FACT SHEET
Silicosis in the mining sector in southern Africa

Silicosis is a progressive and incurable lung disease caused specifically by inhaling tiny particles of silica dust that is produced when rock containing silica is crushed, drilled, blasted or ground. Silica occurs in different concentrations in many common kinds of rock, including quartzite, sandstone, shale and granite.

Cause, symptoms and course of disease

Respirable ("breathable") particles of silica dust are sharp and so tiny they cannot be seen with the naked eye. They cause increasingly severe scarring and formation of nodules inside the lungs. This damage is characteristic of silicosis and can be detected on X-ray before symptoms emerge.

Occasionally silicosis may develop rapidly – when levels of dust exposure are particularly high. But usually the onset is gradual and the damage caused by exposure to silica dust may only become apparent many years afterwards. It is common for mineworkers to retire unaware they have silicosis and for symptoms to emerge and become progressively worse in their retirement years.

The symptoms of silicosis are shortness of breath, a dry persistent cough and pain in the chest, often accompanied by fatigue, weight loss and fever. These symptoms may become extremely debilitating, making it impossible for the individual to carry out basic functions of daily life. Silicosis is sometimes fatal: it can result in heart failure or cancer.
Silicosis also compromises the immune system and makes individuals much more likely to develop active TB. It also increases the probability of TB being fatal.

Burden of disease

Although data on silicosis in the mining sector in southern Africa is limited, the studies that have been done suggest that it is a major occupational health problem.

- In Lesotho 26% of ex-mineworkers who had worked in South Africa gold mines had acquired silicosis.
- In Zambia, the rate of silicosis among workers in open cast copper mines was 22%.
- In South Africa a range of studies of varying size have shown high rates of silicosis among workers in gold mines. A study drawing together the findings of several other studies put the rate at 32% for black workers and 22% for white workers in 2007.
- In contrast, Zimbabwe has measured a rate 0.1% of pneumoconiosis (a class of diseases that includes silicosis) among mineworkers and Tanzania has found 1.6% of mineworkers have silicosis.
  (All the above studies are cited in *Epidemiological data on TB, MDR-TB, silicosis and HIV among miners and ex-miners,* PHRU, 2017)

There is debate about precisely what kinds of mining carry a risk of silicosis. But it has been established that silicosis is common in gold mining, occurs in platinum mines and is a risk in coal mining where the coal seam is embedded in rock containing silica. Dangerous levels of silica dust have also been found in some gemstone mines, including tanzanite mines. Silicosis occurs in underground and open cast mining, in quarrying and in the cutting and polishing of certain gemstones.

Low awareness of silicosis

Awareness of silicosis is extremely low among mineworkers and mining communities in southern Africa. A survey of 10 500 mineworkers, ex-mineworkers and residents of mining areas in 10 southern African countries, conducted by Select Research in 2017, found that:

- Less than one in five survey participants understood the causes of silicosis and its symptoms. In some individual countries, this figure dipped below one in 10.
- Knowledge was best in Lesotho, Swaziland, Zambia and Zimbabwe.
- Awareness was somewhat higher among current mineworkers, with an average of 25% knowing the cause of silicosis and 27% knowing its symptoms. However, this still means that three out of four mineworkers who are potentially at risk of silicosis are ignorant of the danger.

Prevention a priority

There is no cure for silicosis, so prevention of this debilitating diseases is critically important. Dust control is the key and safety measures include:

- Good ventilation of mines.
- The use of water to settle the dust during drilling.
- The shielding of workers from dust during blasting.
- The provision of good industrial masks with appropriate filters.
- The education of workers about the risk of silicosis.
- The training of workers in the use of safety equipment.

Although damage to the lungs from silica dust cannot be reversed, early detection of damage and immediate removal of the individual from the dusty environment can limit the extent. Workers should be entitled to regular medical examinations, including chest X-rays.

Alleviation of symptoms

Once silicosis has been diagnosed, the symptoms can be alleviated by:

- Lifestyle interventions such as avoiding smoking, drinking good amounts of water, the use of steam to ease breathing, and keeping physically active as far as possible.
- Medical interventions such as vaccination to prevent influenza and pneumonia, and provision of inhalers similar to those used to assist breathing for people with asthma.
- Regular screening and/or testing for TB. Some countries are considering introducing medication to prevent TB (isoniazid prophylaxis) in individuals with silicosis.

Occupational health rights and provisions

The Southern African Development Community Charter of Fundamental Rights states “every worker in the region has the right to health and safety at work . . . (and) employers shall provide safe workplaces that do not pose a risk to the health of employees or any other person exposed”. Most SADC countries have a general provision for compensation of occupational diseases in their laws. However, few have legislation that is specific enough to compel dust control or to guarantee mineworkers compensation for silicosis.

In most SADC countries, compensation of mineworkers for occupational diseases rests with the mining company. In South Africa is there a government fund for the compensation of mining-related diseases. Claiming compensation is often complex, many contract workers are excluded, and the level of compensation is often considered inadequate. Consequently, many mineworkers who disabled by silicosis and dependents of deceased workers have been denied compensation. This led to a major court case to claim compensation for thousands of mineworkers with silicosis which had still to be settled at the end of 2017.

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The TB in the Mining Sector Southern Africa Programme (TIMS) supports the SADC Declaration on TB in the Mining Sector