recently (Vainio and Bofetta, 1994) who conclude that the overall evidence indicates an interaction in the multiplicative region. This implies that the relative risk of lung cancer due to asbestos exposure will be the same for smokers and non-smokers alike. Thus SMRs for lung cancer based on a reference population with the same smoking habits as the cohort members should only reflect the effect on mortality due to asbestos exposure. An earlier review by Berry *et al.* (1985) estimated that the effect of asbestos exposure was about 1.8 times greater in non-smokers than in smokers (though with confidence limits which did not exclude a simple multiplicative interaction). If this is the case the observed effect of asbestos on lung cancer rates will be greater in populations with lower smoking prevalence. However, given the relative lung cancer risks typical of smoking (about 15-fold) and asbestos exposure (about 2-fold) together with the generally high prevalence of smoking in the observed populations, the scope for bias—if there is indeed a differential effect of the scale suggested—is limited. In either case, a problem arises when the smoking habits of the cohort members differ from those of the reference population, which is the case for some of the cohorts reviewed. For this reason, any information about smoking given in the studies was summarised. The amount of information given was very variable, and could be categorised as follows:

1. No information given. (Ferodo, US Insulators, Paterson, South Africa, Johns Manville, Albin).
2. The percentage of the cohort that smoked, usually based on a cross sectional survey conducted in a particular year, (Connecticut, Balangero, Quebec, Pennsylvania, Rochdale, Wittenoom).
3. Comparison of the prevalence of smoking in the cohort and the reference population. (New Orleans, Massachusetts, Carolina).
4. Estimation of the effect of any differences in prevalence—for example calculation of smoker adjusted lung cancer SMRs, (Vocklabruck)
5. Data on prevalence of smoking within exposure categories—but with no external comparison (Ontario).

Most studies fell within the first two of the above categories. In these cases only subjective judgements could be made by the authors about the smoking habits of the cohort members. Also, cross sectional studies were often based on a small proportion of the cohort and may not be very representative. For most studies which addressed the issue the authors concluded that there was no major difference in smoking prevalence or that the slight differences in prevalence were not likely to change the expected number of lung cancer deaths in a substantial way. Of the studies where comparative smoking data were given, the Vocklabruck cohort showed the largest difference in cohort smoking habits and those of the general population, and this was the only study where an explicit adjustment for smoking was made. Unadjusted data was used for all other studies.

Fibre type and industry process

For the purpose of summarising the information given in the studies, each cohort was given a fibre type classification of 1, 2 or 3 letters according to the type of fibre used, with the letters y, a and o representing chrysotile, amosite and crocidolite exposures respectively. For example:

'yao'	means all three commercial asbestos types were used in the cohort
'yo'	means chrysotile and crocidolite were used
'a'	means only amosite was used

The order of the letters indicates the relative importance of the fibres used. Very small quantities of fibre were ignored in some cohorts (Carolina, New Orleans plant 1, Connecticut), the reasoning for this in each case is set out in Appendix A (Table 14). In a similar way, for display in tabular and graphical data summaries, industry process was coded as follows.

M	Mines
C	Cement
T	Textiles
I	Insulation Products
F	Friction Products
L	Lagging and work with insulation
O	Other

Meta-analytic issues

The aim of a meta-analysis is to identify where evidence from different studies is discrepant; ideally, to explain the reasons for the discrepancies; and where data from different studies are coherent to combine them into a common summary which will be more precise and soundly based than the estimate from any single study. For this review the coherence of estimates of R_L and R_M from different studies has been assessed in a Poisson regression framework, fitting a common value of the parameter of interest across a group of studies and testing the residual deviance between the observed and predicted numbers of events (mesothelioma or lung cancer deaths) in the studies in the group. Confidence limits around the group estimates were calculated by profile likelihood methods. Confidence limits are not shown for the means of groups which show very significant heterogeneity, since such limits have no ready interpretation. Indeed, in this situation it is not clear that the mean itself has any natural meaning. Faced with clearly discrepant data, purely statistical criteria cannot be used to decide on a 'correct' summary or compromise estimate.

The statistical analyses in this report only take account of the statistical variability of the mortality