The debate on banning asbestos

I write concerning the package of articles in *CMAJ* on the call for a ban on asbestos.[1–3] A few years ago I wrote to the Canadian and Quebec governments suggesting that asbestos should be exported only to countries that could ensure that asbestos was handled with the same precautions that were legislated in Canada. Some form of supervision by independent experts, excluding all apologists and activists, would be required. My proposal did not receive support; I was told that it was not practical, that it represented interference with foreign countries, and that other exporters would rush to fill the void.

However, I feel that in the absence of assurances concerning the handling of asbestos in receiving countries, there is a clear moral choice to make. The same issues should concern those who profit from the export of pesticides.

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References

1. LaDou J, Landrigan P, Bailar JC III, Foa V, Frank A, on behalf of the Collegium Ramazzini. A call for an international ban on asbestos [editorial]. *CMAJ* 2001;164(4):489-90.
2. Camus M. A ban on asbestos must be based on a comparative risk assessment [editorial]. *CMAJ* 2001;164(4):491-4.
3. Siemiatycki J. Should Canadian health care professionals support the call for a worldwide ban on asbestos? [editorial]. *CMAJ* 2001;164(4):495-7.

Time after time, I have been amazed by those who rush to the defence of the chrysotile industry. A *CMAJ* editorial supported the suggestion that a panel of experts review the public health implications of asbestos and the efficacy and the hazards of alternative materials.[1]

In 1998 a panel of 17 experts from 10 countries, which drew on the resources of 140 collaborating centres, institutions and individuals in developed and developing countries, concluded that "exposure to chrysotile asbestos poses increased risks for asbestosis, lung cancer and mesothelioma in a dose-dependent manner. No threshold has been identified for carcinogenic risks. Where safer substitute materials for chrysotile are available, they should be considered for use. Some asbestos-containing products pose particular concern and chrysotile use in these circumstances is not recommended."

Is this World Health Organization panel of experts not expert enough? The evidence is clear. Chrysotile has caused and is continuing to cause disease and death worldwide. It is hypocritical for Canada to continue to produce chrysotile when it is not prepared to use it domestically. If chrysotile is unsuitable for Canadian lungs, how does it become suitable for Korean, Indian and Japanese lungs?

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References

1. A ban on asbestos: Is now the time? [editorial]. *CMAJ* 2001;164(4):453.
2. *Chrysotile asbestos*. no 203 of *Environmental health criteria* series. Geneva: World Health Organization; 1998.

The data now seem to clearly refute certain old ideas about asbestos, including the notions that lung cancer cannot occur without obvious interstitial fibrosis on chest film, that chrysotile does not cause lung cancer and that there is no real interaction between smoking and asbestos exposure except among insulation workers. As a consequence of these old beliefs, claims from smokers who were exposed to asbestos and developed lung cancer have been denied for years by workers' compensation boards, often on the grounds that smoking represented the greater risk. However, a smoker exposed to asbestos is more than twice as likely as a smoker who was not exposed to asbestos to die of lung cancer (whether there is a synergistic effect at that level of exposure or not), a conclusion supported by the totality of the literature and individual studies of chrysotile-exposed workers in which the data have been so analyzed.[1] Thus, if one looked at a population of smoking asbestos workers who developed lung cancer and compared them only with unexposed smokers who developed the disease, one would conclude that occupational exposure was the cause of more than half of the cases; this is the presumptive criterion for an occupational disease. A strong case could be made that the risk conferred by exposure to asbestos for a smoking worker should be compared with the background risk for other smokers, not nonsmokers. By that standard, many claims now denied would be accepted.

Asbestos is an example of a health problem concerning which attitudes are changing, although I could as easily use asbestos as an example of how slow they are to change. In developing countries, chrysotile is no longer being defended as harmless. Instead, it is being defended as having an acceptable cost/risk ratio: asbestos will be handled with exquisite care by well-trained workers in the production of cement pipe that will provide clean water, which will save innumerable lives. Excuse me if I, and the rest of the world, do not buy this argument. The time has come for Canada to accept the inevitable global ban on exports of asbestos.[2]

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References

1. Zhu HL, Wang ZM. Studies of occupational lung cancer in asbestos factories in China. *Br J Ind Med* 1993;50:1039-42.
2. LaDou J, Landrigan P, Bailar JC III, Foa V,

Frank A, on behalf of the Collegium Ramazzini. A call for an international ban on asbestos [editorial]. *CMAJ* 2001;164(4):489-90.

