

Plenary Presentation

5.4 A PRECAUTIONARY PROGRAMME FOR WORKERS WHO HAVE BEEN EXPOSED TO ASBESTOS?

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Introduction

I am an epidemiologist, so in this presentation I will address the topic of society's assistance to those who have been exposed to asbestos from an epidemiological perspective. My remarks will apply, in particular, to those countries where extraction, manufacture, trade and export of any asbestos and asbestos-based materials have ceased.

Any measure intended, realistically, to alleviate (not eliminate) the consequences of asbestos exposure requires some preliminary ethical and practical considerations. First, the extent to which the offer of the precautionary measure will actually reach all who are entitled to benefit from it. Second, the extent to which it can be expected that, whatever assistance is offered, it will be of advantage to the proposed recipient. Additional issues relate to the identification of priorities for action, given that: (i) underlying scientific findings are not always clear-cut and (ii) available resources may be limited.

A roster of workers previously exposed to asbestos

In deciding which precautionary measures should be offered on an individual basis it is beneficial to compile a nominal list of individuals who have been exposed to asbestos in the workplace (confidentiality issues are beyond the scope of this presentation). In developed countries, at least, this may not be a problem for employees in firms previously involved in conventional asbestos-related activities (mining, production of friction materials, manufacture of asbestos-cement etc). However, it could hardly be accomplished for workers hired by firms being subcontracted for activities carried out in the same workplace. These firms – which frequently carry out the dirtiest jobs, such as cleaning the machinery or eliminating the residues of the working process – are often short-lived so that the administrative records regarding hiring and dismissal of employees are difficult to trace. The latter problem is frequently encountered in epidemiological studies attempting to assemble retrospectively cohorts of workers occupationally exposed to hazards, among whom those working under subcontract are often the most heavily exposed.

In addition, a huge proportion of workers at risk of asbestos-related disease were engaged in occupations entailing *use*, rather than *production*, of asbestos-based products. A marker of previous exposure to asbestos in these categories is their high risk for mesotheliomas, clearly identifiable in those countries served by registries of mesotheliomas, such as Australia [1]. Some examples of those categories in which exhaustive searches would be most problematic are: boiler cleaners, carpenters, joiners, and electricians.

These limitations should not prevent the implementation of surveillance programmes, but decision makers ought to be aware that exposure data in the available databases do not ensure full

coverage of the relevant activities. The resulting exclusions have a potential for inequity in the provision of assistance, which requires consideration.

Indeed, in most countries (e.g. Italy, Spain), this inequity is evidenced by the ridiculously low number of mesotheliomas and lung cancers being recognized as occupational in origin and compensated. In Italy, only recently has this number exceeded one hundred per annum, whereas rigorous (and cautious) estimates would bring the figure close to two thousand.

The number of workers who are or have been exposed to asbestos

An international exercise aiming at an estimate of occupational exposure to carcinogens in the European Union in 1990-93, financed by “Europe against cancer” was coordinated by the Finnish Institute of Occupational Health and the International Agency for Research on Cancer [2]. The national labour force data for each European country were integrated with estimates from the US and Finland of the prevalence of exposure within each *specific productive* activity; national estimates were produced by experts in each country. The resulting database was called CAREX, from *carcinogen exposure*.

CAREX estimated that in the early nineties there were in Europe 1.2 million circumstances of occupational exposure to asbestos involving a slightly lower number of exposed workers. For the purpose of surveillance, this is an under-representation of needs: the figure is a point estimate at a given time and excludes workers exposed before that time. For instance, the Italian data in the early nineties, before the Italian ban, do not include workers employed in the Balangero mine, which stopped the extraction of chrysotile in the late eighties. An independent French analysis estimated an approximately 10% prevalence of past occupational exposure to asbestos in men [3]. Within the CAREX estimate, construction workers represent a huge proportion (about 75% in Italy). Table 1 provides the total estimates for each European country as given in the CAREX report [4], whereas Table 2 reproduces figures for Italy, using a more stringent criterion, as reported in the CAREX database (construction workers are not tabulated: they are estimated to be around 300,000).

What measures should be provided in the precautionary programme?

A public health programme addressed to workers previously exposed to asbestos may include medical surveillance, but not to the exclusion of other measures. Important non-clinical objectives are interventions of primary prevention, the provision of information on risk and counselling about the right to compensation for occupational diseases.

