

Mesothelioma Risk From Chrysotile

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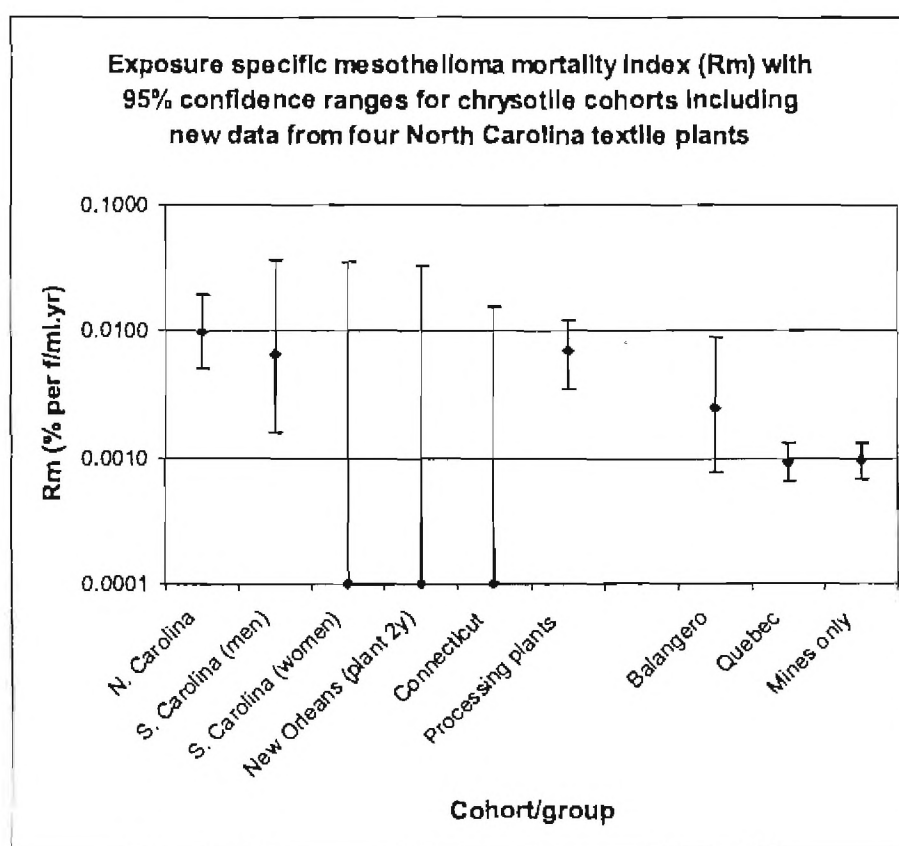
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We welcome the appearance of this new analysis of asbestos related mortality which constitutes an important addition to the available evidence. We note that the lung cancer risk from this data highlighted by the authors and based on their internal analyses gives an identical risk factor to the one suggested as the 'best estimate' in our earlier meta-analysis (1): a relative risk of 1.102 per 100 f/ml.yr translates almost exactly to an excess over expected of 0.1% per f/ml.yr.

The risk of mesothelioma derived from these new data is higher by a factor of 10 than that which emerged from our meta-analysis. The following chart shows these new data (labelled N. Carolina) along with the chrysotile data used in our analysis.



The generally small numbers mean that all the estimates are subject to substantial statistical error. The largest single set of observations is that derived from the Canadian mines, and this gives a low and (statistically) reasonably precise estimate of about 0.001. The remaining observations are statistically consistent ($P=0.075$); though mainly due to their imprecision, rather than to the similarity of the estimates. The statistical consistency is somewhat improved by also removing the Italian mines (Balangero) cohort ($P=0.10$). The mean risk taken across the remaining cohorts is 0.0070 with a confidence limit running from 0.0038 to 0.013.

Combining the two mining cohorts gives a joint estimate of 0.00096 (95% CI 0.00069, 0.0013).

The estimate from the latest study is based on eight cases. Assuming Poisson variability the underlying risk could correspond to between 4 and 16 cases. Up to three of the observed cases may be due to amosite exposure in plant 3, but it could also be argued that some mesothelioma cases may have been missed during the period prior to the introduction of ICD 10.

An estimate of 0.007% per f/ml.yr still places the risk of mesothelioma from chrysotile at least an order of magnitude lower than the risk we estimate for the amphiboles fibres (0.5 for crocidolite, 0.1 for amosite). As we argued in our original paper, if the risk from chrysotile is indeed substantially lower than from the other fibre types then the level of risk observed in cohorts with mixed exposure provides an upper limit to the true risk for chrysotile on its own. In our meta-analysis four of the mixed fibre cohorts had mesothelioma risk estimates around or below the 0.01 level. In the largest of these (Ferodo) there is a strong indication that 11 of the 13 mesothelioma deaths were due to crocidolite exposure. Since the overall risk for this cohort was 0.014, the implied chrysotile risk in this setting (friction products) would be well below 0.01.

These new results certainly strengthen the case for the proposition that the per fibre risk of mesothelioma from chrysotile in textile plants is greater than it is in the mines. Whether this differential also applies in other settings is not clear from the evidence above: the absence of mesothelioma deaths in the New Orleans and Connecticut cohorts is statistically consistent with a risk of 0.01 though, obviously, more consistent with the mines estimate of 0.001.

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