# High death rate in African Covid-19 intensive care units

By James Stent

20 Nov 2020

The interim results of an Africa-wide study of hospitalised Covid-19 patients shows that the continent is facing far higher mortality rates in intensive care units than other parts of the world, and that the higher death rates are best explained by scarce resources.


Some of the researchers in the study are based at Groote Schuur Hospital in Cape Town. Archive photo: Ashraf Hendricks

Covid-19 has produced huge volumes of data in a short period of time, but our knowledge of how the SARS-CoV-2 virus has affected hospitals in Africa, and other countries in which health resources are limited, is scarce.

The study, *An African, multi-centre evaluation of patient care and clinical outcomes for patients with COVID-19 infection admitted to high-care or intensive care units*, is awaiting peer review. The researchers gathered data of patients with Covid-19 infections admitted to high-care or intensive care units (ICUs) across six African countries.

The study led by Professor Bruce Biccard from UCT included 1,243 patients in 38 hospitals in Egypt (9), Ethiopia (7), Ghana (2), Libya (7), Nigeria (2) and South Africa (11) between April and early September. The study is continuing until December, but the authors of the study decided to analyse data once a death threshold was met in the participating hospitals.

The study's aim is to find out how Covid-19 patients admitted to intensive care units are affected by the unit's resources,

comorbidities and critical care intervention.

of the 1,153 adult patients, 631 (55%) that were referred to intensive care or high-care units following suspected or known Covid-19 infection in the hospitals studied died. By comparison, global mortality of patients admitted to intensive care is 31%. In these hospital ICUs, the mortality rate is between 18 and 29 deaths per 100 admissions higher than in the rest of the world.

## What explains the higher death rate among African patients?

African hospitals tend to have far fewer resources than hospitals in Europe and North America. Only half of the patients referred to critical care units were able to be given an ICU bed. Africa is estimated to have 0.8 critical beds per 100,000 people. According to the study, this low volume of beds may lead to only very sick patients being admitted to critical care.

Once in critical care, the resources available for patient treatment are limited, and the use of these scarce resources was limited further.

Only 60% of hospitals were able to offer dialysis, and it was only used on 8.7% of patients. Global studies suggest that 23.2% of patients requiring critical care also require dialysis, which, according to the study, means that twice as many patients in this study may have needed dialysis.

Similar findings were made with proning (placing patients so that they are lying on their stomachs, which reduces Covid-19 mortality). Proning was only available to 60% of patients, and only performed on 9.6% of patients on ventilation. While proning may seem easy, it's actually a difficult process for patients in ICU on ventilators and many units may not have had the manpower or confidence to do it. According to the study "at least" four times more patients should have received proning while on ventilators.

The study was able to show with some confidence that certain factors do not explain the higher African death rate. These include comorbidities, including hypertension, diabetes, HIV and higher body-mass index (a measure of obesity). (Note: Some of these factors are associated with higher Covid-19 mortality, but they do not explain why mortality in African hospitals is higher.)

According to its authors this is "the only study from a population with high HIV burden". The authors cautiously say that the data suggests that HIV/Aids is not an important contributor to Covid-19 mortality.

While African hospitals have comparatively lower numbers of medical staff than the rest of the world, this was not directly identified as an explanation for higher mortality. The authors did note that limited staff numbers might explain why only half of referred patients were admitted into critical care.

The study takes pains to point out its limitations. It cannot explain why large numbers of patients died without receiving fundamental treatments like oxygen (1/6 deaths) or inotropes (1/2 - these are drugs that support the circulation). Only six countries were able to meet the ethical and regulatory requirements out of 24 countries that signalled interest in participating, which means that the results might not hold generally. Nevertheless this is the largest dataset of critically ill patients in under-resourced environments.

Further, the hospitals that are participating in the study are mostly tertiary healthcare centres, that are able to provide significantly more services. This raises the possibility that mortality rates for patients admitted to critical care in Africa are even higher than reported here.