

Council Report

Asbestos Removal, Health Hazards, and the EPA

Council on Scientific Affairs, American Medical Association

Resolution 193 (A-90), which was adopted by the House of Delegates of the American Medical Association, called on the Council on Scientific Affairs to study the situation regarding asbestos abatement, the risks to health, and the appropriateness of Environmental Protection Agency regulations, policies, and control measures. This report reviews the current status of asbestos abatement as applied to schools and public buildings, which currently accounts for the major expenditure of public funds.

(JAMA. 1991;266:696-697)

TIME AND AGAIN, governmental agencies such as the US Environmental Protection Agency (EPA) and the federal Occupational Safety and Health Administration (OSHA) have been blamed for their seeming insensitivity or lack of response to situations that the public perceives as crises. Once again the EPA has been admonished, but now the accusation is for being overzealous as it attempts to mollify the public's concerns about asbestos.

For many years, health experts have warned about the consequences of inhaling asbestos fibers, which, irrespective of their form, might lead to debilitating lung impairment or cancer and ultimate death.¹ Innumerable products and applications have taken advantage of this fiber's unparalleled indestructibility and versatility. Thus, the possibilities for unsuspecting exposure have been endless: floor and ceiling tiles; hair dryers; ceiling insulation; filters for cigarettes; packaging for beer, wines, and parenteral fluids; brake linings; even drinking water.

By far the largest amounts of asbestos, however, were used in the construction trades and industrial or other processes, where it served primarily as a reinforcing fiber, thermal insulation, or fire-stop. It is in these areas of application where there still are the greatest

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This report was accepted by the House of Delegates of the American Medical Association at the interim meeting on December 4, 1990.

This report is not intended to be construed or to serve as a standard of medical care. Standards of medical care are determined on the basis of all the facts and circumstances involved in an individual case and are subject to change as scientific knowledge and technology advance and patterns of practice evolve. This report reflects the views of the scientific literature as of December 1990.

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numbers of potential human exposures. The courts are still jammed with legal proceedings as thousands of shipyard construction and asbestos insulation workers or their heirs seek legal redress for pulmonary disease and mesothelioma allegedly caused by past exposures to asbestos.

In the early 1980s, parents and administrators of a number of public schools were dismayed to find students delightedly bouncing basketballs against gymnasium walls and ceilings to bring down a shower of white fuzzy stuff that often turned out to be asbestos. Congress reacted promptly with the Asbestos Hazard Emergency Response Act of 1986 (AHERA). The act required that all public and private schools be inspected for the presence of asbestos and that immediate management efforts be undertaken to prevent a further threat to health. The current policy of the EPA, however, does not necessarily require removal.² Consideration has since been given to extending the AHERA program to all public buildings. The EPA has announced that nearly 94% of the nation's public school districts and private schools have complied with initial requirements of the AHERA; this represents 28 states with 95% or greater compliance and 40 states with more than 90% compliance.³

For some 107 000 primary and secondary schools alone, the price tag was initially believed to be at least \$3.4 billion (*Wall Street Journal*, September 8, 1988:B1). By including public and commercial buildings, the EPA's estimate grew to \$53 billion "discounted at 10% over 30 years" and even as high as \$150 billion.⁴ The EPA now believes that an additional 733 000 sites (ie, 20% of all government, residential, and private nonresidential buildings) contain some form of friable asbestos and will

need renovation, at an ultimate cost for removal of \$100 billion to \$150 billion. New York City, NY, alone is believed to have asbestos in 67% (or 153 000) of its commercial buildings.⁵

