

Development of radiological and autopsy silicosis in a cohort of South African gold miners

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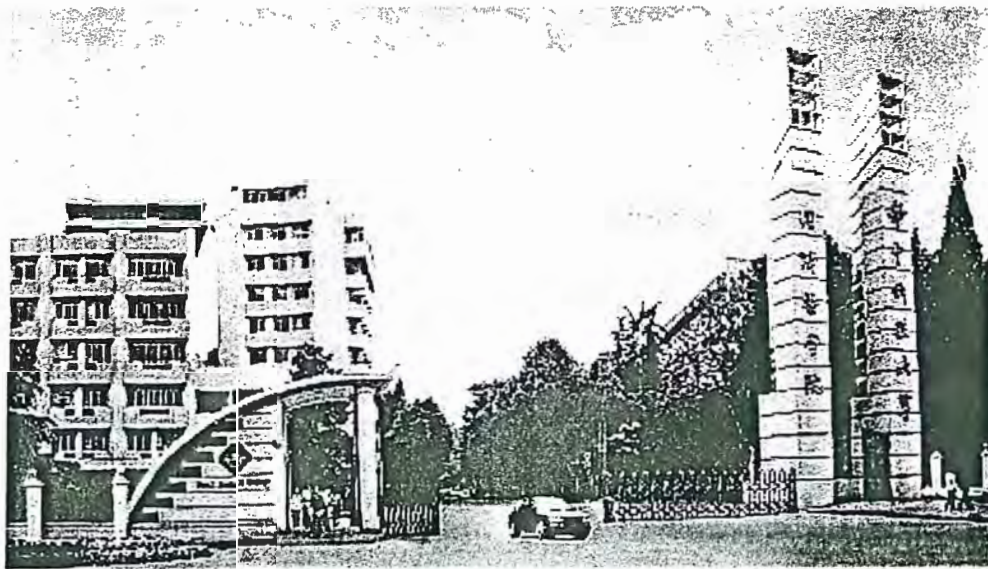
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A cohort of 2,260 South African gold miners who started mining in 1940 was followed for silicosis onset using radiological data up to 1989 and autopsy data up to 2003. The age of onset of radiological silicosis was investigated and related to exposure pattern, and radiological and autopsy findings were compared. A first epidemiological reading of the annual chest radiographs (ILO Classification) was done in 1970 at 45-54 years of age, by an experienced reader, No. 1. A second independent reading for silicosis onset was done in 1989 by three readers, including reader No. 1. Based on reader No. 1, the number of miners with radiological signs of silicosis ILO category $\geq 1/0$ was 149 by the year 1970 and 351 by 1989. By 2003, there were 1,464 (65%) miners who had an autopsy: 677 (46%) had no silicosis, 339 (23%) had insignificant, 204 (14%) slight, 180 (12%) moderate and 64 (4%) marked degree of silicosis at autopsy. The study shows the development of silicosis from the start of employment up to death and its relation to exposure. The exposure-response relationship for autopsy silicosis was similar to that observed for radiological silicosis.

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