MAPPING MINE WORKERS IN NKWENE, SWAZILAND TO IMPROVE ACCESS TO TB DIAGNOSIS AND TREATMENT SERVICES

Background

Mine workers in sub-Saharan Africa have the highest rates of tuberculosis (TB) in the world, with more than 760,000 new cases per year connected to the mining industry (Aeras, 2014). The situation is aggravated by the migratory nature of employment in the mines, which contributes to the spread of this highly infectious disease. Mine workers in Swaziland are at particular risk, given that the country has the highest incidence of TB in the world. Swaziland’s mining facilities include the Bulembu asbestos mine, the country’s main source of foreign exchange; the Maloma colliery; Ngwenya iron ore mine; and two aggregate quarries at Nkwalin and Tonkwane. Some Swazi miners cross borders to work in South African mines.

The concern about providing TB services to miners was highlighted by the Southern African Development Community (SADC) health ministers during their annual meeting in November 2012, which mandated the establishment of a technical working group that covered Lesotho, Mozambique, South Africa, and Swaziland. The declaration was signed by SADC Heads of State in April 2014, and the focus was to: implement a harmonised TB treatment framework across the various nations; conduct geospatial mapping of miners, ex-miners, and their families; provide high-quality TB services to miners, ex-miners, and their families; conduct cross-border referral and tracking of miners on TB treatment; conduct advocacy, communication, and social mobilisation to sensitize miners, ex-miners, and their communities on TB; and integrate infection prevention and control into community education.

From March – April 2014, the USAID Applying Science to Strengthen and Improve Systems (ASSIST) Project, in collaboration with the Swaziland Miners Association and the National Tuberculosis Control Programme (NTCP), conducted a mapping exercise of current and ex-miners within the Nkwene community in the Shiselweni Region of Swaziland. The goal of the mapping was to assess the health
status of the community’s current and former mine workers, including their need for TB diagnosis and treatment, and to identify the health facilities where these miners were most likely to seek treatment.

The mapping began with registration of the mine workers by five mapping officers, who were recently graduated nurses trained in TB/multi-drug-resistant TB management. After the registration, the mapping officers conducted health assessments, home assessments, and mapping of the miners over a period of 10 days. Geographic information system mapping was used to collect the miners’ coordinates using the miners’ identification numbers.

During the registration, 231 miners were registered, ranging in age from 35 to over 70 years. Their duration of mining work ranged from one to more than 31 years. A total of 109 (45%) miners were mapped and their coordinates recorded. During health assessments, TB screening was conducted by the mapping officers using TB screening tools. All those screening positive for TB were given sputum bottles and referred to Hlathikhulu Hospital for follow-up care, including GeneXpert Mycobacterium Tuberculosis/Rifampicin testing.

Results

Of the 231 miners, 38 screened positive for pulmonary TB, and 29 reported recurrent chest infections. Diagnostic testing revealed 9 cases of drug-susceptible TB (DS-TB) and 3 cases of drug-resistant TB (DR-TB) (Figure 1).

Lessons and Next Steps

Although the sample size was small, the mapping showed that 5% (12 out of the 231 miners) registered had TB, which was higher than the prevalence of TB in the general population (900/100,000). The majority of the ex-mine workers have recurrent chest infections and also hearing problems which could have resulted from their work in the mines.

The high burden of lung disease and TB among ex-mine workers is a challenge for health service delivery in mining communities that needs to be urgently addressed. Ensuring that these assessments are conducted periodically throughout the whole country could help reduce TB mortality among former mine workers by improving early diagnosis, as well as reduce the spread of TB in these communities. The mapping exercise, if conducted comprehensively, can greatly assist with planning and providing health services unique to miners such as comprehensive lung clinics, audiometry, and occupational health clinics.

The Nkwene miner mapping experience opened up more opportunities for continued provision and support to the miners. It led to sensitisation sessions for the miners regarding TB and HIV as well as discussion of cross-border management of miners who are diagnosed with TB.

In addition, the need for TB services for miners led to the introduction of the Mozambique, Lesotho, Swaziland, and South Africa Project which was launched in December 2014, supported by funds from the World Bank, and implemented by University Research South Africa (URSA). The purpose of the project is to register and sensitise about TB, mine workers who are returning home for holidays. The miners were welcomed back to their homes at the border posts where they were registered and provided with TB education and information on where to access TB services. Home visits and community mass education visits were conducted during their holidays to strengthen knowledge on TB and encourage medication adherence and social support.

In addition to registering the mine workers, USAID ASSIST, in collaboration with the URSA project, conducted advocacy, communication, and social mobilisation activities, one of them being a mass educational and promotional event in Matata shopping complex in the Lubombo Region. The main purpose of the visit was to sensitise mine workers about TB services available during the festive season, emphasize the importance of treatment adherence, and encourage mine workers, ex-mine workers, and their families to get tested for TB.

As a way of continuing with the services provided to miners, the Swaziland Ministry of Health is making sure that TB services are available in all clinics throughout the country and that there is harmonisation of TB treatment miners receive both in South African health centres and in Swaziland.

Figure 1: Mapping of Mine Workers, Nkwene community, Shiselweni Region (March-April 2014)