

Correspondence

Rwanda's success in tackling COVID-19

Rwanda's strong health-care system and strictly coordinated prevention measures against COVID-19 have helped the country to record zero deaths from the disease so far. As the pandemic threatens to gather momentum in Africa, other governments there could benefit from lessons we have learnt.

Rwanda implemented full lockdown a week after its first case was reported in mid-March. A week later, it set up a contact-tracing system and implemented testing for all staff policing borders, as well as those working in public spaces such as banks and bars. By the end of April, 29,395 citizens had been tested for COVID-19 (prevalence was 0.7%). The nation's community health network has enabled the government – with help from the private sector – to identify populations in need of extra support.

Africa has so far recorded relatively few cases and deaths compared with other continents (<https://covid19.who.int>). Strict prevention measures that are coordinated across countries could keep it that way. Regional bodies such as the East African Community should agree guidelines for full lockdown, backed by surveillance and a supranational testing laboratory, and follow up with population-impact surveys for mental health and COVID-19 serological status.

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Developing world: boost modelling

Computational models of the likely spread of the SARS-CoV-2 coronavirus have been instrumental in guiding governments' strategies to limit disease transmission and control the current public-health crisis. In developing countries, where the pandemic is potentially at its most dangerous and costly, we call for governments to work with academic institutions to build and sustain modelling capacity.

Models are not silver bullets for fixing the ills of developing countries. Nevertheless, partnerships with international academic modelling communities (see, for example, F. Squazzoni *et al.* *J. Artif. Soc. Soc. Simul.* **23**, 10; 2020) and the participation of stakeholders and experts from different disciplines could help to build useful models.

Such models would combine knowledge of computational techniques with local contextual knowledge of social processes. They would enable policymakers to distil choices from uncertainties, particularly when stakes are high and resources limited. Once set up, they could be used in times of both crisis and calm.

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Spotlight on figures for COVID-19

Given the importance of accurate reporting of COVID-19 cases and deaths to strategies for virus control, we screened countries' daily records for possible misreporting by applying Benford's law. This can pick up unreliable numbers resulting from error, oversight or manipulation, for instance – although it cannot distinguish their possible causes.

Benford's law predicts the relative frequency distribution of first digits in real-world number sets (see M. Sambridge *et al.* *Geophys. Res. Lett.* **37**, L22301, 2010). Anomalies have exposed financial fraud, for example (see M. J. Nigrini *J. Am. Tax Assoc.* **18**, 72–91; 1996). We tested data reported by 51 countries from 16 January until 9 April 2020, when case numbers were still on the rise. Once these start to level out, as was the case for China and South Korea over that period, Benford's law can no longer be applied.

We found that records of cumulative infections and deaths from the United States, Japan, Indonesia and most European nations adhered well to the law (see go.nature.com/2kqtut2) and therefore are consistent with accurate reporting. Figures from a few of the countries analysed reveal anomalies. These could be explained by limited data sets or by adjustments to avoid headline-grabbing numbers of deaths in the hundreds or thousands.

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Can public trust coronavirus apps?

On 6 April, we approached the Belgian government with concerns about the improper use of contact-tracing smartphone apps for controlling pandemics. These concerns were in line with those you discuss (*Nature* **580**, 563; 2020). On 17 April, we drew its attention to other issues relating to lockdown exit strategies.

We argued that contact-tracing apps could complicate rather than facilitate lockdown exit (see go.nature.com/36ebfmq). For example, receiving (or not) a warning through the app might elicit a false sense of security, or drive demand for testing that might not be available. And there is more at stake than the government's public-health efforts and investment: an app's success also depends on personal, public and social trust.

Governments need to engage stakeholders to co-design the app so that it aligns with local culture and connects with vulnerable populations. They also need to use proper information campaigns and human follow-up after issuing app warnings, and to ensure that the media accurately relay what the apps can and cannot deliver.

For now, the Belgian government has paused its implementation of contact-tracing apps (see go.nature.com/2zinmbb). If they pursue the project, we hope it will incorporate the necessary caution and guidance for citizens.

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*On behalf of the Coronavirus Pandemic Preparedness team (see go.nature.com/2xemdt6).