than the most heavily exposed, along with the results of other research of wider populations, suggests that for Great Britain as a whole the ratio is at the bottom of the range of 1-5 suggested by epidemiological studies of specific

exposed populations. Also, since smoking is thought to interact with asbestos exposure in the causation of lung cancer, as exposure levels continue to fall in the future the ratio of lung cancers to mesotheliomas is likely to decrease. This is because a higher proportion of mesotheliomas will be generated by low exposure levels (meaning fewer lung cancers per mesothelioma) and because smoking levels have fallen since the 1960s.

- The trend in diffuse pleural thickening has increased over recent years, although this may be partly or wholly explained by the acceptance of claims under the IIS scheme for unilateral (affecting only one lung) cases and other changes in data collection methods.

How long is the number of cases of asbestos related disease likely to continue to increase?

The peak of asbestos exposure in Great Britain is thought to have been around the mid to late 1960s. The annual number of mesothelioma deaths is predicted to continue to rise until it reaches an estimated peak of around 1950 to 2450 deaths some time between 2011 and 2015.

Which Occupations have the highest risk of exposure to asbestos?

Based on the deaths from 1980 – 2000 the ten occupations found to have the highest risk of mesothelioma for males were Metal Plate Workers, Vehicle Body Builders, Plumbers and Gas Fitters, Carpenters, Electricians, Sheet Metal Workers, Electrical Plant Operators, Production Fitters, Construction Workers, and Electrical Engineers. Because of the long latency period of mesothelioma (between 15 and 60 years) these results generally relate to exposures before the 1980s. These and other high risk occupations can generally be associated with three broad areas of past asbestos use: shipbuilding, railway carriage and locomotive building, and the installation of lagging or other insulation materials in buildings or industrial plant. However, over 25% of those dying from mesothelioma had worked in the building or maintenance industry, an area of exposure we cannot be sure has been eliminated. For further information see: <http://www.hse.gov.uk/statistics/causdis/occ8000.pdf>

What is being done to reduce risks from asbestos?

Much has been done to control the risk from asbestos. The use, supply and importation of asbestos and asbestos products has been banned for all but a few exceptions by the Asbestos (Prohibition) Regulations. Work with asbestos generally requires a licence and the use of strict control measures, including personal protective equipment such as respirators. The fact that a wide range of people now have the potential to be exposed to asbestos – particularly workers involved in building maintenance – led to the latest revision of the Control of Asbestos at Work Regulations introducing (from May 2004) a duty on those responsible for commercial premises to manage the asbestos contained in them.

My local/unitary authority area was identified as having a high risk of mesothelioma. Does this mean there is a problem in my area or that I am at higher risk of being exposed to asbestos?

High-risk areas tend to be those containing, or near to, industrial sites where asbestos was used extensively in the past – for example, shipyards, asbestos manufacturing factories and railway engineering works. This will usually mean that the area has a higher proportion of people who have worked in these industries than the average for

the country, and excess mesotheliomas are likely to be amongst people who have worked in them. In some cases there may have been a general environmental risk in places close to these sites in the past. Individual risk has more to do with occupation rather than geographical location of residence. Nowadays, those working in building maintenance trades are likely to be at highest risk.

The number of mesotheliomas in my local/unitary authority area increased relatively more rapidly than the number for Great Britain as a whole. Does this mean my area has an asbestos problem?

This most likely means that your area had a relatively low number of mesotheliomas. The geographical distribution of mesothelioma deaths is affected by the fact that deaths certificates (upon which statistics are based) only record the last address of residence. Thus people may have had heavy exposures to asbestos in the past in the traditional high-risk industries located within certain geographical areas, and then moved to areas of a relatively lower risk before getting mesothelioma. Also, the effect of the risk of more general exposures across a wider range of occupations (eg exposure to maintenance workers in buildings) is likely to affect all geographical areas and is thus likely to be most noticeable in those that have traditionally been of lowest risk.

My occupation was identified as high risk. Does this mean that I should be worried about developing asbestos related disease?

This doesn't necessarily mean all workers in the occupation have a high risk. It does mean that it is likely that a higher proportion of workers in that occupation will have been exposed to asbestos in the past. However, because of the long latency period of mesothelioma and the fact that death certificates (upon which statistics are based) only record the last occupation of the deceased, the occupation recorded may not be the one that resulted in the asbestos exposure. Consequently, part of the risk for a given occupation may be because workers exposed in other jobs have moved into this line of work.

How do the risks from exposure to different kinds of asbestos differ?

Though chrysotile (white asbestos) has been used most widely the greater potency of amphibole (blue and brown) asbestos is generally recognised. A recent scientific paper produced by HSE estimated the risk of mesothelioma and lung cancer by asbestos fibre type for a range of different exposure scenarios. This analysis suggests that on average blue asbestos has a risk about 500 times that of white asbestos for mesothelioma and 10-50 times as high for lung cancer. The equivalent risk ratio for brown asbestos is 100 for mesothelioma and the same as blue (10-50) for lung cancer. However, no type of asbestos exposure is free of risk, particularly as invariably the asbestos types were mixed to enhance the properties for the materials produced.

Is there a safe level of exposure below which there is no risk?

Mesothelioma

There is a lack of scientific consensus as to whether there exists a threshold of exposure to asbestos below which a person is at zero risk of developing mesothelioma. However, there is evidence from epidemiological studies of asbestos exposed groups that any threshold for mesothelioma must be at a very low level – and it is fairly widely agreed that if a threshold does exist then it cannot currently be quantified. For practical purposes HSE does not assume that such a threshold exists.

Asbestosis and lung cancer

The situation for lung cancer and asbestosis is uncertain. Arguments for a threshold for lung cancer are based on the notion of the carcinogenic process being an extension of the chronic inflammatory processes producing fibrosis. It is generally recognised that heavy doses of white asbestos are required to produce clinically significant lung fibrosis. However, the situation for blue and brown asbestos is more uncertain and fibrosis has been observed at much lower exposures. This also suggests that if a threshold for lung cancer does exist for blue and brown asbestos it must be at a very low level indeed.

The main cause of lung cancer is smoking. How great is the combined risk of lung cancer due to asbestos exposure and smoking?

It is widely accepted that tobacco smoke interacts with asbestos in the causation of lung cancer. This means that the risk of lung cancer for a smoker exposed to asbestos is greater than the sum of the individual effects due to smoking and due to asbestos.