

INCREASED VULNERABILITY OF CHILDREN TO ASBESTOS

The Precautionary Principle

1. For at least forty years warnings have been given to successive Governments that children are more at risk from asbestos than adults. They have been warned that very low levels of asbestos exposure can cause mesothelioma. They have been advised that as knowledge was not complete the precautionary principle should be adopted and preventative measures should be taken in schools to prevent the release of asbestos fibres and the exposures of the staff and children.

In 2011 knowledge is still not complete but successive Governments have not assessed the scale of the asbestos problem in schools nor the risks to the occupants. In particular they have not assessed the increased risks to children. Because of this they have been unable to allocated proportionate resources to address the problem of asbestos in schools.

The Government have not adopted the precautionary principle.

This paper examines the increased risk to children and gives a chronological sequence of events from 1967 when the first warning was given to the Government to the present day, June 2011.

Medical and legal opinion: Asbestos exposure above background levels can cause mesothelioma

2. Dianne Willmore was exposed to asbestos while a pupil at school and subsequently died of mesothelioma. In March 2011 seven Justices of the Supreme Court unanimously confirmed the judgement that she had been negligently exposed to asbestos while a pupil at school, and that the exposure she had suffered at school materially increased the risk of her mesothelioma developing. The High Court, Appeal Court and Supreme Court all accepted the expert medical opinion given by Dr Rudd that:

“Mesothelioma can occur after low level asbestos exposure and there is no threshold dose of asbestos below which there is no risk.”¹

Dr Rudd defined a significant exposure as one that will materially increase the risk of mesothelioma developing and used the Industrial Injuries Advisory Council definition of a significant exposure as a level above the normal background level. He stated:

“Significant” is defined in accordance with the definition adopted in relation to mesothelioma causation by the Industrial Injuries Advisory Council in their 1996 report (CM3467) “A level above that commonly found in the air in buildings and the general outdoor environment.”

It would be appropriate for the Court to conclude that each such exposure materially increased the risk that she would develop mesothelioma.”²

¹High Court QBD Liverpool District. The Hon Mr Justice Nicol . Dianne Willmore and Knowsley Metropolitan Borough Council 24 July 2009 Para 4 .

² High Court QBD Liverpool District. The Hon Mr Justice Nicol . Dianne Willmore and Knowsley Metropolitan Borough Council 24 July 2009 Para 8, 57b

3. Dr Rudd is a leading mesothelioma specialist consultant. In an earlier case he and other colleagues explained how all exposures to asbestos have a cumulative effect that can lead to the development of mesothelioma. They stated as expert witnesses:

“Mesothelioma can in theory be caused by a single fibre acting to create a mutation of a cell from which a malignant tumour may develop. ...all exposures up to 10 years before the appearance of symptoms is relevant, for two reasons; first, any inhalation may cause mutation...; secondly, the inhalation of asbestos is now known to have an adverse effect on the body’s natural ability...to deal with potentially mutating or mutated cells before a malignant tumour develops....Later exposure adds to earlier exposure. All exposures, other than in the last ten years before the emergence of symptoms, is cumulative and contributes to the risk of and the development of a tumour.”³

(Subsequently medical opinion has changed and it is generally accepted that all asbestos exposures are cumulative and contribute to the risk of a tumour developing up to about five years before the onset of symptoms.⁴)

Increasing deaths of Teachers and Support Staff. Number of Children’s subsequent deaths is not known.

4. Dianne Willmore’s case graphically highlights the risks from low level asbestos exposure to children at school. Sadly there are other cases of people who have mesothelioma and who have been exposed to asbestos as a child at school. They are not alone, because many thousands of children have been exposed to asbestos at school and it is probable that a significant number will in the future develop mesothelioma. It is equally likely that many people have already died of mesothelioma where the asbestos exposure as a child at school materially contributed to the development of their cancer.
5. There are no statistics for children who have been exposed at school and subsequently develop mesothelioma. Mesothelioma has a very long latency, consequently a child exposed to asbestos at school will die many years later as an adult and their death will be recorded under the occupation they had at the time of their death. Typical asbestos exposures in schools are low level, sometimes they are frequent, and at times there can be occasional peak levels. Although all the exposures are cumulative the overall exposures are relatively low level compared with the levels experienced by the high risk professions. Consequently the latencies are on average likely to be longer.
6. Latencies for mesothelioma from first exposure to first symptoms have been recorded from less than 10 years to over 60 years, with a mean of about 35 years. Large exposures can have a shorter latency and there is evidence that environmental exposures can have a longer latency, with two studies showing that those exposed to low levels from birth on average develop the

3 (Jeffrey Burke QC Edgson v Vickers plc (QBD) Dr Rudd, Dr Hugh Jones, Dr Britton p524 1994)

4 Supreme Court Judgment Sienkiewicz (Administratrix of the Estate of Enid Costello Deceased) (Respondent) v Greif (UK) Limited (Appellant) Knowsley Metropolitan Borough Council (Appellant) v Willmore (Respondent) Lord Phillips, President 9 March 2011 para 19v

disease some 50-56 years later,⁵ and another study shows the latency for domestic exposure was 52 years.⁶ Consequently many of the deaths from asbestos exposure at school are likely to have the longer latencies with their deaths on average occurring more than fifty years after the first exposure. If that started at the age of five then the mesothelioma deaths would occur from the age of fifty five. Statistics show that in Britain the mesothelioma deaths from this age and higher are inexorably rising.