The proposal to ban asbestos[1] is based on arguments that neglect certain facts. Although I agree that the dusty asbestos workplaces that existed for 7 or more decades resulted in excessive exposure and undoubtedly caused malignancies, current industry regulations have dramatically improved workplace conditions. Anxieties about asbestos were initiated and then amplified by the US Environmental Protection Agency (EPA) beginning in the 1970s and continuing well into the 1980s. At one point the EPA estimated that 100 to 8000 schoolchildren would die prematurely because of exposure to asbestos in school building materials. Without evidence, the EPA came to believe, at one point, that a single asbestos fibre could cause cancer. Such claims generated enormous media attention and caused public panic. In 1990, EPA Director W.K. Reilly admitted, "[We] must accept a share of the responsibility for the misperceptions that led to the unwarranted anxiety and unnecessary asbestos removal."[2] This statement, however, received little attention.

These facts are obfuscated or ignored by ban-the-asbestos advocates; in the past, balanced presentations about this issue[3,4] have had little or no impact on legislators and international trade regulators. If the arguments for a ban on asbestos[1] are accepted, can a call for a ban on gravel, a crushed rock that may contain up to 90% silica, be far behind because of the risk of silicosis from its dust?

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References

1. LaDou J, Landrigan P, Bailar JC III, Foa V, Frank A, on behalf of the Collegium Ramazzini. A call for an international ban on asbestos [editorial]. *CMAJ* 2001;164(4):489-90.
2. Reilly WK. Asbestos: sound science and public perceptions. Why we need a new approach to risk. In: *Proceedings of the American Enterprise Institute Environmental Policy Conference*; 1990 June 12. Washington (DC): US Environmental Protection Agency. Report no.: 20Z-1006.
3. Camus M. A ban on asbestos must be based on a comparative risk assessment [editorial]. *CMAJ* 2001;164(4):491-4.
4. Siemiatycki J. Should Canadian health care professionals support the call for a worldwide ban on asbestos? [editorial]. *CMAJ* 2001;164(4):495-7.

Although there is much that could be said concerning the Collegium Ramazzini's exaggerations of the hazards of asbestos,[1] the most significant matter to be rebutted is the statement in the penultimate paragraph that indicates that the Collegium Ramazzini receives no support from trial lawyers. This may be true now, but it was not the case in 1991. The plaintiffs' executive committee in the School Asbestos Litigation case provided a cheque for US$50 000 (from the settlement fund) to the late Irwin J. Selikoff, the founder of the Collegium, to pay, in part, for a conference on the dangers of asbestos (the "Third Wave Conference") convened by the Collegium and attended by 15 US judges, several of whom had been handling asbestos matters.[2] A further US$22 500 came from private donations, including donations from members of the plantiffs' executive committee.[3]

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References

1. LaDou J, Landrigan P, Bailar JC III, Foa V, Frank A, on behalf of the Collegium Ramazzini. A call for an international ban on asbestos [editorial]. *CMAJ* 2001;164(4):489-90.
2. *In re School Asbestos Litigation*. 977 F.2d 764 (3rd Cir. 1992). p. 779-80.
3. Kelly JM. Memorandum of the United States District Court of Pennsylvania. Master file no 83-0268. 1991 June 17. p. 1-9.

One can identify 3 stages in the regulation of major health hazards: a total ban, like a taboo in primitive societies; a forced reduction in the production of the hazardous substance to a level often just short of that which would bankrupt the industry, such as the "best available control technology" of the US Environmental Protection Agency (EPA); and a thoughtful risk–benefit analysis including comparative risk assessment.

A ban may well be the first approach to a very serious hazard. When a total ban is perceived as disruptive to society's overall goals, "best available control technology" might be the first approach. But when time is available,

scientific and medical research can provide information useful for risk–benefit analysis. Perhaps there was good reason to argue for immediate, drastic action such as a complete ban when the asbestos problem first became widely known more than 30 years ago, but this was not done.

