News
18 November 2020

COVID-19 and South Africa: communication is key

Building trust in scientists and protecting at-risk sections of the population laid the foundation for the appropriate management of the early epidemic in South Africa, said TWAS Fellow Salim Abdool Karim at ESOF in Trieste.

Months after the first cases of SARS-CoV-2 infection, the world has since adjusted to new needs and conditions. But the first weeks after the disease spread turned out to be the most critical for delivering the right messages and preparing appropriate responses.

Salim Abdool Karim, the director of the Centre for the AIDS Programme of Research in South Africa (CAPRISA) in Durban, South Africa, is a clinical infectious diseases epidemiologist of international repute for his achievements in HIV prevention and treatment. He is also a 2009 TWAS Fellow.

Professor Salim Abdool Karim

In South Africa, he was and still is, an authoritative voice not only for the scientific community but also for the public. He was named the chair of the South African Ministerial Advisory Committee on COVID-19 and serves as a member of the African Task Force for Coronavirus, and as a member of the Lancet Commission on COVID-19. In the first weeks of the pandemic, he published an overview of how South Africa is slowing the transmission of SARS-CoV-2 and combatting the virus. He also advised the population through TV and radio interviews.

Professor Abdool Karim was a guest speaker in one of the events that TWAS organized at ESOF 2020, the international EuroScience Open Forum that took place in Trieste, Italy, from 2-6 September.

On 3 September he released an interview that provided insights about the South African response to the SARS-CoV-2 and described key issues relevant for lowering the risk of infection. What follows is an excerpt of the interview that focused on the early months of the pandemic, from March until September.

Professor Abdool Karim, how did the South African scientific community address the SARS-CoV-2 infection in its early days?

Since our first case on 5 March, our understanding of the epidemic has been evolving. On 15 March, the President of South Africa declared the "state of disaster". We closed schools and banned international travel for an initial five-week lockdown. This is when we increased our efforts to understand this virus, sharing experiences with colleagues worldwide on how we and they were responding to COVID-19.

Communication is playing an important part in COVID-19. How did the scientific community manage to contain the dissemination of untrusted news that usually happens, especially through the Internet, in times of exceptional events?

We tried to deliver scientifically rigorous messages because we realised that providing the population with reputable news was important also for prevention. The government established a ministerial advisory committee that advises the Minister of Health. I chair this committee, and in that role, it's my responsibility that we deal with key challenges to provide the best available scientific advice. I am also the co-chair of a consortium coordinating the clinical trials in Africa under the African Union, which was created to encourage and foster clinical trials of Covid-19 vaccines in Africa. We knew we had to do the best we could learning from other coronaviruses and influenza to extrapolate what would be the best course of action.

Were you able to publish any scientific results in such a short time?

Sure we did. We published a paper in the *New England Journal of Medicine* looking at the South African response from a clinical perspective; and then a paper with my wife, Dr Quarraisha Abdool Karim, in *Science*, looking at COVID-19 and how it affected HIV and tuberculosis (TB). But we also engaged in public education programmes. Over the last 4-5 months, I have contributed to TV and radio interviews, online articles, posted on social media. Much of the coverage, three quarters, was inside South Africa, but there was also substantial coverage outside South Africa.

As a government advisor, you were requested to look at the South African situation after the first cases were reported, to suggest strategies and effective responses. What was your advice?

I developed an eight-stage response whose steps are overlapping. Stage one is about preparation: it is focused on surveillance and community education. Then I listed the importance of primary prevention: all those risk-reducing measures that we know can decrease the infection (social distancing, hand-washing, wearing masks). Lockdown and active case-finding were next. The remaining steps were focused on hotspots surveillance and the role of medical care: protecting staff from the infections and granting hospital space and equipment to ill people. Last but not least, I urged on the importance of implementing burial capacity and managing the psychological and social impact of the epidemic, building vigilance through the tracking of antibody levels in the population and vaccine administration, if available.

Some numbers in Africa were puzzling: many cases of people infected with Coronavirus, but not many deaths. Why?