7. Although there are no statistics that show how many children have subsequently died of mesothelioma there are statistics for the number of school teachers who have died of the cancer, and also statistics for certain categories of school support staff, although the data is less comprehensive. In March 2011 the latest statistics showed that the numbers of school teachers who have died from mesothelioma had again increased:

140 school teachers died of mesothelioma in the ten year period between 1999 to 2008 aged 16-74. 49 of the deaths were in the three year period 2006 to 2008.

A total of 228 school teachers have died of mesothelioma since 1980 aged 16-74.⁷ It is known that in addition teachers have also died of mesothelioma above the age of 75. These numbers are therefore less than the actual numbers.

8. The numbers have increased year on year since mesothelioma occupational records began in 1980 when 3 school teachers died on average each year of mesothelioma. On average during the latest period 16 school teachers died each year of mesothelioma.

In addition school support staff including teaching assistants, school caretakers, school secretaries, school cooks, nursery nurses and other child care related occupations have died of mesothelioma.

9. The school teachers' mesothelioma deaths are significant as for every teacher there are 20 to 30 children in their class who are being exposed to asbestos at the same time. Therefore if over 228 school teachers have died of mesothelioma since 1980 one would reasonably expect proportionately more children to subsequently develop mesothelioma. In the USA they made an estimate that the ratio was nine children would die to each teacher's death.⁸ In the UK that would equate to 2,000 subsequent children's deaths. If the ratio was 20 to one then it would equate to 4,500 deaths. Nobody knows the truth but it is clearly wrong to fail to analyse the situation, particularly as the situation could be worse.

10. For instance children have an increased vulnerability to asbestos so the death rates could be higher than for teachers; that issue is covered in the next section. In addition a very large number of children are entering adult life having already been exposed to asbestos at school so

5 Asbestos exposures in malignant mesothelioma of pleura; a survey of 557 cases Bianchi Industrial health 2001,39, 161-167 . Malignant mesothelioma due to environmental exposure to asbestos: follow up of a Turkish cohort living in a rural area. Chestp2228. Metintas

6 Mesothelioma: cases associated with non-occupational and low dose exposures Hillerdal Occup Environ Med 1999;56:505-513

7 HSE Epidemiology Unit, table 0925. 25 Feb 2011. HSE Epidemiology Unit CSAG, table 0977. 2 Mar 2011

⁸ American Academy of Pediatrics Asbestos Exposure in schools Pediatrics vol 79, no 2 Feb 1987 p301- 305 Reaffirmed May 1994 . EPA Support document for the proposed rule on friable asbestos-containing materials in school buildings EPA report 560/12-80-003 p92

that the process of tumour development has already started. Later exposures as an adult then add to the cumulative burden and increase the likelihood of a tumour developing. The incidence of mesothelioma in Britain is the worst in the world,⁹ and it could be argued that this has in part been caused by the widespread asbestos exposure of many, and perhaps most, children in the country.

Increased risk to children because of age.

11. The numbers of children potentially dying of mesothelioma are significant on their own, but these figures do not take into account the increased vulnerability of children because they will live longer for the disease to develop. Nor do they take into account the fact that children may be more vulnerable because their physiology is developing.
12. The Hodgson and Darnton paper on the risks from asbestos exposure is generally acknowledged as giving a reasonable estimate of the risks from asbestos exposure. In the paper the risks are estimated for a 30 year old, in a later calculation the risks were estimated for different ages. Of particular relevance is the increase in risk to children of school age, with a 5 year old child having an increase in risk of 2.7 to 5.2 times greater than their teacher of 30.

Adjustment factors to convert estimates of mesothelioma mortality due to asbestos exposure starting at age 30 to other exposure start ages for assuming risk persists for 60 years and 80 years after the start of exposure.

Age	0	5	10	15	20	25	30	35	40	45	50	55
Factor (at risk for 60 years)	2.8	2.7	2.6	2.4	2.1	1.5	1	0.6	0.4	0.3	0.2	0.1
Factor (at risk for 80 years)	6.6	5.2	4	3	2.1	1.5	1	0.6	0.4	0.3	0.2	0.1

¹⁰

(It should be noted that in February 2011 the Governments advisory committee on science, WATCH, concluded that *“The risk will be lower, the lower the exposure, but “safe” thresholds are not identifiable.”*¹¹ However they also considered that definitive numerical figures cannot be put on the risks from low level exposures. That is because the calculation of the risks is extrapolated from the very high levels experienced from occupationally exposed cohorts. Therefore the figures in the above table should be used to give an approximate scale of the increase in risk because of age.)

