



Asbestos neglect: Why asbestos exposure deserves greater policy attention

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ABSTRACT

While many public health threats are now widely appreciated by the public, the risks from asbestos exposure remain poorly understood, even in high-risk groups. This article makes the case that asbestos exposure is an important, ongoing global health threat, and argues for greater policy efforts to raise awareness of this threat. It also proposes the extension of asbestos bans to developing countries and increased public subsidies for asbestos testing and abatement.

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1. Introduction

In recent years, significant progress has been made in increasing public awareness of a number of public health threats. For example, the health risks of smoking, sun exposure, unprotected sex, and driving while drunk are now widely appreciated in many parts of the world. In some cases, the protective strategies associated with these threats have become familiar parts of everyday life: sunscreen, smokefree restaurants and designated sober drivers have, within the space of a generation, become familiar.

Unfortunately, asbestos exposure and its associated health risks have proven largely immune to this surge in public awareness. Although the word ‘asbestos’ is widely associated with cancer and lung disease, the ongoing risks from the substance remain poorly understood, and the strategies designed to diminish risks have not captured the public imagination. Health campaigns regarding the substance have been largely limited to particular at-risk professionals such as plumbers and carpenters, and even in those groups, awareness of the risks and appropriate protective measures is often low [1]. Asbestos exposures associated with the September

11 attacks and some major earthquakes have commanded significant media attention (e.g. Johnson, 2002; [2,3]; CNN, 2013), but more mundane exposures, for example due to environmental contamination or home renovations, do not have a high media profile. Similarly, awareness of the global dimensions of the asbestos health threat are not widely appreciated [4], though epidemiologists predict a rise in asbestos-related disease in several developing nations in future decades [5,6].

Several considerations might be invoked to explain these relatively low levels of public awareness. First, a powerful asbestos industry has consistently sought to play down the health risks posed by the substance [7]. Second, the burden of asbestos-related disease has disproportionately affected the least politically powerful groups [8]. Third, the health risks of asbestos exposure typically only become apparent after latency periods of several decades [9,10]. Tchiehe and Gauthier [11] argue that public acceptance of risk is typically lower, and preventive measures better implemented, when negative health effects become apparent quickly.

However, explanation is one thing; justification is another. Even if low levels of awareness can be explained, it does not follow that they should be accepted. This article offers grounds for regarding asbestos as an important, ongoing global health threat, and makes the case for greater policy efforts to (i) stop further production and use of asbestos, (ii) raise awareness of the health threat that it poses, and (iii) lower barriers to asbestos testing and abatement.

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2. Burden of disease and ongoing exposure

The most obvious reason for regarding asbestos exposure as an important global health threat is that it is associated with a substantial burden of disease. The 2015 Global Burden of Disease Study estimates that occupational exposures to asbestos resulted in 184,677 deaths and 3.1 million Disability Adjusted Life Years (DALYs) in that year [12]. A comparison with excessive sun exposure puts this in perspective: melanoma of the skin has an estimated annual global burden of disease of around 60,000 deaths and 1.6 million DALYs [13].

Malignant mesothelioma is thought to be almost entirely attributable to asbestos exposure and is almost universally lethal. Incidence among men is over 3 cases per 100,000 people per year in Australia and the UK and over 1 per 100,000 men per year in most Western European countries [14]. A recent estimate puts the global rate of mesothelioma deaths at 38,400 annually [15]. However, mesothelioma may be only the tip of the iceberg. The contribution of asbestos exposure to lung, laryngeal and ovarian cancer is difficult to determine and the aetiological relation between asbestos exposure and several cancer types is still the subject of investigation [16–18].

It is true that current asbestos-related morbidity and mortality is a poor indicator of the likely future burden of disease. Asbestos-related cancers, and especially malignant mesothelioma, have a long latency period. The mean time from first asbestos exposure to diagnosis of malignant mesothelioma may be as high as 48 years [19]. Thus, much current morbidity and mortality can be attributed to exposures in the 1960s and 1970s, when asbestos production and use was at its highest in the developed world [20]. Since that time many jurisdictions have introduced bans or tight restrictions on the production, importation and use of asbestos, and there is now evidence from several developed countries that asbestos-related morbidity and mortality is falling in cohorts born after the 1940s, and falling substantially in countries where morbidity and mortality was initially highest [21–23]. However, there are at least two reasons to believe that the global burden of asbestos-related disease will remain elevated for the foreseeable future.

First, even in countries that have introduced stringent regulations, ongoing asbestos exposure is certainly not zero and the identification and quantification of exposures is an ongoing issue. For example, Belgium, a well-known asbestos manufacturing country in the past, only recently established the amount of asbestos imported before the national ban in 1998 [24], and historical data has revealed that large quantities of amphibole asbestos types were imported. (All asbestos fibre types have well-established carcinogenic effects, but amphibole fibres are thought to be more dangerous due to their biophysical characteristics [25].) The level of ongoing exposure and risk due to this importation remains uncertain.

