

Should Canadian health care professionals support the call for a worldwide ban on asbestos?

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‡ See related articles pages 489 and 491

The call for an international ban on asbestos in this issue (page 489)¹ is the latest twist in one of the most extraordinary sagas in the modern history of environmental and occupational health. The rise of occupational health and environmentalism as social forces to be reckoned with in the 1960s coincided with accumulating evidence for the carcinogenicity of asbestos. Asbestos and the asbestos industry became a “poster child” for all that environmentalism opposed. Whereas concerns about the health effects of asbestos were initially centred on the workplace, by the 1970s there was increasing awareness that asbestos fibres could be found almost anywhere. This led to widespread concern and occasional panic among the general public.

In the scientific community, different schools of thought emerged on the carcinogenicity of asbestos. The position of one school can be characterized by the following elements: asbestos is extremely carcinogenic; it affects multiple target organs; all types of asbestos are harmful; there is no safe level of exposure to asbestos; the weight of evidence for harmful effects of all kinds of asbestos is incontrovertible and long-standing; asbestos exposure levels cannot be adequately controlled in the workplace; given the development and increasing accessibility of alternative products, there is no longer any excuse to perpetuate the use of asbestos; the most defensible public health-based position is to ban asbestos outright; and the asbestos industry and its acolytes have systematically obfuscated these truths or minimized their implications. Many members of the Collegium Ramazzini have been associated with this school of thought, and the Collegium’s call for an international ban on asbestos represents a logical culmination of this perspective.¹

A different school of thought has held that the body of evidence regarding asbestos and cancer is more complex and ambiguous. It sees significant differences in risk by fibre type and by the nature of the exposure. It believes that the high risks identified in historic cohort studies bear little relevance to the risks under current exposure conditions. It is less sceptical of claims that asbestos can be used safely, at least in a limited number of applications. Finally, this school challenges the claim that substitute products are safe, arguing that the available evidence incriminates some as carcinogenic.

To characterize the range of opinions on the health ef-

fects of asbestos in this bipolar way is certainly simplistic, because opinions can be found that differ from these. However, in large measure, the debate about asbestos has been framed by these caricatures, and participants in the debate have tended to see themselves and others as adherents of one or other of these constellations of beliefs.

The debate has not been a purely scientific one. Underlying the respectable scientific discourse has been an undertone of innuendo on each side, suggesting that positions defended by scientists on the other side are conditioned as much by venal self-interest as by scientific or health concerns. Certainly in conversation, and sometimes in barely disguised form in print, allegations have been made that some scientists are toeing a line of obfuscation and delay in the interests of the asbestos industry. Such allegations have been made not only with regard to scientists who have received funding from the asbestos industry, but also regarding scientists with very tenuous links to the industry. Because Canada is one of the leading asbestos producers in the world, there have been aspersions cast by some in the anti-asbestos faction about the objectivity of Canadian scientists on this issue.

On the other side are suspicions that the anti-asbestos faction is motivated in part by the financial rewards that may be associated with acting as an expert witness in the US multi-million dollar asbestos litigation industry. Or that it is too facile for experts whose own countries are exporters of nonasbestos substitute materials to call for a ban on asbestos.

Canada is indeed a major player in the asbestos saga. Canadian asbestos, most of which is chrysotile mined in the Eastern Townships region of Quebec, accounts for a significant fraction of all the asbestos that has been used in the “Western world” in the past century. However, the asbestos industry in Canada, as elsewhere, has suffered great losses in markets, production and employment over the last 30 years. The economic importance of the industry is greatly diminished, although it still occupies an important role in a few small towns.

While acknowledging the plausibility of self-interest as a motivating factor for scientists, as well as for other players such as national governments, let us consider the facts and the controversies. There are thousands of original research publications regarding asbestos and fibre substitutes, and

there has been a plethora of national and international expert panel reports.²⁻¹⁶ The different reports have not been unanimous in their evaluations of health effects. Selective quotation from one or other of the available studies can make the evidence seem clearer than it really is. Box 1 contains some background information on asbestos and its substitute products. A set of statements about which there is broad consensus is presented in Box 2. A number of questions on which consensus is much harder to find are listed in Box 3. The Collegium leaves no doubt about its stance on the issues listed in Box 3, asserting that its views are indisputable. Still, they are disputed, despite the fact that there is hardly any class of chemicals that has been as well studied as asbestos.

Absolute proof and unanimity of scientific opinion are virtually unattainable and, therefore, cannot be required before we are justified in acting on prevailing scientific beliefs. Has the threshold for the most drastic public health action been crossed as regards asbestos? If that threshold were formalized, would we be required to ban completely other occupational or environmental agents? The answers are not self-evident.