13. The increased risks to children were highlighted by Professor Peto. He stressed the increased risk because a child will live longer for the disease to develop, and also he put forward the possibility of an increase in risk because of the developing physiology of a child, he stated:

The effects of childhood exposure cannot be predicted. The models described above imply a roughly fourfold increase in risk for mesothelioma, but not for lung cancer, when exposure

⁹ HSE Occupational, domestic and environmental mesothelioma risks in Britain. A case-control study Mar 2009

¹⁰ HSE Statistics Branch Darnton The quantitative risks of mesothelioma in relation to low-level asbestos exposure . BOHS 17 Oct 2007

¹¹ WATCH committee final position statement Feb 11

begins soon after birth rather than age 20, reflecting the cubic residence time assumption. Such an age-related effect would be expected for any carcinogen which initiates the induction of multi-stage carcinogenic process;

but this prediction takes no account of the possibility that children are particularly susceptible to carcinogenesis by virtue of factors such as stem cell expansion during growth and development. The risks caused by exposure in childhood may therefore be substantially greater than those predicted for both mesothelioma and lung cancer.”¹²

14. Schools are unique because everyone attends school and at any one time about a 1/6th of the population are at school. Also they have to be treated as a special place as they contain children. In 2007/2008 there were 9.7 million full-time and part time pupils in 33,700 schools in the United Kingdom.¹³ The Department of Education’s best estimate is that over 75% of schools contain asbestos,¹⁴ although this is likely to be an underestimation as an audit has never been carried out. FOI requests have shown that in some local authorities 90% of schools contain asbestos. All the schools contain chrysotile, most contain amosite and some contain crocidolite. Numerous asbestos incidents have occurred where asbestos fibres have been released and the occupants exposed.
15. Everyone is exposed to asbestos and yet everyone doesn't develop mesothelioma. It is not known what makes some people susceptible whilst others are not. It is known however that the occupants of schools have been exposed to asbestos, and it is known that teachers and support staff have died. An estimate should be made of how many children are likely to die. However, even without that estimate, it is clear that there is a risk and therefore a precautionary approach should have been taken.
16. The problem affects almost everyone in the country. If the Government is to adopt policies commensurate with the risk it is essential that a proper assessment is undertaken of the asbestos risks to children. The assessment must take account of the increased vulnerability of children because of the long latency and consider the possibility of an increase in risk because of their physiology. The assessment must also examine the relevance to school children of the teachers’ and support staff deaths.
17. For further statistics of school teachers and support staff deaths, analysis and comment on the significance of the deaths and Government policy follow the links at the footnote.¹⁵

¹² (Fibre Carcinogenesis and Environmental Hazards, J Peto IARC 90 1989 p463)

¹³ EDUCATION AND TRAINING STATISTICS FOR THE UNITED KINGDOM 2008 EDITION. DEPARTMENT FOR CHILDREN, SCHOOLS AND FAMILIES (DCSF). DEPARTMENT FOR INNOVATION, UNIVERSITIES AND SKILLS (DIUS) WELSH ASSEMBLY GOVERNMENT (WAG) SCOTTISH GOVERNMENT (SG) NORTHERN IRELAND DEPARTMENT OF EDUCATION (DENI) NORTHERN IRELAND DEPARTMENT FOR EMPLOYMENT AND LEARNING (DELNI) EDUCATION AND TRAINING

¹⁴ E-mail DfE 20 Jun 2011

¹⁵ For further information see the following analysis and comment:

Education Sector Mesothelioma Occupational Statistics 1980-2005

<http://www.asbestosexposureschools.co.uk/Statistics%20of%20deaths%20teachers,%20support%20staff%20children.pdf>

Increasing numbers of school teachers’ dying of mesothelioma

<http://www.asbestosexposureschools.co.uk/pdfnewslinks/MESOTHELIOMA%20%20DEATHS%20%20FEB%202011.pdf>

The Significance of the School Teachers Deaths

<http://www.asbestosexposureschools.co.uk/pdfnewslinks/PQ%20Annette%20Brooke.pdf>

More than 40 years ago the Government were warned of the increased risks to children.

18. More than forty years ago it was known that mesothelioma could be caused by low levels of exposure to asbestos. The Factories Inspectorate report of 1965 stated:

“Mesothelioma has been shown to be associated in some cases with exposures to asbestos dating back 20 or more years previously and sometimes of astonishingly slight degree.”¹⁶

19. In 1967 Dr Lloyd-Davies, the Chairman of the Government's Advisory Committee on Asbestos, wrote to the Department for Education warning of the risks from low levels of asbestos exposure and stressing that children are particularly at risk. He stated:

“The important point to me is that you are dealing with children...

My advisory panel on the hazards of asbestos have suggested that wherever practicable, the exposure to asbestos should be restricted to persons of 40 years or over. ...

Considering the problem of asbestos in schools, it all depends what form of asbestos is used, and the amount of dust given off.

I must admit that you have a difficult problem, because of the youth of the persons exposed. The more I see of asbestos, the more I dislike it.”¹⁷

Because he accepted that knowledge was not complete, he advised that a precautionary approach should be taken, particularly in schools. His advice was not heeded.

20. The Factories Inspectorate report of 1966 also acknowledged that more research and epidemiological studies had to be undertaken over many years before many of the answers could be provided about asbestos. They gave a warning that, in the interim, a precautionary approach had to be adopted by taking preventative actions. The report stated:

“Of necessity, preventative action must precede absolute proof of the relative hazards of different sorts of asbestos..... Only epidemiological studies extending over many years can provide the answers. While such studies are proceeding the only safe course is to eliminate the escape of asbestos dust into the air.”¹⁸

21. In 1979 the Government's Advisory Committee on Asbestos again highlighted to the Government that children were more likely to be at risk from asbestos. In light of the warning a 1983 HSE briefing on asbestos in schools stressed the necessity to prevent the release of asbestos fibres, by stating :

“Children might be more at risk than adults because they have more chance to be affected by carcinogens with long latencies and because, in the young, susceptibility may be increased. It is therefore especially important that the presence of asbestos containing materials in any

http://www.asbestosexposureschools.co.uk/pdfnewlinks/TEACHERS%20DEATHS%20ARE%20SIGNIFICANT%206%20Jan%2010%20_2_.pdf

