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Facilitators and barriers influencing implementation of interventions to eliminate silicosis in the South African mining industry

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ABSTRACT

Background

Silicosis is an occupational disease that affects workers, their life, livelihoods, families and communities. Poor workers' health and wellness impact negatively on company efficiency, productivity and profits leading to major economic losses to the whole society. Silicosis is an added burden to the health service in South Africa. The disease is caused by exposure to respirable crystalline silica (RCS) dust. In the South African mining industry, there is an increased risk of tuberculosis among mineworkers exposed to RCS dust and those who develop silicosis. Silicosis is incurable but preventable and RCS dust control is the key. Extensive efforts have been deployed globally and nationally toward the elimination of silicosis. In South Africa, the mining industry set milestones for RCS dust reduction and silicosis elimination by 2013, now extended to 2024. The National Programme for the Elimination of Silicosis in South Africa has only been partially successful due to poor implementation of interventions, the complexity of interventions, and non-compliance with enacted policies. This may account for the fact that novice, current and former mineworkers are still being diagnosed with silicosis in the country. This study aimed to describe the existing implementation strategies and explore the facilitators and barriers to implementation of silicosis elimination interventions in the mining industry, South Africa.

Methods

A cross-sectional exploratory qualitative study was conducted using in-depth interviews among 18 participants selected purposively based on knowledge and experience in the mining industry. The Consolidated Framework for Implementation Research (CFIR) guided the development of the interview guides, data collection and analysis. Framework analysis was conducted and the transcribed data were coded using a hybrid of inductive and deductive coding to derive themes and sub-themes.

Results

18 participants consisting of representatives from DMRE, Minerals Council South Africa, MHSC, MOSH, mining companies, unions and an academic researcher were interviewed. The five main themes identified in this study were intervention-related factors, implementation-related factors, human-related factors, health-related factors and contextual factors. The strategies identified in the study were found to be part of the facilitators for implementation. The facilitators identified in the study were technological advancement, communication and dissemination of strategies, the Minerals Council's role, industry milestones, legislation, enforcement of regulations, monitoring and evaluation, and compensation benefits. The major barriers were the lack of implementation practices and inadequate enforcement.

Conclusion

In the study, CFIR framework was used to guide a systematic process that looked at the strengths and weaknesses of silicosis elimination in the larger mines under the leadership of the Minerals Council South Africa. A lot of work has been done in terms of communication, legislation, enforcement, provision of interventions and efforts from all stakeholders. There a is need to improve communication and feedback with mineworkers on the message of silica dust reduction, enforcement of legislation and policies.

Keywords: barriers; CFIR; dust controls; facilitators, interventions; milestones target; silica dust; respirable crystalline, mining, mineworkers