The known sources of asbestos exposure can be divided into five categories: (i) mining of raw asbestos, (ii) production, handling and installation of asbestos-containing products, (iii) unsafe removal, destruction or damage of asbestos-containing materials, (iv) natural disintegration of asbestos-containing materials (for example crumbling of asbestos panels, earthquake damage to asbestos-containing buildings, and disintegration of materials used to ‘wrap’ asbestos), and (v) proximity to contaminated sites (for example, sites of former asbestos mines, factories or dumping grounds).

Type (i) and (ii) exposures have been greatly reduced in most developed countries, but reducing exposures (iii), (iv) and (v) remains a challenge. There is evidence that exposure from unsafe management of asbestos-containing materials or environmental asbestos sources occurs frequently in tradespeople. For example, a 2007 UK study found that 60% of UK plumbers were exposed to airborne asbestos in a single working week [1] while an Australian

inquiry reports that the majority of interviewed removalists saw asbestos-containing materials in poor condition on a weekly basis [26].

Infrequent, non-occupational exposures of a wide segment of the general public are also a growing cause for concern, since there is no threshold level of exposure below which exposure is safe. A survey of the Australian general public found that 23.7% of the sample had carried out do-it-yourself home renovations, of whom 61.4% reported exposure to asbestos, 39.3% reported exposure of a partner, and 22.8% reported exposure of children [27]. These figures may understate the true exposure, since even tradespeople who work regularly with asbestos have been found to recognise only a minority of exposures [1].

There is evidence from Western Australia that exposure from home renovations is responsible for a growing proportion and absolute number of cases of malignant mesothelioma in Australia [28], and the burden of disease from home renovations may now be substantial. Recent data from the Australia Mesothelioma Registry indicates that 232 (33%) of 701 surveyed mesothelioma patients diagnosed between 1 July 2010 and the end of 2016 reported no work-related exposure to asbestos [29]. On the assumption that almost all mesothelioma is caused by asbestos exposure [30], this finding is suggestive of non-occupational exposure. Armstrong and Driscoll [31] recently investigated the available evidence for an increase in asbestos-related diseases due to exposure from repairing, renovating or demolishing asbestos-containing buildings. Despite some strong indications of such an increase, the authors underline the need for cautious interpretation due to limited information on non-occupational exposure circumstances and the corresponding health risks.

The second reason for ongoing exposure is that measures to reduce asbestos-related health risks have for the most part been limited to the developed world [32]. Takahashi and Karjalainen [33] investigated asbestos consumption in ten Asian countries and found variable levels of occupational asbestos exposure, with more industrialized countries typically experiencing a stable decrease in asbestos use, and less industrialized countries often showing a clear increase. The substance remains in heavy use in India, China, Thailand, Indonesia, and much of the former USSR [4]. Until recently, Canada, historically the largest producer of asbestos, was still mining the substance and exporting it to developing countries, even though its use was all but banned at home. Russia, Kazakstan and Brazil continue to mine and export chrysotile asbestos. There are almost no data on current rates of asbestos-related disease in the countries that now use it most heavily [34], a fact which local authorities have frequently exploited to justify the almost complete absence of protective measures [4], however ongoing substantial exposures in many developing countries have led several commentators to predict an increase in asbestos-related deaths in these countries in coming decades (see e.g [5,6,35]).

3. Equality and responsibility

The likelihood that asbestos will continue to create a substantial burden of disease for the foreseeable future constitutes the primary basis for regarding asbestos exposure as an important global health threat. However, two ancillary considerations amplify its importance.

The first is that asbestos-related disease can be expected not only to produce a significant burden of disease, but also to exacerbate health inequalities. A disproportionate burden of future asbestos-related disease will fall on inhabitants of developing countries [36]. In addition, within those countries, asbestos-related morbidity and mortality is likely to be highest in groups of low socio-economic status, whose health outcomes are already poor.

The current epidemic of asbestos-related disease in developed countries is largely a working-class phenomenon [37], reflecting the nature of occupational exposures, and there is little reason to expect a different pattern in developing countries.

A second ancillary consideration is that the health risks from asbestos often fall on individuals who are not responsible for those risks. Some would argue that the moral importance of many high profile public health threats, such as smoking, alcohol abuse and obesity, is diminished by the fact that the adverse health effects caused by these threats are largely the result of optional lifestyles that are widely known to be unhealthy. The (admittedly controversial) thought is that, in choosing to smoke or eat fattening foods while fully aware of the availability of healthier lifestyles, one becomes at least partly responsible for one's subsequent disease, and this weakens the imperative for others—including the state—to lower these risks [38,39].