¹⁶ Annual report of H.M Chief Inspector of Factories on Industrial Health 1965 p 82 Sep 1966

¹⁷ Letter Dr Lloyd Davies Head Medical Officer Factories Inspectorate Ministry of Labour/Department of Education 6 Mar 1967

¹⁸ 1966 Annual report of HM Chief Inspector of Factories on Industrial Health. Ministry of Labour P60 August 1967

environment to which children are exposed should be identified so that steps can be taken where necessary to prevent dust release.”¹⁹

22. In 1980 a report was compiled for the US Congress that examined the likely extent of friable asbestos in schools, the likely exposure of the occupants and the resultant risks. The report stressed the increased risk because of the longer life expectancy but, from the evidence available, was unable to confirm an increase in risk because of the biological susceptibility of children. It stated:

“It has also been suggested that children may be more biologically susceptible than adults to carcinogens, including asbestos. although children may be more susceptible to the effects of asbestos exposure than adults, little firm evidence is available to determine the difference in risks. The longer remaining life expectancy of children compared with adults is the only factor that can be incorporated into quantitative risk estimates.”²⁰

23. The report to Congress estimated how many children could be expected to die of asbestos exposure at school. A report from the American Academy of Pediatrics states:

“In 1980, the EPA provided a quantitative risk estimate for asbestos-containing materials in US schools. The EPA estimated that more than 8,500 schools in the nation had friable asbestos and that approximately 3,000,000 students (and more than 250,000 teachers, maintenance workers, and other adults) were potentially exposed. Using available field studies to estimate airborne asbestos levels and assuming a 30-year life expectancy for schools with asbestos, the EPA report concluded that:

A total of approximately 100 to 7,000 premature deaths are anticipated to occur as a result of exposure to prevalent concentrations of asbestos in schools containing friable asbestos materials over the next 30 years. The most reasonable estimate is approximately 1,000 premature deaths. About 90% of these deaths are expected to occur among persons exposed as school children.”²¹

Note: The above estimates of mesothelioma deaths were based on an incorrect assumption of the number of schools that contained asbestos. Subsequently a nationwide audit was carried out when every school was required by law to carry out an asbestos survey. The number of schools that actually contained asbestos was found to be four times higher than originally thought. ²²

24. In 1980 the US Congress took evidence on the risks of asbestos in buildings, including the EPA report. Their findings led to stringent laws on the management of asbestos in schools. The Congressional statement stated:

¹⁹ (HSE Education Department “Asbestos in Educational Establishments – Position Paper.” ESAC/WG3/2C HSE Education NIG p1 September 1983)

²⁰ EPA Support document for the proposed rule on friable asbestos-containing materials in school buildings EPA report 560/12-80-003 p 52 and 55

²¹ American Academy of Pediatrics Asbestos Exposure in schools Pediatrics vol 79, no 2 Feb 1987 p301- 305 Reaffirmed May 1994 . EPA Support document for the proposed rule on friable asbestos-containing materials in school buildings EPA report 560/12-80-003 p92

²² EPA Fact sheet AHERA 1986 Statement EPA Administrator 23 Oct 1986

“Medical evidence suggests that children may be particularly vulnerable to environmentally induced cancers.”²³

25. In 1986 stringent laws were introduced in the USA specifically for schools, for it was acknowledged that because of the increased vulnerability of children schools had to be treated as a special place. Resources were allocated, people were trained and systems introduced so that the asbestos was rigorously managed, and staff and parents were kept informed of the asbestos in their schools and the system of management.²⁴ The problem was addressed, and although it has not solved it, it has kept it reasonably well under control for the last twenty five years. In contrast in this country no such laws existed until the 2004 CAWR duty to manage. The particular vulnerability of children has not been taken into account and schools in the UK are not treated as a special place.

26. 98% of asbestos fibres counted in sampling tests in public buildings in the USA were chrysotile.²⁵ In the UK many schools contain large quantities of amosite which is 100 times more dangerous than chrysotile. Some contain, or have contained, crocidolite which is 500 times more dangerous. The study also estimated that the average airborne asbestos concentration in US buildings, including schools, was 10-100 times less than in Britain.²⁶ It is therefore a reasonable assumption that proportionately the number of deaths among staff and children in UK schools will be higher than in the USA.

27. In 1987 the American Academy of Pediatrics stated:

“Mesothelioma risk is proportional to a power of time since first exposure, and calculated risk escalates rapidly when time since first exposure exceeds about 40 years. Early childhood exposure, even at very low levels, thus becomes a significant factor when estimating risk, because it allows for such long latent periods.

