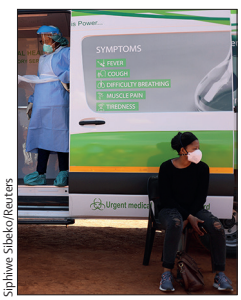
Africa needs local solutions to face the COVID-19 pandemic



Siphiwe Sibeko/Reuters

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In *The Lancet,* Stephanie Salyer and colleagues' comprehensive and elegant cross-sectional analysis of COVID-19 case counts, response measures, and mortality rates highlights the diversity of the COVID-19 burden and response across Africa.[1] Between Feb 14 and Dec 31, 2020, 2 763 421 COVID-19 cases and 65 602 deaths were reported in African countries, accounting for 3·4% of the 82 312 150 cases and 3·6% of the 1 798 994 deaths reported globally. Their Article shows the variable effects of COVID-19 across Africa, which more severely affected the Northern and Southern regions during both waves of the pandemic. Strikingly, 43% of the reported COVID-19 cases and 46% of the deaths occurred in the Southern region, in contrast to 3% of the reported cases and 2% of the deaths in the Central region. At the end of 2020, there was clear asymmetry in the pandemic's toll: nine countries (South Africa, Morocco, Tunisia, Egypt, Ethiopia, Libya, Algeria, Kenya, and Nigeria) accounted for 82·6% (2 283 613) of the cases reported and five countries (South Africa, Egypt, Morocco, Tunisia, and Algeria) accounted for 77% of the deaths reported. Although the statistics reported by Salyer and colleagues are sobering, they are limited by incomplete data for surveillance, testing, and reporting of COVID-19 cases, as well as potentially inconsistent case definitions.[1] Thus, it is possible that the toll of COVID-19 on African countries could be higher than reported here, especially within some demographic strata.

The pandemic response, notably lockdown measures, also varied across African countries according to whether cases were high or low. The data used by Salyer and colleagues to show these associations came from various sources—both official government reports and unofficial data sources that were verified by an official source before they were included in this analysis. Although the authors were meticulous in ensuring the accuracy of case and mortality estimates, incomplete official case reporting leads us to question whether case and mortality estimates fully reflect the pandemic's toll in all African countries. Consideration needs to be given as to why Africa is home to 17% of the world's population but only 3·4% of the global COVID-19 cases.[2] Among many possible answers are differences in population structure, comorbidities, pre-existing cross-reactive SARS-CoV-2 immunity, household composition, lifestyle factors such as mobility and population mixing, and varying effectiveness of different response strategies.[3–5] These points emphasise the authors' call for robust, clear, and timely data reporting as a critical step towards combating the pandemic.

Adequate COVID-19 testing is a crucial part of the pandemic response, providing essential data for case numbers. However, Salyer and colleagues found that as of Dec 31, 2020, 17 of the 55 member states in Africa reported tests per case ratios less than the recommended ten to 30 tests per case ratio; 36% (four of 11 countries for which data were available) had adequate testing capacity (tests per case ratios >10) at the peak of the second wave. At the start of the first wave, testing strategies varied widely in terms of target population and pretest probability of having a positive result. As a result, the tests per case measure probably belies heterogeneity in testing algorithms, populations, and local access within countries, and might not always reflect adequate testing capacity. The data challenges faced by Salyer and colleagues underline the severe need for stronger official data collection at every level. Furthermore, they report on the heterogeneous nature of COVID-19 case definitions used by African countries, leading the authors to assume that case definitions met WHO criteria; the need for this assumption further indicates the requirement to devote resources to case finding and reporting in most African countries. We need to improve data collection and communication and strengthen pathology and laboratory systems across Africa,[6] because an absence of information about cases limits our understanding of heterogeneity in disease burden and hinders our response.

The authors highlight the political dynamics that often influence public health and social measures, as well as their effectiveness. During the first wave, nearly all countries implemented stringent measures,[3] whereas only 72% of countries did so during the second wave.[1] Decisions to relax or not implement stringent measures were sometimes made despite increasing case counts, ostensibly to limit the socioeconomic effects of potential lockdowns. There is ample opportunity for individual countries and regional and international health organisations to learn from the visualisations in the Article by Salyer and colleagues showing the correlation between public health measures and COVID-19 case counts and adapt their responses to mitigate the ongoing

second wave. Unfortunately, as the authors report, the second COVID-19 wave has hit many African countries harder than the first. More transmissible SARS-CoV-2 variants are likely to be a driver of this surge,[7] but fewer and less stringent public health and social measures and so-called lockdown fatigue also contribute.[8] One solution, COVID-19 vaccination, began in Africa on March 1, 2021.[9] However, vaccination roll-out has already varied substantially across African countries, with the Southern region leading the distribution of the vaccines.[10] Vaccination challenges include insufficient vaccine doses for Africa. A strong step forward would be integrating COVID-19 vaccination efforts with ongoing vaccination programmes and promoting equitable access to vaccines worldwide, far beyond the existing COVAX initiative, which will not be sufficient for African countries in need of vaccines. There is a long delay between the western and southern countries in roll-out and the aim to vaccinate 20% of the population in COVAX participating countries is far less than the 60% target of the African Union to reach population immunity.[11] Ultimately, unequal COVID-19 vaccine access reflects global structural inequalities in resources and health care, which must be remedied through multilateral investment in health system strengthening and efforts to redress global inequality.[12]