The EPA proposed a ban in 1979 on the manufacture of asbestos-containing products in the United States. Many of the questions raised by Jack Siemiatycki[1] were asked and answered when a court of appeals remanded the matter back to the EPA in 1991 because they "failed to muster substantial evidence" to support their position that modern asbestos products present an unacceptable risk to the public.[2] The EPA did not provide this evidence. We argue that it does not exist.

In calling for a complete ban now, the Collegium Ramazzini states, without evidence, that the risk of chrysotile asbestos is too great and that exposure cannot be controlled.[3] On the contrary: exposures in the last 20 years seem to have been very well controlled. The increased rate of mesothelioma in the United States, which the Collegium uses to bolster its claim, occurs only among people old enough to have been exposed before 1970.

The Collegium argues, without proof, that all types of asbestos fibres present cancer risks so similar as to be indistinguishable. It ignores the characteristics, such as biopersistence and surface chemistry, that make some materials more carcinogenic than others. Yet it is these very characteristics that are needed to explain why substitutes such as synthetic vitreous fibres are safer.

The Collegium's approach to the health hazards of low-level asbestos exposure is behind the times. Because of its obsession with chrysotile asbestos, the Collegium has missed the really nasty hazards of the last half century, next to which the hazards of low-level asbestos exposure seem insignificant. The arsenic catastrophe in Bengal and Bangladesh is one example.

It is not too late to change. Let us urgently study the list of issues raised by Michel Camus[4] and agree upon a proper comparative risk assessment.

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References

1. Siemiatycki J. Should Canadian health care professionals support the call for a worldwide ban on asbestos? [editorial]. *CMAJ* 2001;164(4):495-7.
2. *Corrosion Proof Fittings v. EPA* 947 F.2d 1201 (5th Cir. 1991).
3. LaDou J, Landrigan P, Bailar JC III, Foa V, Frank A, on behalf of the Collegium Ramazzini. A call for an international ban on asbestos [editorial]. *CMAJ* 2001;164(4):489-90.
4. Camus M. A ban on asbestos must be based on a comparative risk assessment [editorial]. *CMAJ* 2001;164(4):491-4.

Not much has changed concerning the morality of continuing to produce and sell asbestos since my editorial on the subject was published in *CMAJ* 14 years ago.[1] Jack Siemiatycki's balanced and thoughtful summary[2] is useful, but one may doubt that his recipe for resolution of the question will actually contribute much toward a solution. The problem is that the range of risk estimates is so wide and the exposure data are so poor that the choice between alternatives becomes essentially arbitrary. I reviewed the problem of asbestos in 1994 but was unable to suggest any way of improving the risk estimate procedure or of resolving the question.[3]

Since then, the Canadian government has challenged the French government's decision to join other European countries in banning the use of asbestos, and it was threatening to raise the matter with the World Trade Organization. As far as I am aware, this issue has not been debated in the House of Commons, nor is there a white paper outlining the Canadian government's defence of the use and export of asbestos. In my editorial, I argued that the Canadian medical profession had a responsibility in relation to this question, but I am still not sure how this should be exercised.[2]

My own position is that the difficulty in evaluating the risk management, the undoubted danger of the material when inhaled and the existence of satisfactory substitutes should lead to a decision that the use of asbestos should be discontinued.

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References

1. Bates DV. Asbestos: promotion or prohibition? [editorial]. *CMAJ* 1987;136:107-9.
2. Siemiatycki J. Should Canadian health care professionals support the call for a worldwide ban on asbestos? [editorial]. *CMAJ* 2001;164(4):495-7.
3. Bates DV. *Environmental health risks and public policy: decision-making in free societies*. Seattle: University of Washington Press; 1994.

[Philip Landrigan responds:]

The principal reason for the Collegium Ramazzini's call for an international ban on all uses of asbestos is to protect the health of workers in developing nations.[1] In many of those countries, production and use of asbestos are increasing,[2] occupational safeguards are weak to non-existent and the prospect looms for an epidemic of asbestos-related disease that will dwarf the epidemics that occurred in North America and Western Europe.

Richard Wilson and colleagues and David Janigan miss this central point when they argue that a ban on asbestos is unnecessary because rates of mesothelioma are declining in the United States and other developed countries. It is well to recall that these declines are the result of strong regulations that were imposed on asbestos despite the continuing objections of the asbestos industry and their apologists, and despite continuing calls by those groups for yet more study, more risk assessment and more cost–benefit analysis.