In addition to their long life expectancy, children in school exposure settings are a particular concern because, compared with adults, they are more active; they breathe at higher rates and more often by mouth; they spend more time close to the floor, where sedimented dust and fibers accumulate; and they are more likely to seek direct contact with deteriorating surfaces out of curiosity or mischief. These factors must be considered when potential childhood exposures are estimated.”²⁷

28. In 1989 Professor Peto highlighted that although knowledge was not complete it was possible that the risks to children are substantially greater than for adults. He stated:

“The effects of childhood exposure cannot be predicted. The models described above imply a roughly fourfold increase in risk for mesothelioma, but not for lung cancer, when exposure

²³ (US Congressional statement of findings and purpose. Title 20> Chapter 49> 3601 14 Jun 1980)

²⁴ AHERA US code: title 15,2643. EPA regulations Chapter 53. EPA Fact sheet AHERA 1986 Statement EPA Administrator 23 Oct 1986

²⁵ ²⁵ Toxicological profile for asbestos . US Department of Health and Human Services. Potential for human exposure. Sep 2001 para 6.4.1 p 163

²⁶ Toxicological profile for asbestos . US Department of Health and Human Services. Potential for human exposure. Sep 2001 para 6.4.1 p 163

²⁷ American Academy of Pediatrics Asbestos Exposures in Schools Pediatrics 5/94 vol79 No 2 Feb 1987 p301-305.

begins soon after birth rather than age 20, reflecting the cubic residence time assumption. Such an age-related effect would be expected for any carcinogen which initiates the induction of multi-stage carcinogenic process;

but this prediction takes no account of the possibility that children are particularly susceptible to carcinogenesis by virtue of factors such as stem cell expansion during growth and development. The risks caused by exposure in childhood may therefore be substantially greater than those predicted for both mesothelioma and lung cancer.”²⁸

29. In 1991 a paper written by the Chairman of the US Committee on Environmental Hazards wrote:

“Children constitute a population at potentially high risk of exposure to asbestos in place. We need to remember our children's future as we consider the hazards of the large amounts of asbestos in place in buildings in this country....

Why is there so much asbestos in buildings today? How was it allowed to get there? What failure of preventive medicine, what failure of public policy, allowed this to happen?”²⁹

30. 1991 Department for the Environment guidance reiterated advice given in 1983 and 1986, and emphasised the need to identify asbestos material in buildings, and particularly in schools. It stated:

“ It is important to determine the type and amount of asbestos present in the building, the type of material in which it is contained, its use and its location... Finding asbestos materials may require a diligent and determined search....³⁰

Give priority to particular types of building (schools, blocks of flats, etc) where large numbers of people, particularly children, may be exposed.”³¹

31. In 1997 a report by the Medical Research Council (MRC) and the Building Research Establishment (BRE) was published that considered the extent and type of asbestos in schools. It stressed the widespread use of the amphiboles, although it considered that exposure in schools built prior to 1946 will have mainly been to chrysotile, it then stated:

Exposure in buildings constructed after 1946 will have been to a much broader range of materials (including amphiboles) in more “vulnerable” locations, with a higher risk of damage and potential fibre release....

In general extensive use was made of sprayed coatings (amphiboles), Asbestolux ceiling panels, and asbestos board and asbestos –cement partitioning in system-built buildings constructed in the 1960s. These particular buildings might thus be considered to pose a relatively “higher risk” of exposure.”³²

32. The MRC/BRE report concluded:

²⁸ (Fibre Carcinogenesis and Environmental Hazards, J Peto IARC 90 1989 p463)

²⁹ A Population of Children at Risk of Exposure to Asbestos in Place Llandrigan Annals New York Academy of Sciences 1991 p-283-286

³⁰ Asbestos materials in buildings Department of the Environment. 1991. Identification para 4.3 p 17

³¹ Asbestos materials in buildings Department of the Environment. 1991. Surveys para 5.10 p22

³² Fibrous Materials in the Environment Institute for Environment and Health. P72 and p75 . 1997

“It is not unreasonable to assume, therefore, that the entire school population has been exposed to asbestos in school buildings.”

It assessed lifetime asbestos exposures and estimated the numbers of asbestos fibres inhaled. It based its estimate on the number of fibres inhaled by a child during their time at school on the asbestos being in good condition with a background asbestos fibre level of 0.0005f/ml. It stated:

“Children attending schools built prior to 1975 are likely to inhale around 3,000,000 respirable asbestos fibres. (roughly 10% of the higher estimate of the burden from ambient lifetime exposure or 1000% of the lower estimate)

Exposure to asbestos in school may therefore constitute a significant part of total exposure.”³³

33. In 1997 consultations took place for the Control of Asbestos Regulations. (CAWR was eventually promulgated in 2002.) It was proposed to make the management of asbestos compulsory and discussion took place over whether asbestos surveys would be made compulsory. The Building Research Establishments strongly supported the proposed changes. However the Department for Education argued strongly and successfully against asbestos surveys being made compulsory, their reason being :

“Like you we are not very keen on the idea of surveying all the schools. The cost of the surveys, removal and reinstatement would be prohibitive.”

They also protested that:

“We also feel that it would not be fair to single out schools for such survey thus implying that they are more at risk.”³⁴

This letter was written by the Head of the Department for Education Architects and Building Branch, the senior official responsible for school buildings. He ignored the expert opinion of the BRE and the Department of the Environment.³⁵ The fact that an official in his position should argue against schools identifying their asbestos is unacceptable and has inevitably led to unsafe practice in many schools. The fact that an official with a duty of care for every child in the country dismissed the particular vulnerability of children in schools from asbestos is appalling.

It is relevant that the Architects and Building Branch were instrumental in the programme that designed and constructed thousands of post war system built schools,³⁶ which extensively used asbestos in their construction. The letter, and other documents, demonstrate why the Department for Education has failed to tackle the serious problem of asbestos in schools.