This was enigmatic to me. Why didn't we have the severe epidemic of coronavirus as in some other countries such as Italy? I don't have a good explanation, but a number of hypotheses: early lockdowns and cross-reactive immunity, for example. Another explanation of why the death rate is lower in Africa could be that we have a younger population. But again, that only accounts for a part and not all of the difference. The epidemics actually came later in Africa than it did in Europe, and steps were already taken to protect the elderly.

Most of the old age homes in South Africa are very restrictive, you cannot meet with an elderly person inside: they have to be outside, at a certain distance because doctors are very concerned about the virus spreading. So the protection given to old-age homes could have been one of the reasons, and perhaps also slightly lower rates of diabetes, and so on. Put all these observations together and we might have the answer.

Anti-vax movements and distrust towards science are quite common nowadays. What is the situation in South Africa?

Anti-vaccine lobbies are a strong presence in our country like they are in the US. They create conspiracies that Bill Gates is testing his vaccines on Africa. These lobbies use social media mainly to share misinformation. I myself have been attacked on social media for my positions supporting vaccines. But they are a very concerted group, they are small, they are media-savvy and they use that to create hesitancy in people about the safety of vaccines. Unfortunately, in the COVID situation, they present a particularly serious problem for us.

Over the months this virus has apparently changed: we see more positives but fewer deaths (as of September). Is its genome changing? Are we becoming stronger?

It's difficult to give a straightforward answer to this question. In general, the proportion of a population that becomes infected during the first wave is around 3-10%. In the case of the Coronavirus, looking at studies that tested people for antibodies we see that only 5% of people were infected. From February to September we sequenced the genome of over 1000 viruses and we saw very minor changes in the genetic makeup of the virus, one genetic change per month at most. These mutations have not changed the virus in any meaningful way. What's more, the virus's main protein, called "spike protein", used to bind to human cells seems genetically very stable.

And that's a good sign because most of the vaccines are targeting the spike protein, and most of them are using European strains of the virus which are the same strains we have in Africa.

At CAPRISA, where your wife (also a TWAS Fellow) serves as the associate scientific director, scientists are equally committed to AIDS and tuberculosis. Did COVID-19 distract away from these two conditions, jeopardizing the treatment of HIV/TB patients?

South Africa's population is about 58 million, and we have 7.7 million who live with HIV. In South Africa, we have one of the biggest HIV treatment programmes in the world, with nearly 5 million people under

treatment. Unfortunately, we still have 2-3 million people who have not yet initiated the treatment, and that's part of our concern and challenge because they do not know that they have HIV, because it's a silent disease until you are in an advanced stage. Young women, in particular, have the highest rate of HIV, often in combination with TB, and they are our biggest concern.

During the early stages of the epidemic, we observed that people with AIDS and/or TB were initially hesitant to go to clinics to receive their standard treatment. They were concerned that if they'd go to the hospital they would get COVID because they knew we were admitting patients for that. So we had to work hard to overcome that reluctance, explaining that our hospitals and health care services have adequate triage protocols. When we admit COVID patients they are taken in a completely different way, and patients without COVID are not mixed with the others. It took us a while to get that message to pass, but eventually, we succeeded.

What would be the consequences of a high drop-out rate among HIV and TB patients?

High drop-out rates could compromise years of strategic planning, programming and monitoring for both diseases. If that happened we may end up with patients developing drug resistance because of stopping treatment undermines viral suppression. We would start seeing more transmission of resistant forms, which would compromise and undermine all the valuable efforts that we made to try to control HIV. Thankfully we did not witness this worst-case scenario: patients are now going regularly to hospitals to collect their medication.

Can you comment about the return to schools in South Africa?

Issues related to schools are among the most controversial of all. In South Africa, school is particularly important for children because in the poorest neighbourhoods 18 per cent of children attending schools depend on the schools' nutrition programmes, for their daily meal. If schools are closed, they do not get their daily meal. And that's a big problem. Another challenge is that when children are not in school, they are not at home in isolation. Rather they are playing in the neighbourhoods often interacting with other children and adults. The risk of coronavirus infection among school children is as high out of school as it is in school. Hence, it is appropriate for children to go back to school in South Africa.

Cristina Serra