The asbestos industry, like other industries that manufacture hazardous products, is deliberately transferring its operations and its markets to developing nations to escape the strict legal controls that now exist in virtually all industrially developed nations, Canada among them. It is quite hypocritical of those industries to relocate to the least-developed nations and then to claim that workers there can work safely with toxic materials such as asbestos. Anyone who has travelled in the poor nations of South America, sub-Saharan Africa and Southeast Asia will have seen workers using asbestos in the most uncontrolled of conditions, for example, cutting asbestos–concrete pipe with circular saws or trowelling asbestos insulation on to walls in the complete absence of any form of respiratory protection. The argument that workers can be protected against asbestos in nations that have no legal infrastructure in occupational health is a cruel joke.

The claim that chrysotile asbestos from Canada is "safe" is simply not true. Epidemiologic as well as toxicologic studies have shown abundantly that all forms of asbestos including Canadian chrysotile can cause the full range of asbestos-related diseases including mesothelioma, lung cancer, asbestosis and other malignancies.[2] An analysis from Quebec published 3 years ago showed a 7-fold excess mortality rate for pleural cancer (presumably mesothelioma) among women in the chrysotile-mining townships; no such excess was seen elsewhere in the province.[3] The International Agency for Research on Cancer,[4] the US Environmental Protection Agency[5] and the World Health Organization[6] have all accepted that chrysotile is a potent carcinogen.

The claim by Dildar Ahmad and William Morgan that the Collegium Ramazzini accepted funding from a consortium of trial lawyers to sponsor a conference a decade ago is old news. The Collegium receives no such funding at present.

Laurie Kazan-Allen is absolutely correct in noting that this issue has been studied to death. A call for further review might on its face seem reasonable, but in fact it is simply a summons for yet another journey down a well-trodden and diversionary pathway.

I thank David Muir, David Bates and Tee Guidotti for their thoughtful comments in support of this ban.

Those who support the continuing export of asbestos to the developing nations of the world are in the same unhappy position as those who would advocate the export of cigarettes to those nations — they are defending the indefensible.

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References

1. LaDou J, Landrigan P, Bailar JC III, Foa V, Frank A, on behalf of the Collegium Ramazzini. A call for an international ban on asbestos [editorial]. *CMAJ* 2001;164(4):489-90.
2. Nicholson WJ. The carcinogenicity of chrysotile asbestos: a review. *Ind Health* 2001;39:57-64.
3. Camus M, Siemiatycki J, Meek B. Nonoccupational exposure to chrysotile asbestos and the risk of lung cancer. *N Engl J Med* 1998;338:1565-71.
4. International Agency for Research on Cancer. *IARC monographs on the evaluation of carcinogenic risks to humans*. Suppl 7. Lyon (France): The Agency; 1987. p. 106-16.
5. Environmental Protection Agency. *Airborne asbestos health assessment update*. Washington: The Agency; 1986. Report no.: EPA/6000/8-84/003eE.
6. *Chrysotile asbestos*. no 203 of *Environmental health criteria* series. Geneva: World Health Organization; 1998.

[Jack Siemiatycki responds:]

Notwithstanding the strong disagreements among these letter writers, most of them make valid points concerning the call for a worldwide ban on asbestos.[1–3] I would like to comment on 2 of the letters.

Laurie Kazan-Allen implies that one cannot legitimately question the ban-asbestos lobby without being a lackey of the chrysotile industry. She claims that the final word on chrysotile risks was produced by "a panel of 17 experts from 10 countries, which drew on the resources of 140 collaborating centres, institutions and individuals …" Having been one of the individuals involved in that process, I can affirm that the image she conjures of an army of scientists coming together in a harmonious and coordinated fashion to answer the questions is misleading. The document was written and approved by a small group of people, not by an army of scientists. Further, given the report's equivocal recommendations, its calls for additional research and its many acknowledgements of data limitations, it is clear that this panel did not consider that it was handing down the final truth on chrysotile.

Most importantly, Kazan-Allen also misrepresents the substance of the panel's valid and valuable report. As shown by the important extracts that Kazan-Allen quoted, the panel did not recommend a worldwide ban on asbestos. Indeed, the panel recommended research concerning the economic and practical feasibility of substitution for chrysotile asbestos as well as further research on the risks of cancer following exposure to relatively low levels of chrysotile.