34. In 1997, at the same time as they were denying that there was a particular risk from asbestos in schools, the Department for Education also advised the Schools Minister against assessing the asbestos risks in schools. In a Ministerial briefing they stated:

³³ Fibrous Materials in the Environment Institute for Environment and Health. P72 and p75 . 1997

³⁴ Head of DfES Architects and Building Branch Capital and Buildings Division Mukund Patel 21 Aug 1997

³⁵ DOE Asbestos materials in buildings. 1991. Surveys p 18, 21, 22.

³⁶ Towards a social architecture. The role of school building in post war England. Andrew Saint.

“A central government initiative to assess the risks to teachers and pupils would not only be inappropriate, given where the statutory responsibility lies, but would also lead to pressure for centrally funded initiatives to remove all asbestos and for other aspects of building work. That would be extremely expensive, as well as risky and disruptive for the schools concerned.”³⁷

35. In 1999 Southern Ireland took the policy decision to survey all their schools for asbestos and then because of the particular vulnerability of children they decided to remove the asbestos even in circumstances where it would not normally be considered necessary. The Irish Government’s asbestos briefing document states in relation to their schools:

“Based on risk assessments and the result of surveys done by asbestos professionals, it (OPW) is making decisions on how and when the asbestos needs to be removed. It is important to remember that if asbestos is in good condition, it poses no threat to health, but because of the proximity of children to this material, the decision is being made to remove asbestos, even if this would not normally be considered necessary.”³⁸

36. In 2000 the HSE Statistics Branch Hodgson and Darnton paper was published which examined the risks from asbestos exposure. The paper is generally acknowledged as being a reasonable assessment on the risks from asbestos exposure, with the risk model being used as a basis for the Regulatory Impact Assessments for the 2002 CAWR and the 2006 CAR and the subsequent Regulations. They state:

“Taking this evidence together we do not believe there is a good case for assuming any threshold for mesothelioma risk.”³⁹

37. In 2000 the European Commission published a Communication on the Precautionary Principle. They stressed the importance of a scientific evaluation of the level of risk, and where there was a risk, but it was not possible to put a definitive numerical value on the precise level, then the precautionary principle should be adopted. The paper states:

“The precautionary principle applies where scientific evidence is insufficient, inconclusive or uncertain and preliminary scientific evaluation indicates that there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the high level of protection chosen by the EU...”

Recourse to the precautionary principle presupposes that potentially dangerous effects deriving from a phenomenon, product or process have been identified, and that scientific evaluation does not allow the risk to be determined with sufficient certainty.

The implementation of an approach based on the precautionary principle should start with a scientific evaluation, as complete as possible, and where possible, identifying at each stage the degree of scientific uncertainty.⁴⁰

³⁷ Background for DFEE Parliamentary written reply. 4210 Michael Clapham /Stephen Byers 17 Jun 1997

³⁸ European Agency for Safety and Health at Work. Asbestos Briefing Republic of Ireland Office of Public Works (undated)

³⁹ The Quantitative Risks of Mesothelioma and Lung Cancer in Relation to Asbestos Exposure *Ann. occup. Hyg.*, Vol. 44, No. 8, pp. 565–601, 2000 Hodgson and Darnton Is there a threshold? P593

It is therefore contrary to EU guidance that in 2011 the Government have still not assessed the scale of the asbestos problem in schools or the risk to the occupants of schools, and in particular have not assessed the increased risk to children.

There is considerable evidence that the presence of asbestos in schools presents a very real danger to the occupants. However there is scientific uncertainty about the precise level of risk. Until the scientific evidence is available the precautionary principle should therefore be applied to schools, and rigorous measures taken to prevent asbestos fibre release.

Despite this in 2011 the Government have not adopted the precautionary principle and instead continue to deny that there is a problem.

38. In 2001 during the consultation process for the new Control of Asbestos Regulations (CAWR) there was criticism in Parliament and in the press that the regulations were going too far. HSE rebutted this criticism and emphasised the importance of taking a precautionary approach towards controlling asbestos exposure. They stated:

*“What makes asbestos unique amongst recognised carcinogens is the amount of all forms of the mineral permanently present in the workplace, and the relative ease by which fibres can be released.....This makes it imperative that a precautionary approach is taken towards the control of exposure to all types of asbestos”.*⁴¹

Most schools contain asbestos and many contain the most dangerous types. In many schools the asbestos has been disturbed, in some over a prolonged period of time. Teachers and support staff are dying in increasing numbers of mesothelioma, and if they are being exposed then so are the children. Despite this no assessment has been made of the extent of the asbestos problem in schools or the risks to the occupants. In light of the evidence and the lack of a proper scientific evaluation, it is imperative that the precautionary principle is applied to schools. However this has not been the case.

39. In 2004 the HSE Head of Asbestos Policy gave a presentation to the Local Authorities Forum about a campaign HSE intended to launch to improve the asbestos management in schools. The need for the campaign had become evident following a series of asbestos incidents in schools which had led to widespread contamination, exposure of contractors, staff and pupils and the subsequent disruption of school life. All of which had highlighted the fact that some authorities had ineffective systems of asbestos management. Because HSE recognised the particular risk to children they considered that the campaign was a priority. The accompanying HSE paper states:

"A number of factors exist which have led HSE to regard education as a priority:

In recent years there have been a number of high profile incidents where maintenance activities carried out in schools has resulted in widespread exposure to asbestos. Local authorities and

⁴⁰ COMMUNICATION FROM THE COMMISSION on the precautionary principle 2 Feb 2000
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2000:0001:FIN:EN:PDF>

⁴¹ HSE position statement on the risks from white asbestos (chrysotile) 2001

school managers have been subjected to serious criticism in the media, and in many cases education activities have been significantly disrupted.