In an effort to gain a rational perspective on the situation, the EPA's Office of Toxic Substances established a program of policy dialogue directed to the public's concern over the presence of asbestos in public and commercial buildings. The first public meeting was held May 3, 1989, in Washington, DC. Subsequently, the Office of Toxic Substances hired the Conservation Foundation located in Washington, DC, to hold additional meetings with a group of 35 persons representing the unions, building owners and managers, real estate agents, mortgage bankers, insurance companies, asbestos manufacturers, building contractors and consultants, public health groups, and government agencies. These meetings were intended to produce a consensus as to what federal and state agencies and private parties should do to address the matter of asbestos in public and commercial buildings.⁶ The group's final report appeared in June 1990. Not surprisingly, opinion was divided on whether regulations should indeed be extended to include nonschool buildings; the reasoning had more to do with economics than with public health.⁷

Meanwhile, several editorials and scientific articles have attempted to instill a sense of reason into a debate that focuses primarily on a misunderstanding of health risk. The debate will probably continue as long as there are uncertainties regarding health risk, especially as they pertain to nonoccupational exposures, and the mechanism of asbestos pathogenicity remains unexplained.

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Mosaman et al., for example, sought to differentiate between the comparative health hazards of the various asbestos fiber types—i.e., serpentine and amphibole—as well as to comment on the declining incidence of asbestos-related disease that should become manifest because less hazardous fibers are now being used. Then too, the permissible exposure limit in industry has been lowered dramatically over the past 20 or so years; OSHA's proposed rule of July 17, 1990, would further reduce the permissible exposure limit from 0.2 fiber per cubic centimeter to 0.1 fiber per cubic centimeter of air."

Unfortunately, the hazard of asbestos still in place affords a potential risk of indeterminable magnitude. Building occupants in general are presumed to be at relatively low risk of exposure, inasmuch as indoor fiber concentrations are found to be no higher than levels in outdoor air.¹¹ However, there can be no denying that custodians, fire fighters, and maintenance, repair, and demolition workers will encounter situations where the ambient concentrations of asbestos fibers—type unknown—meet or exceed levels permitted by OSHA. This group may very well be victims of what Selikoff and others have referred to as the "third wave" of disease¹² (the "first wave" being those workers involved in the mining and milling of asbestos ore in the early 1930s and 1940s, and the "second wave" being pipe fitters, shipyard and insulation workers, and others including the users of asbestos-containing products who, during World War II and into the 1960s, were also exposed to massive amounts of asbestos fibers). Evidence is now accumulating on the fate of school custodians.¹³

The role of EPA administrators has not been easy as they have attempted to balance the worries and demands of an aroused public against inconclusive medical evidence. The current EPA administrator has replied to some critics by explaining in detail the EPA's stance on its asbestos abatement policy. One generally misunderstood point that bears repeating is that the EPA does not mandate removal of asbestos material unless "material damage is extensive and severe, and other actions (such as special maintenance, repair, encapsulation or enclosure) will not control fiber release."¹⁴ The EPA should be commended on its most recent efforts to clarify some of the scientific uncertainties surrounding this issue, which include support of the Health Effects Institute-Asbestos Research in Cambridge, Mass.

Admittedly, the EPA has responded slowly as a number of school districts

have been panicked into taking costly and sometimes unwarranted actions. The agency has developed educational materials in cooperation with the National Education Association and the National Parent-Teacher Association and has set up programs for accreditation of trained inspectors. Moreover, citizens may call a toll-free number (800-368-6888) to discuss questions regarding asbestos in schools.¹⁵ Measures such as these will undo some of the confusion that now prevails, but there will undoubtedly always be unresolvable differences between what the public perceives and what authorities consider to be the major public health risks.

Some would say that many of the misconceptions of the past and present could have been avoided if the public had been better informed or educated about the subject of relative risk as it pertains to human health. Yet, educational efforts by scientific organizations and government agencies have met with frustration and some of their attempts have been abandoned. Until there is a better understanding of the process of risk perception and how to deal with it, any real advancement toward an enlightened society is unlikely. In the meantime, the real hazards to health—smoking, improper diet, inadequate exercise, high-risk recreational activities—are disregarded by many persons while they complain about the evils of industries whose actual hazards to health often pale by comparison.

