

## **COVID-19 in Africa: preparing for the storm**

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Dear Editor,

The world is in the midst of a major public health emergency in the form of COVID-19. The pandemic, first noted in Wuhan, China, in December 2019 has since spread to nearly all countries of the world, with more than 3 million people testing positive for the virus, which has caused more than 200,000 deaths (as of 2 May 2020).<sup>1</sup> The full impact of the pandemic remains unclear as the situation continues to evolve.

Although the majority of infected people have mild disease, severe pneumonia and death occurs in about 7% of affected people.<sup>2</sup> People at risk of severe disease and death include the elderly and those with comorbid disease states such as hypertension, chronic cardiac disease, chronic respiratory disease, chronic kidney disease and diabetes.<sup>3-5</sup> However, it is worth noting that there are currently no studies from Africa, where in some settings fewer than 10% of hypoxic patients receive oxygen.<sup>6</sup>

Until now, the 46 countries that comprise the WHO African Region have experienced a low-level pandemic, with only 0.8% of all global cases and 0.4% of all deaths.<sup>2</sup> It is not clear why Africa is reporting these low numbers, but the late introduction of the virus at the start of the pandemic<sup>7,8</sup> and inadequate testing have been advanced as the primary reasons. Although case notifications from sub-Saharan Africa (SSA) have not conformed to modelling studies,<sup>9</sup> there is genuine concern that this region could be the fourth epicenter of COVID-19 (after China, Europe and the United States), with the full force of the disease hitting Africa in the coming months. Others have optimistically suggested that Africa might escape the storm of COVID-19. This optimism is based on observations that countries with BCG vaccination coverage appear to have a low pandemic level (presumed to be related to non-specific immune function enhancement by BCG vaccination),<sup>10</sup> while climate<sup>11</sup> and the relatively young population may also play a role. While we acknowledge that these factors might influence disease progression, there is currently no evidence for or against, and what is being observed may simply be the lull before the storm.

There are many reasons for Africa to urgently prepare for an anticipated COVID-19 storm. These include the large population that is vulnerable because of existing conditions, such as HIV-infected persons (68% of the 37.9 million people living with HIV in the world),<sup>12</sup> alongside the burden of chronic obstructive pulmonary disease,<sup>13</sup> diabetes,<sup>14</sup> and tuberculosis (TB), which may lead to more severe disease.<sup>15</sup> The effects of poverty and social deprivation (including indoor air pollution, overcrowding, malnutrition, poor access to clean water and sub-optimal access to quality health services) may further increase the risk of exposure to

infection and or severity of disease, in addition to constraining our ability to fully implement measures to limit transmission.

The weak health care systems in SSA is another reason for concern. Health care worker density in SSA is among the lowest in the world and is insufficient to meet the targets of the UN Sustainable Development Goals. Specialised personnel that are needed to provide care to COVID-19 patients, such as infectious disease specialists, pulmonologists, intensivists and critical care nurses, are generally scarce in SSA. The redeployment of health care workers to the COVID-19 response could also lead to weakening of primary and secondary health care, disrupt service delivery for endemic diseases and further increase population morbidity and mortality, especially among children. Furthermore, if senior, experienced physicians fall ill and die, the precious legacy of medical educators that has only recently been established will take several generations to replace.

The provision of essential protective equipment for health care workers is likely to be a major challenge in SSA where medical product procurement and supply chain management systems are weak. Furthermore, the full morbidity and mortality impact of COVID-19 may not be known due to sub-optimal health information systems, while the large socio-economic inequalities imply the poor will bear the brunt of COVID-19.

Based on the above summary, it might appear that Africa is unable to protect itself from COVID-19. However, with forethought and planning the disaster could be averted and/or substantially mitigated (Table).

First, SSA needs to adopt a collaborative approach to finding, utilising and sharing national and regional innovations, highlighting successes and failures including mechanisms for coping with the socio-economic consequences of this new disease. These efforts should be championed by regional bodies such as the African Union, East African Community, Southern Africa Development Community, Eastern, Southern and Central Africa – Health Community and Economic Community of West African States.

Second, the region should rapidly expand testing in both public and private healthcare sectors. Tests could be obtained using cost reduction measures such as pooled procurement. The region should push for the adoption of existing rapid tests such as the Xpert (Cepheid, Sunnyvale, CA, USA) test to expand SARS-COV-2 testing, without compromising testing for other diseases. The region should also actively engage in activities related to the development, adoption and implementation of rapid antibody-based testing, which have the potential to improve our understanding of the disease epidemiology and to get people to return to work earlier.

Third, Africa should pay attention to transmission prevention using interventions that have been proven to be effective elsewhere, including social or physical distancing, hand hygiene, universal use of masks in public, restrictions on travel and gatherings, suspension of public transport and closing of schools.

Fourth, the clinical capacity to provide care to people with COVID-19 needs to be expanded rapidly through fast-tracked hiring and training of new health staff, access to oxygen at all levels of the health care system, enhancement of patient referral systems and task sharing and/or shifting. As attention shifts to the COVID-19 pandemic, it is vitally important that SSA continues to provide care for TB, HIV, malaria and emerging non-communicable diseases.

Finally, we propose that Africa should develop robust collaborative research programmes, funded by African governments and partners, to include epidemiological, health system, implementation, clinical trials, immunological and virological research.

Although, the future may appear extremely challenging, Africa can defeat COVID-19. The time to act is now.

*Conflicts of interest:* none declared.

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**Table** COVID-19 in SSA: key challenges/constraints and mitigation measures

Constraint/challenge	Mitigation measures	Responsible agencies
Large at-risk populations	Population awareness, targeted interventions, epidemiological studies to confirm vulnerability	National Governments/Ministries of Health, local and international partners
Inadequate human resource for health	Rapid recruitment and deployment, innovative training and support, task shifting and sharing, telemedicine.	National Governments/Ministries of Health, local and international partners
Weak health products procurement and supply chain management systems	Temporary outsourcing of services as national systems are strengthened	National Governments/Ministries of Health, local and international partners
Inadequate critical care capacity	Decentralisation of care with emphasis on oxygen provision at all levels of the health care system, proning, clinical guidance with in-built flexibility and operations/implementation research	National Governments/Ministries of Health, local and international partners, research institutions
Weak health management information systems	Rapid adoption of electronic/digital reporting platforms	National Governments/Ministries of Health, local and international partners, research institutions
Disruption of service delivery for common endemic health problems (HIV, TB, malaria, respiratory tract infections in children)	Policy formulation and dissemination, health care worker support, strengthened infection prevention and control, provision of appropriate protective equipment	National Governments/Ministries of Health, local and international partners, research institutions
Managing the economic consequences of lockdowns	Debt relief, provision highly concessional loans, providing safety nets for the poor and vulnerable	National Governments, regional and international lending institutions, development partners

SSA = sub-Saharan Africa; TB = tuberculosis; HIV = human immunodeficiency virus.