Cameroon Townhall for Healthcare Professionals

Meeting Minutes, May 21, 2022

Host: Cameroon Townhall for Healthcare Professionals

Date: May 21, 2022

Chair: Dr. Munoh Kenne Foma

Co-Moderators: Dr. Christelle Jouego Tagne

Guest Speakers: Dr. Bryan Tegomoh, MD (Faculty of Medicine and Biomedical Sciences, University of Yaoundé I), MPH in Infectious Diseases and Vaccinology (UC Berkeley), Medical epidemiologist, COVID-19 response (United States); contributor to the Africa CDC Pathogen Genomics Initiative; Dr. Karl Gwei Njuwa Fai, MD; Master's in Tropical Medicine (Nagasaki University), Epicentre (research and epidemiology branch of Médecins Sans Frontières), Yaoundé; technical consultant to Cameroon's Public Health Emergency Operations Center

Distinguished Guests: Prof. Yap Boum II, Regional Representative for Africa, Epicentre, Dr. Obadia Mfuh Kenji, clinical virology laboratory, Stanford, A participant working with WHO on health emergency preparedness and response in Cameroon

Title: Pandemic Preparedness: Experiences and Lessons Learnt

Agenda Items:

1. Welcome and opening remarks by the lead moderator
2. COVID-19 and monkeypox update by the Chair, Dr. Munoh Kenne Foma
3. Presentation by Dr. Bryan Tegomoh: surveillance, genomic epidemiology and lessons from the US and Africa CDC
4. Presentation by Dr. Karl Gwei Njuwa Fai: lessons from Epicentre's SARS-CoV-2 seroprevalence and mortality surveys
5. Review of Cameroon's IHR capacity scores by the moderator
6. Discussion and Q&A
7. Closing and parking lot

Opening Remarks:

- The lead moderator opened the session in the middle of 2022 and said the town hall could not tire of discussing COVID-19, before introducing two speakers with first-hand experience of surveillance during the pandemic.
- The Chair thanked the moderators for their fortnightly volunteer work.
- In his update the Chair said new Omicron subvariants (BA.2.12.1 in the US, and BA.4 and BA.5) were circulating, that about one million people had died of COVID-19 in the US and about 6.2 million worldwide, and that around 12 billion vaccine doses had been given, against about 1.8 million doses in Cameroon. He said Africa was almost free of active disease at the time but should keep its guard up.
- He reviewed treatments: steroids (with dose equivalents), tocilizumab (costly and scarce in Africa), a JAK inhibitor available for rheumatology, nirmatrelvir/ritonavir (Paxlovid, which he said reduced mortality by almost 90 percent in trials), molnupiravir, remdesivir and tixagevimab/cilgavimab (Evusheld) for immunocompromised patients. Ivermectin, convalescent plasma, hydroxychloroquine, HIV drugs and vitamins C and D had not worked. He singled out the UK RECOVERY trial as a model.
- He reported 142 monkeypox cases in 12 countries outside the usual endemic zone. Asked whether monkeypox and SARS-CoV-2 could combine, he explained that this is not possible, since one is a large DNA virus and the other an RNA virus.

Presentation Points:

Presentation by Dr. Bryan Tegomoh: "Pandemic Preparedness: Experiences and Lessons Learnt"

1. Monkeypox and genomic diversity:

Dr. Tegomoh said he had that morning been invited to co-write a review of past monkeypox outbreaks for an Infectious Diseases Society of America journal. Monkeypox is a double-stranded DNA virus with proofreading, so it mutates slowly, and the 2022 European genomes were very close to the 2018 West African sequences. He cautioned that a phylogenetic tree cannot show who infected whom without epidemiological context. Key unknowns included the role of transmission without rash, and he proposed a detailed line list of the 142 cases.

2. One Health and drivers of emergence:

He showed global hotspots of zoonotic emergence and linked them to population growth, urbanisation, travel, trade, rising demand for animal protein, agricultural intensification, wildlife exploitation, land use change and climate change.

