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INFECTION CONTROL

Lessons from Ebola as DRC grapples with conflict, measles, and covid-19

After two long years, the Democratic Republic of Congo's 10th Ebola outbreak has ended—just as covid-19 extends its reach globally and with the world's largest measles outbreak still raging. **Paul Adepoju** reports

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The world's second largest Ebola outbreak is over. An outbreak that began on 1 August 2018 ended on 25 June 2020 as the World Health Organization announced it had been 42 days since the last confirmed case in the eastern Democratic Republic of Congo (DRC). The country had recorded 3470 confirmed cases, 2287 deaths, and 1171 recoveries, aided by deployment of the first proven Ebola vaccine and new drug treatments.¹ Around 250 000 contacts were traced, 220 000 samples were tested, and more than 303 000 people vaccinated.

Yet DRC's health system continues to be stretched. The country is struggling to control the world's largest measles outbreak, which started in 2019 in the south east and has shown numbers exceeding the Ebola epidemic with around 7000 deaths from over 375 000 confirmed cases.² Children under 5 account for 74% of infections and nearly 9 in 10 deaths.

And then there is covid-19. Since DRC's first case was confirmed on 2 March, there have been over 7000 confirmed cases and at least 169 deaths. Yet the country's struggle with Ebola has put it in a position to better manage the pandemic.

"DRC is now better, smarter, and faster at responding to Ebola and this is an enduring legacy that is supporting the response to covid-19 and other outbreaks," says Matshidiso Moeti, WHO regional director for Africa.

Learnings

WHO highlighted the key role of contact tracing, infection prevention through public awareness, access to clean water, and promotion of hygienic practices, as well as isolating both confirmed patients and suspected cases. These are now also at the core of DRC's covid-19 response.

But ultimately, the best defence against any outbreak is investing in a stronger health system as the foundation for universal health coverage, said Tedros Adhanom, director general of WHO at a press briefing, adding that only half of DRC's health facilities have access to clean water.

Even before Ebola, the country's health system was dysfunctional owing to collapse of the state and the economy, leaving over 70% of the population, including health workers, impoverished. Health financing became almost totally dependent on out-of-pocket payments and external aid. With no

public funding and weak national leadership, regulation of the health sector evaporated.³ The situation is compounded by the country's ongoing civil conflicts. Throughout the recent Ebola epidemic, violence real and threatened slowed down relief efforts and medical aid, making contact tracing difficult and leaving health workers vulnerable to both attack and infection.

In a post-outbreak analysis, Médecins Sans Frontières said that residents of the region became suspicious of the motive of the high number of international experts prioritising Ebola control over other challenges they face on a daily basis.⁴ DRC has one of the highest number of unvaccinated children, for example, with immunisation coverage of 50%, well below the global average of 80%.⁵ The Ebola-centric approach initially adopted to contain the outbreak ignored these other issues and was one of the reasons for the response's failure to earn the trust of the communities, Médecins Sans Frontières says.

Writing in *The Conversation*,⁶ Yap Boum, a professor in the Faculty of Medicine at Uganda's Mbarara University of Science and Technology, said that DRC was prioritising the strengthening of its health system instead of choosing to focus on a disease at a specific time. "DRC has begun to make this shift in mindset. Community engagement, research, and testing capacity that has been strengthened during the recent outbreaks has put the country in a better position to respond simultaneously to the most recent Ebola outbreak, as well as the measles outbreak and covid-19."

Eteni Longondo, DRC's minister of public health, said that the country's response to covid-19 and measles and to future outbreaks will benefit from ongoing government efforts. These efforts include strengthening surveillance and building up laboratory diagnostic capacity. The government has also beefed up a survivor care programme that follows up those who have recovered for at least 18 months.

The next outbreak

Although the 2018 epidemic is over, DRC is not in the clear. On 31 May, another active Ebola outbreak was declared in the country's west lying Équateur province, the opposite side of the country to North Kivu.⁷ Genetic analysis has confirmed that the cases reported in Équateur are different, representing a completely separate outbreak.

DRC has been here before—Jean-Jacques Muyembe-Tamfum, director general of DRC's National Institute of Biomedical Research (INRB), said that the end of the last Ebola outbreak in Équateur province coincided with the start of the Kivu one, with response workers leaving the region perhaps too soon. "Everybody had gone [to Kivu] therefore leaving the Équateur province without any follow-up. We did learn a huge lesson from that experience because now we are going to make sure the local community has the necessary capacity."

The good news is that the chances of it spreading as far as the now cleared Kivu region are slim. Moeti said that not only are the outbreaks far apart, but a flight ban in place due to covid-19 would further limit the spread. DRC's poor transport infrastructure may be its saviour. "When the epidemic occurred in Kivu, we had to fly from Kinshasa to Kikwit because we couldn't go by road," Oyewale Tomori, professor of virology at Nigeria's Redeemer's University, told *The BMJ*, "Many parts of DRC are like that. No roads and jungles all over the place. It makes it quite difficult for people to move around and spread the disease."

Muyembe-Tamfum said that the major problem in outbreak response is reaching scattered cases, "The eastern region of Kivu is not densely populated but the cases are dispersing in villages that are not accessible by car or bike."

For covid-19, DRC has secured a \$363m (£289m; €318m) loan from the International Monetary Fund,⁸ alongside \$47m from the World Bank⁹ and \$40m emergency funding from the United Nations¹⁰ to shore up the country's economy and strengthen the medical response. Muyembe-Tamfum told the World Bank that DRC had implemented a plan valued at \$135m for covid-19, almost 75% of which had already been mobilised.¹¹ "We have proposed a plan that will be based primarily on subsidies to access such basic social services as health and food, and microcredits to support the informal sector, which accounts for more than 80% of the Congolese economy," he said.

Tomori reiterated the need for African countries to invest their own resources in strengthening their individual health systems to withstand the burden of infectious diseases. He said that the minister of public health had promised that the government would provide budget to continue the work being done at the INRB. He has also, however, raised concerns about maintaining laboratories should overseas funding come to an end. The Japan International Cooperation Agency, for example, had granted a 30 month \$21m grant to upgrade the INRB. The Japanese embassy in DRC released a statement on 2 July 2020 reaffirming Japan's support for the DRC during and beyond the covid-19 pandemic.¹²

Tomori said that he doesn't see foreign partners leaving it entirely to the DRC government anytime soon, "They have their own national health security interest in ensuring that the outbreak is controlled and does not spread to foreign countries."

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