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Engineering controls are the most protective means of controlling respirable coal mine dust

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We read with interest the Review article¹ by Paul Cullinan and colleagues. The authors highlight workplace exposures as substantially contributing to the global burden of respiratory disease. These exposures receive less public health attention than interventions focused on individual lifestyle risks, even though the risks of many workplace exposures, such as respirable coal mine dust, are well characterised and have proven control measures. For example, the authors rightly identify engineering solutions as an important part of the hierarchy of controls for reducing workers' exposure to coal mine dust. We also agree with the statement later in the Review that the use of personal protective equipment, such as various forms of respirator, occupies the lowest tier of the hierarchy of controls and is reserved for situations in which other methods have failed adequately to control airborne exposures.

In view of this, we are concerned that the statement "Respiratory protective equipment should be used as a primary means of protection" could inaccurately be taken out of context. Use of respiratory protection should not be a primary means of protection against respirable coal mine dust, for the reasons provided subsequently in the Review. Consistent with this approach, a final rule² published in 2014 by the US Mine Safety and Health Administration requires engineering or environmental controls as the primary means of controlling respirable dust, a position affirmed by the National Institute for Occupational Safety and Health, and one that is consistent with the hierarchy of controls outlined in figure 5 of the Review. As the authors rightly note, severe coal workers' pneumoconiosis remains a major public health concern, not only in rapidly industrialising nations, but also in developed countries including the USA. In fact, an update³ of coal workers' medical surveillance (with 3 years of additional data figure 1 from Cullinan and colleagues¹) points to a still worsening situation in the central Appalachian region of the USA (figure).

We applaud the authors' efforts to develop recommendations to guide research, surveillance, and control methods for preventing work-related lung diseases, and we support their efforts to raise awareness and apply proven best practices to prevent diseases of occupational origin.

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We declare no competing interests.

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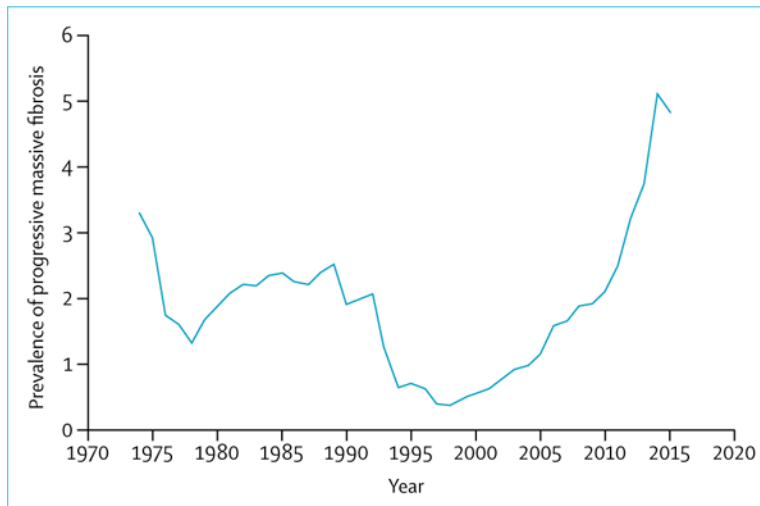


Figure. Prevalence of progressive massive fibrosis* in underground-working coal miners with 25 years or more of underground mining tenure—KY, VA, and WV, 1974–2015

*Data source: the Coal Workers' Health Surveillance Program.⁴ Surveillance is done on a 5-year national cycle. Data are 5-year moving averages, eg, data plotted for 1974:

$$\frac{\sum [PMF_{1970} + PMF_{1971} + PMF_{1972} + PMF_{1973} + PMF_{1974}]}{\sum Participants_{1970-74}}$$

Reproduced from Blackley and colleagues.³