Pandemic preparedness, he said, cannot be separated from the human, animal and environment interface.

3. The role of applied epidemiology:

He described epidemiology as finding the right numerator and denominator, and applied epidemiology as acting on them and communicating results. Individuals mask, distance and test; epidemiologists run case investigation and contact tracing; data must inform directed health measures with policymakers. He led the investigation of the first Omicron cluster identified in the United States, where early cases showed less loss of taste and smell than with Delta, and said tools such as R and Python now allow line lists and transmission maps in real time. Communication, sociologists and anthropologists proved essential.

4. Genomic surveillance with Africa CDC:

Early in the pandemic he worked with Africa CDC on continental genomic surveillance, pooling sequences from member states to detect variants before they became a problem. With a colleague at the Africa CDC Pathogen Genomics Initiative he maintains Nextstrain builds that pull sequences weekly from public health laboratories across Africa and flag mutations of concern. Turnaround from sample to published sequence had shortened markedly. He hoped to set up a similar system for Cameroon with colleagues at Epicentre.

5. Diagnostics and antibody studies in Cameroon:

Dr. Fai said Cameroon was one of the first African countries with a working Public Health Emergency Operations Center. Epicentre first evaluated antigen and antibody rapid tests in symptomatic and asymptomatic patients, since PCR is costly and scarce, and found antibody detection improved after about 14 days. A study published in Scientific African showed IgM and IgG from natural infection declining over time.

6. Seroprevalence surveys across Africa:

Surveys found far more infection than surveillance reported. Among blood donors in Koutiala, Mali, 23.7 percent were positive by rapid test and 65.3 percent by laboratory test. Among health staff in Maradi, Niger, 42.3 percent were positive by rapid test and 84.5 percent by laboratory test, against 7.6 percent by PCR. In Abidjan (1,861 participants), 35.6 percent were positive by rapid test and 79.4 percent by laboratory test. In Lubumbashi, more than half of households refused to take part amid vaccine rumours, a lesson in community communication. The Cameroon nationwide survey (July to August 2021, 5,739 participants) found 18.3 percent by rapid test and 20.5 percent by ELISA.

7. Mortality and vaccine acceptance:

Retrospective mortality surveys in Lubumbashi showed crude mortality rising from 0.10 to 0.28 per 10,000 per day in the second wave, including among people under 20. In Cameroon (6,155 households, 22,314 people, 238 deaths from January 2020 to August 2021), mortality in those aged 50 and over rose from 0.26 to 0.76 per 10,000 per day, though this was not statistically significant. A national survey of 6,343 people found 37 percent vaccine acceptance, higher in the Adamawa, North and Far North regions and among the less educated; the main reason for refusal was the belief that the vaccine is dangerous (30.3 percent).

8. Cameroon's waves and the conclusion:

Cameroon's first wave ran from April to August 2020. The Delta-driven wave was the most severe and the Omicron wave the mildest, and genomic surveillance began in the second wave with some samples sequenced in Nigeria. The country had notified no new cases for weeks. Dr. Fai concluded that no one-size-fits-all approach works in a continent as diverse as Africa, and that COVID-19 should be used to strengthen health systems before the next pandemic.

Discussions and Q&A Session:

- **The moderator presented Cameroon's 2021 State Party Self-Assessment Annual Reporting (SPAR) scores under the International Health Regulations and asked each participant to reflect on their own role. She also asked whether pandemic preparedness could be built into the Health Sector Strategy 2016 to 2027 while funding opportunities remain.** She noted that Cameroon scored below regional and global averages on most capacities, including policy and legal instruments, infection prevention and control, and food safety, with better results for coordination and laboratory capacity. The strategy question was left as a point for reflection.
- **The Chair asked why rapid test and laboratory results differed widely in some countries but were close in Cameroon.** Dr. Fai said the reasons were still under study: different ELISA and immunofluorescence platforms were used in each country, and Cameroon's samples were dried blood spots sent to Yaoundé. Dr. Kenji said cross-reactivity with the nucleocapsid protein is common, and that pre-pandemic samples from Cameroon tested positive but did not neutralise the virus. He advised using the same test across sites and multiple targets (S1, RBD and nucleocapsid) to separate vaccine from natural immunity, and offered to collaborate.
- **The Chair asked how prepared the CDC, WHO and Cameroon are for the next pandemic, and whether WHO had learned lessons for monkeypox.** Dr. Tegomoh

