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# Escalating burden of SARS-CoV-2 infection in Ethiopia

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It has now been more than 20 months since the first reports of SARS-CoV-2 from Wuhan, China, which has rapidly spread globally. As of Aug 22, 2021, the number of confirmed COVID-19 cases globally is over 211 million, with 4·4 million deaths. As of the same date, more than 5 450 000 cases were reported in Africa, representing nearly 3% of the global burden, which is far lower than the reported cases in Asia, Europe, and the Americas.[1] Factors including population demographics, genetics, and immunity have been cited as possible reasons for the low burden of cases in Africa,[2] while it has also been suggested that the weak reporting and death registration and low testing capacity might have masked the true burden.[3] In *The Lancet Global Health*, Esayas Kebede Gudina and colleagues[4] report serological evidence for a massive spread of SARS-CoV-2 in Ethiopia from a population-based, longitudinal cohort study done at two tertiary teaching hospitals involving health-care workers, urban residents, and rural communities in the capital Addis Ababa and Jimma, Southwest Ethiopia. Blood samples for serological assays were collected from participants (1104 health-care workers and 1229 community residents) in three consecutive rounds, with a mean interval of 6 weeks between tests, to obtain seroprevalence and incidence estimates within the cohorts.

Gudina and colleagues reported an enormous increase in the seroprevalence of SARS-CoV-2 among health-care workers and urban and rural dwellers in Addis Ababa and Jimma. Among health-care workers, SARS-CoV-2 seroprevalence increased from 10·9% (95% credible interval [CrI] 8·3–13·8) in August, 2020, to 53·7% (44·8–62·5) in February, 2021, in Addis Ababa (incidence rate 2223 per 100 000 person-weeks, 95% CI 1785–2696). In Jimma, the seroprevalence increased from 30·8% (95% CrI 26·9–34·8) in November, 2020, to 56·1% (51·1–61·1) in February, 2021, (incidence rate 3810 per 100 000 person-weeks, 95% CI 3149–4540). Similarly, the authors found an almost 40% increase in seroprevalence among urban communities and a more modest 13% increase in rural communities from November, 2020, to March, 2021.

Gudina and colleagues' study adds to the scarce evidence on the dynamics of SARS-CoV-2 transmission in sub-Saharan Africa by addressing the spread among front-line health-care workers and populations in urban-metropolitan, semiurban, and rural settings longitudinally at three timepoints. Previous studies from this region have mainly been cross-sectional, giving only a snapshot of the problem.[5–7] The more recent seroprevalence data in this study and the surge among rural and urban communities is broadly consistent with results from a cohort study in South Africa, where the burden of SARS-CoV-2 during the first and second waves among urban and rural communities were compared.[8] However, the seroprevalence at the initial timepoint in Gudina and colleagues' study, which corresponds to the first waves in South Africa, was low and thus indicating a late spread. A more recent analysis of the variations in SARS-CoV-2 outbreaks across sub-Saharan Africa pointed out heterogeneity in connectivity as an important factor in the early outbreak trajectory and the variance in the pace of spread across the region.[9]

Gudina and colleagues' findings show that a high proportion of SARS-CoV-2 cases in the community remain undiagnosed, posing a serious risk for highly vulnerable groups. This signals the need for addressing the challenges of rolling out COVID-19 vaccines in African countries. These countries have been left behind on the COVID-19 vaccination rollout, with only nearly 2% of their populations being vaccinated so far.[10]

Additionally, Gudina and colleagues reported a high SARS-CoV-2 seroprevalence among health-care workers, justifying the need to prioritise these front-line workers for COVID-19 vaccination. However, the authors have also reported an incidence rate of 4535 (95% CI 3372–5906) per 100 000 person-weeks among communities in Addis Ababa, which was significantly higher than among health-care workers at St Paul's Hospital (odds ratio 2·0, 95% CI 1·4–2·8). On one hand, the Federal Ministry of Health of Ethiopia needs to strengthen public health prevention measures to mitigate this high rate of community transmission in the capital. On the other, most participants with COVID-19 in the cohorts were asymptomatic, illustrating the importance of expanding laboratory testing beyond individuals with symptoms and doing contact tracing in Ethiopia. Moreover, Gudina and colleagues revealed that a significantly high transmission of COVID-19 occurred

among rural communities, which urges attention by national and regional health authorities.

However, questions could be raised regarding the reliability of the results considering the large number of dropouts, although Gudina and colleagues argue that the dropouts did not result in sampling bias. The authors also provided results of a modelling analysis that predicted possible SARS-CoV-2 herd immunity among health-care workers and urban communities. However, this prediction seems impractical on the ground and, as many other African countries, Ethiopia is currently having a third wave of the pandemic.

In conclusion, Gudina and colleagues' study provides a comprehensive evidence on the burden of COVID-19 with due representation of different population groups in a sub-Saharan African country. However, the study has some limitations including a high volume of dropouts among community participants, not addressing rural health-care workers, and the inability to provide age-stratified seroprevalence and seroincidence estimates. Given the dynamic nature of the pandemic and the potential for long outbreaks due to differences in connectivity and the impact of emerging variants, context-specific adaptation of continued SARS-CoV-2 surveillance with due consideration of the aforementioned limitations will be important.

We declare no competing interests.



*Kelemework Adane, Abel Abera Negash
**ingoldmlt@gmail.com**

Department of Microbiology, Immunology & Parasitology, College of Health Sciences, Addis Ababa University, Addis Ababa, Ethiopia (KA, AAN); Armauer Hansen Research Institute, Addis Ababa, Ethiopia (AAN)

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