No similar argument could be advanced in relation to asbestos. Asbestos was a primary or significant component in such diverse products as automobile brake linings, pipes and pipe insulation, ceiling and floor tiles, adhesives, roofing, interior and exterior walls, textured paints, concrete, cement, bricks, protective clothing, mattresses, electric blankets, heaters, toasters, ironing boards and even piano felts, cigarette filters and artificial snow [7]. Few of these applications are widely known. Moreover, asbestos is intrinsically difficult to recognise and many individuals exposed to it—including many tradespeople and almost all home renovators—have had no training that would help them to identify risks. As a result, many exposed individuals are, through no fault of their own, unaware of the exposure or of potential means to manage asbestos risks. A 2007 study of UK plumbers compared actual to self-reported exposures and found that only around a third of actual asbestos exposures were identified [1]. Though no good data are available, we can only assume that levels of ignorance among casual home renovators are at least as high.

Of course, even when individuals are aware of the risks, it may be costly or otherwise difficult for them to manage exposure, for example, because their employers are unwilling to implement and fund appropriate safety measures. Thus, even in these cases, it is doubtful that exposed individuals can be held responsible for their exposures.

4. Three proposals

Not only is the health threat due to asbestos important and ongoing, it is also clearly amenable to mitigation through better policies, hence the need for greater policy attention. We propose three types of policy that should be given greater attention and priority by policymakers.

First, policymakers in countries which have not yet banned the mining, importation and use of asbestos should implement such bans urgently. Where this is not possible, for example, due to political resistance, they should take measures to facilitate the introduction of such bans in the near future, for example, by introducing procedures for measuring asbestos exposures and mesothelioma incidence, thus making denial of risk more difficult. For countries with existing asbestos bans, we recommend strict enforcement of the existing asbestos legislation.

Second, efforts at raising public awareness targeting the most important sources of risk should be re-doubled and should, as with past campaigns relating to sun exposure, driving while drunk, and smoking, include the wider public in addition to particularly at-risk groups. Better knowledge about the uses of asbestos, how to identify it, and how to deal with it safely have the potential to substantially reduce accidental exposures to tradespeople and do-it-yourself renovators in the developed world. One promising

supplement to such measures would be to use smartphone apps to screen residential settings for the presence of asbestos-containing materials, as being developed in Australia [40].

Awareness raising measures in the developing world could potentially have an even greater direct benefit, given the higher exposure levels, and they might also have the indirect benefit of helping to facilitate the necessary regulatory reforms. Vincenten and colleagues identified eight barriers to the cessation of asbestos use [41] with a lack of awareness of the health risks being one of these. Governments would find it more difficult to understate the risks posed by asbestos and to resist bans on its use if local populations had as much knowledge of these risks as most Western populations have of, for example, the risks of smoking and drink driving.

Third, we believe there is a need for greater public subsidisation of cost-effective and safe asbestos testing and abatement measures such as removal or, where removal is likely to increase exposure, encapsulation. At present, the costs of testing and abatement can provide a significant financial incentive to ignore possible asbestos, and this can impose risks both on those who choose to ignore possible asbestos and on third parties. For example, neglect of asbestos risks by home renovators may cause exposures both to the renovators themselves and to other home occupants and neighbours. It might be argued that stronger penalties for transgressions would be preferable to state funding, however there is a consistency argument for the latter: other comparable health risks have been the targets of significant public investment, even where, as in the case of sun exposure, the case for such funding is weaker, since risks generally fall on those individuals who adopt the risky behaviours rather than third parties. There is also a historical argument for public funding: current exposures are in a significant part attributable to past policy failures, so it is fair that the governments responsible for those failures should bear a significant part of the cost. Of course, the asbestos industry also bears a large share of the blame, and, due to the limited success of private litigation, has until now largely escaped accountability. There is thus a fairness case for passing on a large share of the costs of subsidised testing and abatement on to the current representatives and beneficiaries of the asbestos industry. Again, however, there is a role for governments here; only governments can implement the legal reforms necessary to enable such a distribution of costs.

Several countries *are* currently implementing safe asbestos removal schemes. These include Poland [42], the Netherlands [43], and the Flemish region in Belgium [44]. Provisions differ widely in scope and timing. The Netherlands, for example, has set out to remove all asbestos roofs by 2024, whereas the Flemish Region is targeting high priority locations (e.g. schools) to achieve an 'asbestos-safe'—not asbestos free—Flanders by 2040. These schemes are a step in the right direction and must be broadened to cover more countries and a wider range of exposures, though schemes should of course be subject to cost-benefit analyses [31]. A recent survey from the WHO Regional Office for Europe found that only eight of the 25 participating countries with an asbestos ban had a national strategy to prevent environmental exposure in the general population [45].

5. Conclusion

It is time for asbestos exposure to be given the policy attention that has been devoted to other similarly important public health threats. We strongly urge policy makers to ban asbestos mining, importation and production where bans have not yet been implemented. Policy-makers should also raise public awareness of asbestos using measures of the sort that have been adopted for smoking, sun exposure, and unsafe sex. Finally, policymakers

should promote the safe and swift removal of asbestos from society by subsidizing asbestos testing and abatement services.

Conflict of interest statement

We have no conflicts of interest to declare.

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