Whilst the main risks of exposure to asbestos in schools will be to building and maintenance workers, there will always be the possibility of pupils being put at risk. Due to their physical immaturity they are at greater risk of suffering from asbestos related disease than adults, and will live long enough for any disease to develop.

Parents often have a heightened sense of awareness of the risks of asbestos exposure, and any failure to manage risks properly could result in the authority losing the confidence of their local communities. It can also lead to pressure on governing bodies to remove asbestos unnecessarily, leading to increased risks of exposure.

Whilst many authorities have been managing their asbestos effectively for many years, HSE believes a significant minority have still not established complete control of asbestos in their premise. Therefore HSE intends to launch an initiative to highlight the issues of asbestos in schools and to encourage LAs and others to manage these risks correctly.

HSE has set up a project team, which will prepare a series of initiatives designed to promote the effective management of asbestos in schools

*Although the project will be aiming to reduce exposure dramatically over the next few years, initially we will be concentrating on achieving a 20% reduction in current exposure levels.*⁴²

This was a most frank admission that some local authorities were not managing their asbestos and that by inference staff and pupils in schools were being exposed to asbestos. The initial aim of a 20% reduction in exposure levels would, in itself, be an acknowledgement that the exposure levels were significant, however their ultimate aim of a "dramatic" reduction in exposures clearly shows the scale of the problem.

Despite HSE considering that the campaign was an important priority it was dropped a year later before the first meeting had taken place so that the resources could be reallocated to reducing asbestos exposure for building maintenance workers.⁴³ The asbestos incidents, contamination and exposures continued in schools.

(The term "dramatic" was deleted from later transcripts of the presentation, including in a Ministerial briefing.)

40. In 2007 the Government's advisory committee meeting on science, WATCH, were tasked to examine the risks from low level exposure to asbestos. A series of meetings took place with the final one being in February 2011. At the first meeting Professor Peto, one of the expert members, raised the significance of the increased risks from exposure to asbestos at a young age. It was stressed how childhood exposure to asbestos was likely to be an important factor in mesothelioma developing in later life. The minutes record:

⁴² HSE Head of Asbestos Policy briefing to Local Authority Forum, Asbestos Management in Schools. Asbestos in Education LAFORUM/04 Nov 2004)

⁴³ E-mail HSE Trevette/DfES Daniels HSE Asbestos campaign Education sector- An Exit strategy 23 Aug 2005

"A WATCH member asked Professor Peto for further insights into the relationship between age, asbestos exposure and cancer risk. Professor Peto commented that first exposures to asbestos before the age of 30 were much more critical in terms of cancer risk than first exposures that occurred after 30. If first exposures occurred after the age of 40, the risks of developing cancer were relatively low.

*However, limited insights could be gained from age alone; time since first exposure was a more critical determinant of risk than the actual age at which exposures took place. **This implied that exposure to asbestos in childhood would be an important factor in determining the appearance of cancer in later adult life.**"⁴⁴*

It should be noted that Professor Peto's expert opinion on childhood asbestos exposure given to the Government's Advisory Committee in 2007 is almost identical to that of Dr Lloyd Davies, the Chairman of the Government's Advisory committee on Asbestos given to the Government in 1967, some forty years before. It is precisely for these reasons that the Government has been asked to assess the risks to the occupants of schools with particular emphasis on the risks to children.

41. In 2009 an HSE case control study led by Professor Peto highlighted that:

*"The British mesothelioma death-rate is now the highest in the world" which it concluded is because "Britain was the largest importer of amosite, and there is strong although indirect evidence that this was a major cause of the uniquely high mesothelioma rate."*⁴⁵

This is particularly relevant as amosite was widely used in schools with much of it in vulnerable locations so that it has been damaged over the years and has released fibres into the rooms.

42. The HSE study also concluded that *"Mesothelioma risk is determined largely by asbestos exposure before age 30."* This is particularly relevant to schools as exposure as a child starts the process and allows a lifetime for the disease to develop, with any later exposures being cumulative and adding to the likelihood of a tumour developing. The study also emphasised that amongst men and women who are unaware of their exposure the British mesothelioma rate is *four times* greater than elsewhere in the world.

"Suggesting that mesotheliomas were caused by unsuspected asbestos exposure in a wide range of occupational and non-occupational settings."

By their very nature it is difficult to be definitive where such exposures took place but the report speculates that one of the possible sources of exposures was from the *"release of asbestos from buildings due to normal occupation and weathering."* Most schools contain asbestos, much is amosite, all of it is old and much is deteriorating. In some schools it is being regularly disturbed so that it releases fibres in a manner that teachers would invariably be unaware of their exposure and it is highly unlikely that children would be aware of their exposure. In other words

⁴⁴ WATCH committee minutes. Assessing the risks arising from exposure to low level exposure to asbestos 7 Nov 2007

⁴⁵ HSE Occupational, domestic and environmental mesothelioma risks in Britain. 2009 . IMIG Congress Abstract 25-27 Sep 2008

the exposures fit precisely into the pattern of the mesotheliomas from unknown exposures that are four times more prevalent in Britain than elsewhere in the world.

