

More effort needed to prevent exposure to silica hazards as silicosis remains a major cause of illness, death worldwide

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Immediate concerted efforts are needed to recognise and control exposure to silica hazards worldwide as the incurable and potentially fatal lung disease silicosis remains a major cause of illness and death around the world, concludes a Seminar published Online First in *The Lancet*. The paper calls for improved environmental controls and safety practices to help reduce the risk of acquiring this preventable disease, especially in developing countries.

Silica or free [crystalline silicon](#) dioxide (quartz, cristobalite, and tridymite) is one of the most common minerals worldwide. Inhalation of silica dust is linked with the development of various diseases including silicosis ([chronic inflammation](#) and scarring of the lungs that impairs lung function), lung cancer, tuberculosis, and other airway diseases.

Despite decades of prevention efforts, silicosis remains a major occupational health concern in both developed and developing countries, say the authors, led by Dr Chi Chiu Leung, Department of Health, Hong Kong, China.

Workers are exposed to respirable silica dust in a variety of industries and occupations including mining, construction, sandblasting, dental laboratories, and production of pottery and ceramics.

China has the highest number of silicosis patients with an estimated 500

000 cases of silicosis recorded between 1991 and 1995, and 6000 new cases and more than 24 000 deaths reported every year.

The introduction of protective measures such as dust control and respirators has resulted in a steady decline in silicosis-related deaths in developed countries including the USA where age-adjusted death rates fell from 8.9 per million in 1968 to 0.7 per million in 2004. However, silicosis deaths in young adults (aged 15-24 years) have not fallen since 1995, and are most likely the result of intense and recent exposures.

Over the past decade, outbreaks of silicosis have also been reported in small-scale companies and mines in developing countries, mainly as a result of poor hazard recognition and a lack of protective measures.

The authors call for periodic monitoring of silica dust to improve workplace safety in all industries with silica exposure, adding that:

"[Current] enforced or suggested permissible exposure limits for respirable silica were chosen according to the desired level of protection and available methods of dust control and monitoring of technologies, and they vary...in different countries...and have not been confirmed as fully protective by epidemiology studies."

Concerted efforts are also needed to improve preventive measures including avoidance or control of silica exposure at source, transmission, and by workers, and through surveillance of worker health.

"Besides education about symptoms of silicosis, regular medical assessment might detect adverse health effects in exposed workers before disease reaches an advanced stage", say the authors, adding that at present: "No universal standard exists for the frequency of such assessment because the decision may be affected by past and present respirable [silica](#) concentrations, dust particulate characteristics, and

economic conditions."

More information: Online: [www.thelancet.com/journals/lan ...
12\)/60235-9/abstract](http://www.thelancet.com/journals/lan/article/doi/10.1016/S0140-6736(12)60235-9/abstract)

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