The case of asbestos is neither the first, nor is it apt to be the last, of these seeming misconceptions, imbalances, and mismatches between scientific fact and the need for action. Society has already reeled over the impact of dioxin, polychlorinated biphenyls, and other industrial wastes that were inappropriately dumped some decades ago at Love Canal, NY, and Times Beach, Mo. Cleaning up the misdeeds of the past and attending to such consumer scares as Alar (daminozide) residues on a small sample of apples have consumed vast amounts of capital and human energy. Some of these cleanups and other control efforts may be of questionable benefit.

Asbestos, unlike any number of other potentially dangerous minerals or chemicals, will never be entirely eliminated from the environment. Therefore, developing improved procedures for managing its proper use, containment, and disposal offer the only realistic prospects for the prevention of asbestos-related injury and disease. In other words, it is better that society use its limited financial resources in learning how to live safely with this valuable

material than in attempting to remove it totally from the environment.¹⁶ At present, the best offered riddance to bad rubbish is to remove it from one site and place it in another. But this ploy merely delays the inevitable when the risk of exposure will rise again at another time.

The Council on Scientific Affairs suggests that there is a lesson to be learned from the asbestos dilemma. Hindsight suggests that if a Consensus Conference had been sponsored by the National Institutes of Health in the early 1980s, the EPA might have better focused and directed its regulatory efforts. Ideally, the conference would have made a major attempt to enlighten society about major health hazards and realistic cost projections for ameliorating the asbestos risk. The EPA can still perform a major service by clarifying and publicizing the best available means of remediation. Physicians and others in medicine and biology, on the other hand, must continue to drive home to the public the far greater causes of morbidity and mortality, such as smoking, drug and alcohol abuse, improper diet, and inadequate exercise.

References

1. Council on Scientific Affairs, American Medical Association. A physician's guide to asbestos-related diseases. *JAMA* 1984;252:2563-2567.
2. Zurer PS. Many asbestos removal projects cited as needless, costly, and risky. *Chem Eng News* 1990;68(8):21-22.
3. Schools complying with AHERA. *Chemicals-in-Progress Bull.* 1990;11(1):3.
4. Corn M. Perspective on the potential risk and management options for asbestos in buildings. Presented at the 22nd International Congress on Occupational Health, September 1986; Sydney, Australia.
5. *Asbestos in Buildings: A National Survey of Asbestos Containing Friable Materials* Washington, DC: US Environmental Protection Agency; 1984. EPA publication 560/1-84-005.
6. Assessing the asbestos risk. *Consumers Res July* 1990;10:13.
7. Tillman TD. Asbestos in public and commercial buildings. *Chemicals-in-Progress Bull.* 1990;11(1):2.
8. Diagnosticians agree to disagree. *Asbestos Issues August* 1990;3(3):8.
9. Mosaman ST, Bignon J, Corn M, Easton A, Gee JBL. Asbestos: scientific developments and implications for public policy. *Science* 1990;247:294-301.
10. OSHA proposes halving PEL for workplace asbestos. *Occup Health Saf Lett* July 1990;120.
11. Chesson J, Hatfield J, Schultz B, Dutton E, Blake J. Airborne asbestos in public buildings. *Environ Res* 1990;51:100-107.
12. Bricher JL. The third wave risk. *Asbestos Issues* 1990;3(8):3-17.
13. Raftery WK. Asbestos removal. *Science* 1990;246:1063-1065.
14. McNally RC. The EPA responds. *Asbestos Issues* 1990;3(4):22-23.
15. *The ABCs of Asbestos in Schools* Washington, DC: US Environmental Protection Agency; June 1989. EPA Pesticides and Toxic Substances publication TS-739.
16. Paul JM, Corn M, Lees PJ, Brynne PH. Non-occupational exposure to asbestos in buildings. *Am Ind Hyg Assoc J* 1986;47:497-504.

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