said the global response had not been the best. He called for platform trials like RECOVERY, a WHO applied epidemiology corps modelled on CDC's Epidemic Intelligence Service (citing Bill Gates' new book on preventing the next pandemic), better communication between agencies, and real-time data systems. Dr. Kenji said laboratories must stay ahead: design and validate assays with synthetic DNA before cases arrive, build local assay capacity instead of relying on Western suppliers, and screen samples with a multiplex PCR so that only unknowns are sequenced, which had cut his laboratory's sequencing costs by almost 70 percent.

- **Dr. Fai answered for Cameroon.** He described four elements: commitment (the Emergency Operations Center, now also leading the cholera response), action (health financing and laboratories, which grew from about two to many during the pandemic), collaboration (with Africa CDC and regional partners) and learning. Community vaccination, using health workers who go door to door as in national campaigns, had raised coverage from about 500,000 to 600,000 people six months earlier to about 1.8 million.
- **Prof. Yap Boum II responded to a comment in the chat that there is no action.** He said Cameroon went from one laboratory able to run COVID-19 PCR to 45, and now has four next-generation sequencing platforms using the same screening approach Dr. Kenji described. The Emergency Operations Center building, built with CDC Atlanta support during Ebola preparedness, and its incident management system are now used for cholera, yellow fever and monkeypox. What is missing is publication: the Ministry of Health was holding a scientific writing workshop the following week, with Dr. Tegomoh as a coach, and he invited others to coach. He argued vaccination should target those at highest risk (older people and those with hypertension or diabetes) through community engagement.
- **A participant working with WHO described its support for preparedness.** She said WHO supports coordination, national health security plans, laboratories, case management (including equipped intensive care units in the North West and South West), logistics and staff. Weak points remain local research, vaccine and therapeutic capacity, and too few simulation exercises; Cameroon had carried out an intra-action review of its COVID-19 response.
- **The Chair asked whether Africans trust each other enough to buy vaccines made in Africa, noting that South Africa's vaccine had found no buyers. a participant asked about the use of genomic surveillance in Cameroon, and another asked how to overcome vaccine hesitancy.** Dr. Tegomoh showed Africa CDC's regional and country Nextstrain builds, including Cameroon's shift from Delta to Omicron, stressed that genomic data need epidemiological context, and described wastewater surveillance as a promising approach where sewage systems exist. Dr. Fai said Africa CDC had told countries that further doses would wait because

stocks were expiring, so the issue was hesitancy and cold chain rather than supply. Prof. Boum said technology transfer should be used for malaria and diarrhoeal disease vaccines, and that vaccination at the Africa Cup of Nations reached about 200,000 people.

- **A participant asked how the town hall could contribute to the training of health professionals in Cameroon.** Prof. Boum invited members to coach teams at home on scientific writing. The Chair said the platform is for two-way learning between those at home and in the diaspora, citing projects that grew from it: a repository of Cameroonian COVID-19 publications, planned oncology teaching sessions with residents in Cameroon, work with a surgeon in Cameroon, and earlier volunteer support to COVID-19 critical care in the North West and South West.

Call to Action and Closing:

- The moderators thanked the speakers and their teams at Africa CDC, US public health agencies and Epicentre.
- Participants were invited to the parking lot, an informal and unrecorded networking session.

Recording: https://www.youtube.com/watch?v=epizjr9-gmg

Submitted by: Co-Moderators, Cameroon Townhall for Healthcare Professionals