An important conclusion from the Article by Salyer and colleagues is the need for country-specific solutions. No one-size-fits-all approach will succeed within a continent as diverse as Africa. Countries with a high number of COVID-19 deaths desperately need vaccination to prevent further illness and deaths from severe COVID-19. Some countries might not request the vaccines because of their COVID-19 epidemiology, whereas other countries have a greater need but will be limited by the 20% allowance. By contrast, countries with low case fatality ratios could instead invest in community engagement, health system strengthening, surveillance, and case reporting to adequately handle high case counts during this wave and beyond. Mental health issues have become an increasing concern during the pandemic, with a high prevalence of anxiety and depression,[13,14] while extant infectious diseases such as measles and cholera have gained a stronger foothold, evidenced by increasing case counts and inadequate vaccination.[15,16] During the pandemic, prevention and treatment services for tuberculosis, HIV, and malaria have been disrupted and concerted investments and efforts are needed to strengthen endemic disease programmes.[17] Focusing on such efforts could help countries better adjust local measures to balance COVID-19 transmission control with other health needs and economic opportunity and stability.

As African countries continue to face the COVID-19 pandemic, innovative and homegrown solutions, including local production of vaccine and rapid diagnostic tests, stronger involvement of community workers in disease surveillance, and telemedicine, have never been more important. Local solutions should ensure COVID-19 is not only a challenge that is met, but also an opportunity to strengthen health systems before the next pandemic.

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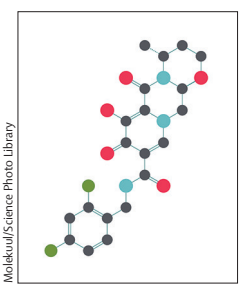
ART in pregnant women living with HIV



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More than half (51%) of the world's population of people living with HIV-1 are women.[1] Each year, the incidence of new HIV-1 infections in women of reproductive age is high, with 5·2 million women of reproductive age newly diagnosed between 2010 and 2015,[2] and 1·3 million pregnant women receiving HIV-1 treatment in 2018.[3] Perinatal transmission of HIV-1 has fallen most substantially through increased access to antiretroviral therapy (ART) in pregnancy and during breastfeeding. UNAIDS has reported that new HIV-1 infections among children have halved from 310 000 in 2010 to 150 000 in 2019 through active management of pregnant women living with HIV-1.[4] Pregnancy is a unique situation in which the safety of both the woman and the fetus should be considered. However, comprehensive data on the safety and efficacy of ART in all women are inadequate because women are under-represented in clinical trials—particularly pregnant women who have been deemed as a so-called vulnerable population because of their or their fetus's perceived vulnerability, which has resulted in exclusion from clinical trials.[5–7] Zidovudine remains the only ART licensed for use in pregnancy, even though this drug is rarely prescribed due to concerns about toxicity.[8] There are few randomised controlled trials on HIV-1 in pregnancy; therefore much of the information on ART in pregnancy has been sourced from post-market clinical follow-up studies or drug registries, which could both be liable to biased reporting and during which women do not receive any special observation or safety monitoring. Women living with HIV-1 need safe and effective treatment during pregnancy. The policy to exclude pregnant women and women who are likely to become pregnant from clinical trials is therefore unethical, and has resulted in insufficient access to or, at best, an average 6-year delay[7] to potentially beneficial medical interventions. A major shift in thinking is required, such that it should be considered unethical not to include pregnant women in research studies. This principle is supported by the US Food and Drug Administration.[9]

WHO recommends the inclusion of dolutegravir in combination with a nucleoside reverse transcriptase backbone as the preferred first-line treatment for HIV-1, including in women of child-bearing potential.[10] In 2018, the Tsepamo study[11,12] first identified an unexpected neural tube defect safety signal in neonates exposed to dolutegravir at conception, and highlighted the important need for reliable data on the use of ART in pregnancy, the importance of surveillance and evaluation of the safety of new drugs, and the need for a rapid and comprehensive response to such a signal.

In *The Lancet,* Shahin Lockman and colleagues[13] report the results of the multicentre, open-label, randomised, controlled, phase 3, IMPAACT 2010/VESTED trial, which compared three ART regimens started in pregnancy: dolutegravir, emtricitabine, and tenofovir alafenamide fumarate; dolutegravir, emtricitabine, and tenofovir disoproxil fumarate; and efavirenz, emtricitabine, and tenofovir disoproxil fumarate. 643 pregnant women in Botswana, Brazil, India, South Africa, Tanzania, Thailand, Uganda, the USA, and Zimbabwe were randomly assigned (1:1:1) to the three treatment groups. To our knowledge, this is the largest study published to date assessing the safety and efficacy of dolutegravir in pregnancy, and the first study to report on tenofovir alafenamide fumarate use in pregnancy, with high rates of retention and data completeness. Primary safety outcomes were the occurrence of a composite adverse pregnancy outcome (ie, preterm delivery [at <37 weeks' gestation in liveborn infants], the infant being born small for gestational age [birthweight <10th percentile for gestational age, adjusted for sex], stillbirth [at ≥20 weeks' gestation], or spontaneous abortion [at <20 weeks' gestation]) and the occurrence of grade 3 or higher maternal (up to 14 days post partum) and infant (between birth to age 28 days) adverse events. The study showed that, when started in pregnancy, dolutegravir-containing regimens had superior virological efficacy at delivery compared with the efavirenz, emtricitabine, and tenofovir disoproxil fumarate regimen. Maternal grade 3