

CORRESPONDENCE

Monitoring the COVID-19 pandemic in sub-Saharan Africa: focusing on health facility admissions and deaths

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Dear Editor,

COVID-19, caused by the novel coronavirus SARS-CoV-2, can be diagnosed using real-time reverse transcriptase polymerase chain reaction testing from nasopharyngeal or oropharyngeal swabs, serum, urine or stool.¹ Initial data indicate that about 80% of patients have asymptomatic or mild disease and recover, 15% develop severe disease, including pneumonia, and 5% become critically ill with respiratory failure, septic shock and/or multi-organ failure.^{2,3} The overall case fatality rate is estimated to be between 0.5% and 3%.⁴ Older age and non-communicable disease (NCD) comorbidities significantly increase this case fatality, which affects about 15% in patients aged ≥ 80 years.^{2,3}

By 24 March, 392,159 cases were reported from 196 countries/territories, with 17,159 deaths.⁵ Europe and the United States are currently the epicentres of the pandemic. Within

Europe, there are striking differences between countries. Italy is the most affected in terms of cases and deaths, with Spain and Germany reporting similar case numbers but very different fatality rates. Reported case numbers depend on the country's testing strategies. These vary from only testing patients admitted to hospital with symptoms suggestive of COVID-19 to testing family and close contacts, as well as testing health care workers and vulnerable groups and conducting periodic community surveillance. Reported cases therefore do not reflect the true burden of COVID-19 in the community or the scale of each country's outbreak. The number of COVID-19 deaths, however, if accurate and reported in a timely manner, would provide more robust information about the severity of the outbreak as well as the capacity of the health sector to respond.

With its large volume of air traffic connections with China, the United States and Europe, Africa will probably be the next region to be hit hard by COVID-19.^{6,7} By 24 March 2020, there were 36 countries in sub-Saharan Africa that had reported a total of 1,147 cases with 13 deaths.⁵ The number of COVID-19 cases circulating silently in the community is hard to estimate, but in the coming weeks, health systems in Africa need to prepare for a probable surge in severe cases of atypical pneumonia and respiratory failure.

Although NCD comorbidities have largely determined severity of illness and death in China and Europe, sub-Saharan Africa is affected by HIV/AIDS, tuberculosis (TB), and a growing burden of NCDs. In 2018, there were 25.7 million people living with HIV (PLHIV) in the African region, of whom 58% of males and 70% of females were on antiretroviral therapy.⁸ How such people will fare when infected by COVID-19 is unknown. Some PLHIV will be taking protease inhibitor lopinavir/ritonavir as part of second-line antiretroviral therapy. It has been suggested that this might have activity against COVID-19,³ although a recent clinical trial did not show efficacy in Chinese patients beyond standard care.⁹ In 2018, there were an estimated 2.45 million new patients with TB in the Africa region.¹⁰ The risk of coinfection and whether anti-TB treatment outcomes might be adversely affected by COVID-19 are also unknown. Once patients have been declared successfully treated for TB, a significant number will have ongoing pulmonary disability with chronic obstructive or restrictive lung disease,¹¹ putting them at heightened risk for severe disease and poor outcomes from COVID-19. Given these issues, we must act immediately to mitigate the risk of COVID-19 in Africa.

Given the uncertainties about community spread of COVID-19, and the inherent logistic difficulties of diagnosing and tracking patients in the community, we recommend that monitoring efforts focus on the health facility level.

The first important action is to develop a case definition. Any person presenting with new onset cough, fever and shortness of breath could be considered a suspected COVID-19 case, particularly if they have had contact with someone with COVID-19.¹² Decisions in the outpatient department or in the Accident & Emergency room will have to be made about whether to admit the patient to a health facility ward, or to allow the patient to go home. At the out-patient level, staff should have a simple register to record the daily number of patients with suspected COVID-19, and whether or not they have been admitted.

For those who are admitted to a health facility ward, a register (such as the one shown in the Table) should be developed. Key indicators include date of admission; whether the patient had suspected or confirmed disease during in-patient care; demographic and clinical details (including HIV or TB) and NCD status; health facility interventions such as drug treatment; supplemental oxygen; high dependency or intensive care and mechanical ventilation. In terms of hospital outcomes, the key indicators would be hospital discharge (including absconding) and death, along with corresponding dates of each event.

Registers could be either electronic or paper-based. District TB Officers or other TB personnel, who have experience recording case notification and treatment outcome data for TB patients, could be recruited to maintain these records. These same personnel are able to perform local data analysis and could be asked to do the same for COVID-19.¹³ The analysis could be at two levels. First, a cross-sectional analysis of 1) newly registered cases (suspected and confirmed) daily and new deaths in a 24-hour period, and 2) cumulative registered cases and cumulative deaths. Second, a monthly cohort-wise analysis assessing outcomes 1 month later (discharged or died) in all patients registered within a 1-month period—this assumes that the majority of patients will spend no more than 1 month in hospital.

In conclusion, COVID-19 is a novel coronavirus that took China by surprise. It has spread to most other parts of the world, and the rapid escalation of infections and serious disease is beginning to overwhelm critical care services in Europe. Africa must brace itself for the storm ahead. In managing outbreaks, data on cases and outcomes are crucial to forecast the demand that will be made on the health system. If African countries think ahead to the data that will be needed in their health facilities for monitoring COVID-19 and think how best this can be collected, this will go some way to helping health services cope with the pandemic. There is no time to be lost.

Disclaimer: The views expressed in this document are those of the authors and may not necessarily reflect those of their affiliated institutions. Conflicts of interest: none declared.

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Table Register of patients admitted to health facilities with COVID-19

Date of admission	COVID ID no.	Suspected/confirmed	Age	Sex	HIV status	ART	TB treatment	Previous TB	Hypertension/DM/CVD	Smoker	Given O ₂	Given medication*	HDU/ICU	Mechanical ventilation	Date of discharge	Died	Date of death

ID = identification; HIV = human immunodeficiency virus; ART = antiretroviral therapy; TB = tuberculosis; DM = diabetes mellitus; CVD = cardiovascular disease; O₂ = supplemental oxygen; HDU = high-dependency unit; ICU = intensive care unit.

* Details needed on medication such as antibiotics, corticosteroids, chloroquine, and ART drugs such as lopinavir/ritonavir.