

Long-term exposure to silica dust increases risk of death in industrial workers

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Industrial workers who have been chronically exposed to silica dust are at substantially higher risk of death from all causes than workers who have not been exposed. Furthermore, the risk of death, especially from lung and cardiovascular diseases increases with increasing exposure, according to a study from Chinese researchers published in this week's *PLoS Medicine*.

The researchers, led by Weihong Chen from the Department of Occupational and Environmental Health, at Huazhong University of Science and Technology in Wuhan, China, studied 74,040 workers who were employed for at least one year at 29 different Chinese metal mines and pottery factories between 1960 and 1974, and then followed up until the end of 2003.

The researchers found that death from all causes was higher among workers exposed to silica dust compared to workers who were not exposed to silica dust (993 versus 551 deaths per 100,000 person-years). In addition, increasing exposure increased the risk of death from all causes, [respiratory diseases](#), respiratory tuberculosis, and [cardiovascular disease](#).

Importantly, the researchers found that at silica concentrations at or below the workplace exposure limit set by the US Occupational Safety and Health Administration (0.1mg/m³), there were many more deaths (up to 11 times more) than in the general population. Furthermore, the researchers estimated that in 2008, 4.2% of deaths among industrial

workers in China were attributable to silica dust exposure.

The authors conclude: "Long-term silica dust exposure was associated with substantially increased mortality among [Chinese workers](#). The increased risk was observed not only for deaths due to respiratory diseases and [lung cancer](#), but also for deaths due to cardiovascular disease."

They add: "Findings from this study have important public health implications for improving occupational safety among those exposed to silica dust in China and around the world."

More information: Chen W, Liu Y, Wang H, Hnizdo E, Sun Y, et al. (2012) Long-Term Exposure to Silica Dust and Risk of Total and Cause-Specific Mortality in Chinese Workers: A Cohort Study. *PLoS Med* 9(4): e1001206. [doi:10.1371/journal.pmed.1001206](https://doi.org/10.1371/journal.pmed.1001206)

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