

A test of the mining industry's health systems responsiveness to SARS-CoV-2 (COVID-19) pandemic

What would the Mine Medical Professionals Association (MMPA) do in the future?

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The world woke up to Wuhan city lockdowns in early 2020, and mining companies in South Africa soon realised that the economic disruptions to the supply chains were imminent, followed by great uncertainty of mining business sustainability. The mining sector has often been called the resources sector. What is now accepted, without any doubt, is that people are the critical resource that any business needs to ensure that other resources are deployed efficiently for the purpose of business, and the economy as a whole.

Using the World Health Organization's (WHO's) systems thinking framework,¹ it is our thinking that the mining industry has a solid base from which responsiveness and resilience of its health systems has been tested during the COVID-19 evolution. Former director-general of the WHO, Margaret Chan, observed that:

*"As health systems are highly context-specific, there is no single set of best practices that can be put forward as a model for improved performance. But health systems that function well have certain shared characteristics. They have procurement and distribution systems that actually deliver interventions to those in need. They are staffed with sufficient health workers having the right skills and motivation. And they operate with financing systems that are sustainable, inclusive, and fair. The costs of health care should not force impoverished households even deeper into poverty."*¹

Mark Britnell² made the same observation – that there is no such thing as a perfect health system, since circumstances differ. He also asserted that different countries are better at some aspects, as illustrated by Israel's primary healthcare system, Africa's patient and community empowerment, and the United States' research and development infrastructure.

The Mine Medical Professionals Association (MMPA) members are in the centre of the COVID-19 storm, dancing in the whirlwind, and balancing the risks and benefits of any movements of their most precious assets – their employees. There is a strong focus on the MMPA leadership meeting the needs of the workforce, to safely operate the mines without adverse risks to any stakeholder, as the COVID-19 storm evolves. In infectious diseases language, this is termed patient under investigation (PUI) for COVID-19.

MMPA members and other health systems role players are faced with the complexity of COVID-19 due to, inter alia, on one hand the availability of accurate and timeous tests for screening and diagnosis, so that the well-tested public health measures of appropriate quarantine, isolation, contact tracing and COVID-19 ill health management can be implemented; and on the other hand, health systems responsiveness to the COVID-19 storm.

To illustrate this dynamic play of the COVID-19 pandemic, regulatory changes, business impact and sustainability, the WHO's health systems thinking framework provides a simple reminder of the minimum requirement to stay in the COVID-19 storm – PUI accountability! It is at this point that we should re-examine the mine health systems and, perhaps, work on improving them to be responsive to future pandemics. Figure 1 illustrates how one of the large mining companies navigated the complexity of PUI accountability.

Leadership and governance

As all industries responded to the national lockdown imposed by the National Disaster Management Act,³ organisations had to develop protocols to ensure compliance with the national policy, as well as to ensure that care and maintenance of mines continued in a safe way so that, at a time in the future, mining activities could continue. The transdisciplinary nature of engagements in the midst of national anxiety about sustaining lives and livelihoods made it clear that no single discipline could work alone. Occupational medical practitioners had to rapidly understand the public health emergency and apply risk mitigation in deciding who was fit to continue to work, and what test selection was appropriate, without increasing the risk of SARS-CoV-2 transmission in the occupational health centres.

Health services

Mines have established occupational health services, either onsite or offsite, depending on the business model of the mine. Not only were the hospital-based services overwhelmed, but there were huge demands for COVID-19-specific examinations to comply with the Department of Minerals and Energy's mandatory code of practice (MCOP). The Labour Court judgement⁴ relating to the MCOP reminded MMPA members about South Africa's complex democratic systems of dispute resolution. While the MCOP was desirable, there were still many 'unknowns' with regard to the evolving COVID-19 epidemic. Overnight, required access to health services was far beyond the mines' physical infrastructures, in that employees were mandated to receive screening services in labour-sending areas.

Information technology

Adaptation of informatics to account for PUI became the cornerstone of ensuring that data for which MMPA members in health services were primarily responsible, were reliable. The declaration that COVID-19 is a notifiable medical condition (NMC)⁵ obliges healthcare workers who suspect or make its diagnosis to report it, in a prescribed

manner, to the National Department of Health. The National Institute for Communicable Diseases (NICD) established an electronic communication system for NMC reporting. The mines' occupational health services digital systems had to be configured to enable the NMC administrative processes.

Medical products, vaccines and technology

SARS-CoV-2 real time polymerase chain reaction (PCR) is a laboratory-based test that has a specificity for the diagnosis of COVID-19 of over 95%. The intersection of sensitivity of the PCR⁶ and disease progression has a significant impact with regard to the prevention of transmission from one patient to another. Given the novel nature of COVID-19, initial testing by the National Health Laboratory Service (NHLS), based on the NICD criteria, meant that MMPA members adopted the new PCR testing process in their respective workplaces. The role of MMPA members to collaborate with public and private stakeholders with regard to access to PCR and coverage of COVID-19 vaccines cannot be overemphasised in PUI accountability, as well as attempts to end the COVID-19 pandemic.

Leading through uncertain times means that MMPA members will continue to be the source of factual information for all mining stakeholders. Although this article focuses on the MMPA, we are well aware that the world of work is far broader than mining health systems. Stakeholders in other industries may have models of health services that differ from those utilised by the mines – perhaps with unique complexities. The question of health equity into the future is addressed by the United Nations General Assembly adoption of resolution 74/2 on Universal Health Coverage,⁷ which speaks to the larger global health system in the context of the Sustainable Development Goals.

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Figure 1. Sibanye-Stillwater's COVID-19 patient under investigation accountability approach (adapted from WHO Health Systems Framework)¹