43. In 2009 in a meeting with the Prime Minister, the Asbestos in Schools group requested that he commissioned an audit of the extent, type and condition of asbestos in schools and tasked the WATCH committee to assess the asbestos risks in schools, with particular emphasis on the risks to children. He agreed that there was a serious problem of asbestos in schools and said that it was something his Government would address.

44. In 2009 the Chief Executive of the British Safety Council stated:

*"It is unacceptable that the UK, in 2009, has not yet not comprehensively assessed the risks that teachers and pupils in each and every school face....."*⁴⁶

45. In April 2010, two weeks before the general election, the Government established a Department for Education steering group to improve the asbestos management in schools.

46. In October 2010 Lord Young published his report "Common Sense, Common Safety" and advocated "a proportionate response to risk," and in schools "health and safety is applied in a proportionate manner."⁴⁷ His conclusions were not based on a proper risk assessment, nor on a proper assessment of the scale of the problem. Without that evidence he decided that schools are a "low hazard...low risk environment." and singled them out for less rigorous systems of asbestos risk assessment and management. His conclusions are not soundly based and are therefore fundamentally flawed.

47. In December 2010 a Parliamentary question asked the Minister of State for Schools "If he will commission an assessment of the risks from asbestos in schools to children and other occupants."

He replied: "The Department has no plans to commission an assessment of the risks from asbestos in schools."

By failing to assess the scale of the asbestos problem in schools or the risks to the occupants the government are unable to allocate proportionate resources.

48. In the run up to the February 2011 WATCH committee meeting two of the expert members requested that the committee assess the asbestos risks to children. Despite their request no such assessment was made.

The general conclusion of the committee was that a definitive numerical value could not be placed on the risks from low level asbestos exposure but they confirmed the Hodgson and Darnton conclusion by stating that:

⁴⁶ British Safety Council press release Government failing to tackle asbestos in schools. 3 Jul 2009 www.britsafe.org/feedcontents.aspx?id=100261

⁴⁷ Lord Young review of health and safety , Common Sense, Common Safety Oct 2010 http://www.number10.gov.uk/wp-content/uploads/402906_CommonSense_acc.pdf p 12, 28

"The risk will be lower, the lower the exposure, but "safe" thresholds are not identifiable."⁴⁸

49. In February 2011 at a Department for Education (DfE) Asbestos Steering Group meeting the chairman of WATCH briefed on their conclusions. In response to a question asking why his committee had not assessed the risks to children, he stated that they were never tasked.
50. At the same meeting the committee unanimously recommended that the DfE Minister should write to the Department of Health with a proposal that they commission an assessment of the asbestos risks to children.
51. In March 2011 the Supreme Court accepted the expert medical evidence in the case of Dianne Willmore that :

"Mesothelioma can occur after low level asbestos exposure and there is no threshold dose of asbestos below which there is no risk."⁴⁹

They also accepted that a significant level of exposure was an exposure above the level commonly found in buildings and the outdoors, and that it was sufficient to materially increase the risk of mesothelioma developing.⁵⁰

52. In May 2011 DfE stated that:

"The Dept of Health Committee on the Carcinogenicity of Chemicals in Food, Consumer Products and the Environment (COC) has been asked to consider the question of the relative vulnerability of children to low level exposure to asbestos fibres."

The committee will consider the risks at their November 2011 meeting at the earliest. After forty four years it is a positive step in the right direction that an assessment will finally be made of the asbestos risks to children.

Conclusion

53. In 1991 the Chairman of the US Committee in Environmental Hazards wrote:

"We are the inheritors of history and our children are the inheritors of our mistakes and our failures. We have failed in the past. The result of our collective failure is reflected in the fact that asbestos is widespread in schools and other buildings today.

Our task now is to do what we can to blunt the third wave of asbestos disease, which already is beginning and which inevitably will be much worse if exposure to asbestos in schools and other buildings is not reduced."⁵¹

This statement was made twenty years ago, and yet over the years this warning and many others have been ignored by the government in the United Kingdom. Despite the warnings and

⁴⁸ WATCH committee final position statement Feb 11

⁴⁹High Court QBD Liverpool District. The Hon Mr Justice Nicol . Dianne Willmore and Knowsley Metropolitan Borough Council 24 July 2009 Para 4 .

⁵⁰ 50 Supreme Court Judgment Sienkiewicz (Administratrix of the Estate of Enid Costello Deceased) (Respondent) v Greif (UK) Limited (Appellant) Knowsley Metropolitan Borough Council (Appellant) v Willmore (Respondent) Lord Phillips, President 9 March 2011

⁵¹ Landrigan A population of Children at Risk of Exposure to Asbestos in Place. Annals of New York Academy of Sciences 1991 p283 - 286

the increasing death toll they have failed to take a precautionary approach. The scale of the problem has never been assessed and neither has an assessment been made of the risks. It has therefore been an easy step for successive governments to even falsely deny there is a risk.

The consequence is that there have been numerous asbestos incidents in schools as the asbestos has not been safely managed. Staff and pupils have been, and are being, exposed to asbestos, sometimes over the course of many years. Many have died and many will die.

The way forward is to follow the basic principles of risk management. Assess the scale of the problem then base a proper risk analysis on researched facts and the best science available. Asbestos policy and the management of asbestos in schools can then be based on that firm foundation. In the meantime adopt the precautionary approach that has been advised by the authoritative experts and agencies over the last forty years.

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