There are good reasons to believe that post-exposure primary intervention measures involving *ad hoc* anti-smoking campaigns effectively reduce the risk of both lung cancer and damage to the lung tissue leading to respiratory insufficiency. Tobacco smoke seems to have no role in the induction of pleural and peritoneal mesotheliomas, so that anti-smoking campaigns are not supposed to modify the carcinogenesis process in these organs induced by exposure to asbestos. As for chemoprevention, the results of a number of trials intended to test an ability to prevent lung cancer indicate that there are, as yet, no practical tools for efficient, safe chemoprevention of asbestos-induced lung cancer [5].

Medical surveillance addresses two issues among which there should be no confusion: the provision of care to people who are symptomatic because of asbestos-related disease and the offer

of diagnostic anticipation to asymptomatic (and possibly healthy) people who are at relatively high risk of becoming sick because of previous exposure to asbestos. Both approaches have the potential for non-medical repercussions: clinicians report (to agencies which may differ between countries) on conditions attributable to asbestos and deserving compensation. Indemnification of disease occurrence is not a proper outcome of any precautionary programme, but as long as asbestos-induced disease will occur (i.e. for several decades), ignoring this facet of the problem would be unfair and inequitable. The current under-reporting of conditions amenable to compensation, in most countries is largely attributable to poor training of medical doctors and nurses in public health and to the limited information on occupational hazards included in their curricula. Both in the asbestos and the post-asbestos era, any programme intended to control asbestos-induced disease should be largely addressed to the training of personnel. Some countries, particularly Finland, have produced guides to rational criteria for attribution of respiratory disease and cancer to asbestos exposure [6].

Attempts to screen asymptomatic people for respiratory cancer have largely targeted lung cancer (prospects for effective secondary prevention of pleural cancer are grimmer). Whereas diagnostic anticipation through tests used in previous investigations proved ineffective in improving the natural prognosis of the disease, attention is currently focussed on the potentialities (detection rate, sensitivity, specificity) of spiral computerized tomography, which is currently being investigated in several countries [6], although the ability of diagnostic anticipation through its use (obviously, followed by a proper therapeutic protocol) to reduce the lethality of lung cancer is yet to be demonstrated.

Some ethical issues

The need for exhaustiveness in the identification of the populations most expected to benefit from any intervention has been stressed above as well as the technical difficulties which may be encountered in the process. Exhaustiveness ensures against lack of equity in access to whatever assistance is on offer for previously exposed workers. An additional problem is that subgroups of workers previously exposed to asbestos may differ in their socio-economic standards, education, level of legal assistance, access to information and participation in the decision making process (as well as in the extent of their previous exposure to the hazard). Given that resources are limited, their allocation requires the setting of priorities: the underlying criterion may be based either upon a utilitarian criterion (provide most benefit to the largest number of people) or upon other criteria. In the latter context, it has been recently suggested that precautionary measures be prioritised to minimize inequalities between groups of exposed workers, as an alternative to simple numerical considerations. In any case, criteria should be decided jointly by all those who are concerned (groups of exposed workers in the first place) and not left only to the “experts” or politicians. Offering particular attention to some groups (e.g. those who have been most heavily exposed in traditional asbestos-related occupations, and who are the easiest to identify) does not exempt public health authorities from ensuring that some basic messages (such as anti-smoking recommendations or information about entitlement to indemnity) are received by a wider audience.

There is, no doubt, need for additional investigations focussed on effective measures aimed at counteracting the progression of asymptomatic early changes induced by asbestos to overt disease. Recent approaches are most promising and their development deserves a high priority in the allocation of resources for research. On the other hand, investigations should not be confused with interventions. Research is orchestrated to answer particular scientific questions, whereas intervention requires that every effort be made to ensure widespread access to a measure which previous research has shown to be effective. The current approach to secondary prevention of

asbestos-induced lung cancer falls into the former category: persons at high risk entering these studies ought to be aware that they *might* but *will not necessarily* benefit from their involvement.

Table 1. CAREX estimates of the number of workers exposed to asbestos in the early nineties in EU countries

Austria	14,800
Belgium	10,500
Denmark	8,900
Finland	7,400
France	138,100
Germany	159,200
Greece	15,000
Ireland	5,600
Italy	677,200
Luxembourg	900
Netherlands	14,300
Portugal	15,700
Spain	56,600
Sweden	12,400
UK	95,100

Table 2. Workers exposed to asbestos in Italy in the early nineties (construction workers not shown: they are estimated to be in the order of 300,000)

Oven workers in plants manufacturing glass products	1500
Friction materials	2000
Asbestos cement	2000
Maintenance workers in electric power production	1000
Laggers, insulators etc	2000
Roofers	5000
Roads and railroads construction/maintenance	2000
Wholesale and retail trade, restaurants and hotels	1700
Maintenance workers in land transport	2000
Personal and household services	13600
Other (excluding construction workers in general	33000

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