Finally, whether chrysotile is suitable for "Korean, Indian and Japanese lungs" is surely not for Canadians to decide; but neither is it for the English or Americans to decide. Although scientific postulates have a universal character, public health policy must be rooted in social realities specific to each country. Even if they share a common understanding of the risks associated with a given factor, it is entirely legitimate for different countries to devise different policies in light of their different local circumstances.

Regarding David Muir's letter, surely the principle he espouses would apply not only to asbestos and pesticides but to all export products whose use might involve differing standards of health and safety for workers or consumers. Canada would have to set up monitoring systems in each country to which each such product was exported. For example, before exporting cars to a foreign country, we would need to monitor that country's tobacco and alcohol regulations and practices as well as all aspects of its national road safety policies (such as seat belt laws, speed limits, highway design and policing of driving safety). National and local policies and practices regarding fossil fuel combustion and its control would have to be monitored before oil was exported anywhere. There are many more examples of products (pharmaceuticals, nickel, plastics, various foods) that might not be used as safely abroad as we would hope. The sheer magnitude of the effort required to establish and maintain bilateral multi-product monitoring programs with each country to which Canada exports goods renders the proposal a non-starter, not to mention the potential for diplomatic conflict.

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References

1. LaDou J, Landrigan P, Bailar JC III, Foa V, Frank A, on behalf of the Collegium Ramazzini. A call for an international ban on asbestos [editorial]. *CMAJ* 2001;164(4):489-90.
2. Camus M. A ban on asbestos must be based on a comparative risk assessment [editorial]. *CMAJ* 2001;164(4):491-4.
3. Siemiatycki J. Should Canadian health care professionals support the call for a worldwide ban on asbestos? [editorial]. *CMAJ* 2001;164(4):495-7.

[Michel Camus responds:]

I proposed that the toxicity of chrysotile asbestos is much lower than that of other types of asbestos and that it may be close to that of substitutes.[1] Additionally, before a decision is made on whether or not to ban asbestos the technical efficiency of substitutes compared with chrysotile must be weighed for products that have intrinsic safety characteristics. Overall, like Richard Wilson and colleagues, I favour a comparative risk assessment approach. Although substitutes may prove to be better products with respect to human health, this has not yet been shown. Substitutes are associated with some risks, however small, and must therefore be considered critically. In fact, even a substitute 10 times less toxic than chrysotile should be regulated and controlled as tightly as chrysotile if we want to reduce risks. If we tolerate higher exposures to a substitute than to chrysotile, we could well offset the benefits of the lower toxicity of that substitute. Any ban or substitution policy should stipulate standards for substitutes likely to reduce risks.

The letters to *CMAJ* on banning chrysotile exhibit various viewpoints. I cannot address all of the important issues here, but I caution against putting moral judgements before fact-finding. No doubt all of the letter writers would agree that chrysotile is a carcinogen, but some of them seem to dismiss exposure–response relationships and the lower, possibly "acceptable" risks associated with lower exposures today. Any chrysotile-related risk may seem immoral to them, yet they are not critical about risks associated with chrysotile substitutes. How is it more moral to apply the precautionary principle only to chrysotile rather than to both chrysotile and its substitutes? Oversimplification and avoidance of evidence make it easier to make decisions but they result in hazardous policies.

David Muir and Laurie Kazan-Allen raise the issue of exporting hazardous materials and products. It seems desirable to caution the countries to which we export such materials and products against incorrect uses and careless exposures. Such cautions would apply to both asbestos and substitute products. However, it is not obvious how to do this without being paternalistic. This problem may be addressed by better labelling, cooperative education, training programs and improvements in the "traceability" of products. International laws might be enacted to hold producers and exporters responsible for the detrimental health effects of their products. I am not sure. Generally, more care should be taken to protect the most vulnerable sectors of any society against overexposure to toxic substances such as chrysotile and its substitutes.

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Reference

1. Camus M. A ban on asbestos must be based on a comparative risk assessment [editorial]. *CMAJ* 2001;164(4):491-4.

Methylmercury poisoning

Erica Weir's otherwise excellent public health article on the risks of methylmercury was flawed by misinformation on the clinical management of patients with methylmercury poisoning.[1] The information provided appears