The Collegium's call also raises a thorny ethical issue. The market for asbestos is now largely in developing countries. The Collegium, which is based mainly in the United States and Western Europe, wants to prevent what is sometimes called the "exportation of death" by the asbestos industry to developing countries. But a ban is not only a constraint on the seller, it is also a constraint on the buyer. A ban would deprive those countries of the opportunity to decide for themselves whether to import asbestos or not. Public health as a field of endeavour has a noble tradition of "telling people what's good for them" and even legislat-

ing behaviour on that basis. But the legal and ethical basis for so doing has been based on the tacit authority given to public health authorities by citizens of that jurisdiction. The ethical basis for the Collegium's call for a worldwide ban is less clear-cut. Unlike many other environmental issues that can have regional or global consequences (e.g., fossil fuel consumption or chlorofluorocarbon use or massive deforestation), the effects of asbestos pollution, if there are any, are local. It smacks of paternalism to assume that developing countries are incapable of ascertaining their self-interest in this matter.

Although I do not wish to belabour the analogy, another continuing environmental health saga may provide a cautionary tale with regard to the impact of Western views on developing countries. DDT is a cost-effective weapon in the vector control of malaria, but it may have deleterious effects on the ecosystem. Under pressure from Western environmentalists and governments, many developing countries abandoned the use of DDT for malaria control in the 1970s, on the assumption that alternative methods were available. Unfortunately, those alternatives were not as effective in practice, and the developing countries have experienced a staggering increase in malaria.^{17,18} I am not making a value judgement here about the pros and cons of banning DDT. However, it is clear that the pressure for the ban came from the developed countries, ostensibly in

Box 1: Background information on asbestos

- Asbestos has been a remarkably useful mineral with a wide range of applications.
- The term "asbestos" includes fibres that differ in physical form and chemical composition.
- Chrysotile is now the most commercially important type of asbestos, because the use of other types has been abandoned over the past 30 years.
- Different asbestos-containing materials have different degrees of likelihood of degradation.
- A wide range of alternative products have been developed in the past 30 years to compete for a market share with asbestos. The market share for these alternatives has increased sharply in Western countries.
- As markets for asbestos have decreased in Western countries, the relative proportion sold to the developing countries of Asia, Africa and Latin America has increased.

Box 2: Statements on which there is broad consensus

- Most, if not all, types of asbestos can cause cancer.
- Lung cancer and mesothelioma (pleural and peritoneal) can be caused by most, if not all, forms of asbestos.
- Asbestos can only cause cancer if the fibres are inhaled. If asbestos fibres do not come into human breathing zones, there is no risk.
- The bulk of the epidemiological evidence that we have about cancer risks due to asbestos was derived from studies of workers exposed in the early-to-mid 20th century. The levels of exposure were orders of magnitude greater than those that regulations have allowed in most Western countries for the past 20 years.
- For lung cancer and mesothelioma, the available epidemiological cohort studies of workers exposed to asbestos have exhibited a fairly wide range of "dose-response" relationships between estimated cumulative asbestos exposure and estimated risk.
- In Western countries, there have been dramatic increases in the reported incidence of mesothelioma over the past 40 years, especially among men.
- The asbestos industries do not have a proud record of openness and risk management.

Box 3: Questions that remain controversial

- Which of its characteristics makes asbestos carcinogenic?
- Is commercial chrysotile significantly less carcinogenic than other types of asbestos?
- Are there asbestos products that entail a very low likelihood of significant asbestos exposure at the point of production, at the point of use and further down the line?
- What are the most valid estimates of the numbers of cancers that have been caused by past exposure to asbestos?
- More importantly, what are the most valid estimates of the numbers of cancers that will be caused by present and future exposure to asbestos?
- Are the most prevalent substitute products safer than asbestos, considering the way in which they are used?
- What are the cost and product quality comparisons between asbestos and its substitutes?

the interests of developing countries, but the unforeseen consequences were borne by developing countries.

The asbestos saga, in which I have been a bit player, has been an ongoing challenge to my personal and professional beliefs. In my opinion, the call for a ban on asbestos is, for the most part, a well-motivated, respectable and defensible position. But on balance, I do not have enough confidence in the Collegium's assertions regarding the questions listed in Box 3 to think that it is the right thing to do. Nor am I convinced that it is wrong. The proposal should be considered by an international panel whose credibility and range of expertise (epidemiology, toxicology, engineering, industrial hygiene, international law and commerce, and risk management) would command respect. Because of the rather ossified, and therefore suspect, positions of all those who have been in the heat of the asbestos controversy, such a panel should exclude anyone who has significant experience or interests in asbestos research. The panel should, of course, call upon the "asbestos experts" of all stripes to act as consultants and advisers. But the final decisions and recommendations should be made by people who are approaching the issue untainted by past associations or activities. Constituting such a panel may be almost as challenging as answering the basic questions.

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