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Guinea's response to syndemic hotspots

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INTRODUCTION

Syndemic hotspots

The Guinean health system has been severely overstretched this year. It has to deal with several concurrent (re-)emerging infectious diseases—Ebola, Lassa fever, measles, meningitis, yellow fever, vaccine-derived poliomyelitis[1]—as well as a second wave of the COVID-19 pandemic (figure 1). A case of the highly infectious Marburg viral disease was also detected in August.[2]

These multiple concurring epidemics reflect contextualised 'syndemic hotspots' whereby (re-)emerging infectious diseases, existing socioeconomic inequities, a fragile health system, chronic malnutrition and security constraints interact and cluster in marginalised and impoverished populations.[3] At the same time community resistance has been observed against the epidemic control measures (related to the Ebola virus disease (EVD) and COVID-19, mostly) across the country. This had implications on population health, among others through injuries and deaths as a result of police intervention.[4 5] This securitisation of epidemics response almost inevitably deepens community mistrust in public services, aggravates social inequalities and hinders efforts to combatting ongoing epidemics in the country. This syndemic situation is not unique to Guinea and is observed in many other countries, and specifically in countries with similar socioeconomic and health system constraints such as DR Congo. The ecological reservoir for lethal emerging diseases like viral haemorrhagic fevers has expanded in recent years. The risk that multiple epidemics occur at the same time in the nearby future is high in countries like Guinea, DR Congo and others.[6 7] The potential for international expansion, and thereby for longstanding chronic 'syndemic hotspots', is considerable because of economic globalisation and the international trade nexus in which West and Central Africa play a role.[8 9] This reflection is not only relevant to low-income countries. The Independent Panel for Pandemic Preparedness and Response (IPPR) has indicated that the risk of future pandemics is very real, and that structural and urgent investments in the health system capacities of countries need to happen to meet the International Health Regulations implementation requirements.[10] However, the governance modalities for these investments and priorities need to be decided in close coordination with national and local

Summary box

- Guinea is an ecological locus for epidemic-prone diseases including meningitis, yellow fever and Lassa and Ebola haemorrhagic fevers.
- In the wake of the 2014–2016 Ebola virus disease (EVD) outbreak, substantial efforts were made to strengthen the national health system and improve future epidemic preparedness and response.
- A syndemic hotspot is a place where social vulnerabilities, poor ecological, living and nutritional conditions, and re-emerging epidemics interact and cluster in marginalised populations.
- Guinea, and other low-income countries, are increasingly confronted with syndemic hotspots that inevitably hinder economic development and exacerbate inequities in access and utilisation of health services.
- Unlike during the 2014–2016 EVD outbreak response, several preconditions for epidemic preparedness and response were met in 2021 including the existence of governing bodies across levels of the health system, diagnostic capabilities and the promptness of international support.
- However, the current response to the several ongoing epidemics in Guinea is rather limited with a disproportional attention given to Ebola and the COVID-19 pandemic.
- Actors are facing challenges in the governance of epidemic response and in adapting essential public health functions (eg, alertness, surveillance, diagnostic subelements) to the epidemiological and social situation.
- Ensuring an effective epidemic preparedness and response mechanism will require a comprehensive system approach including addressing social determinants of health and the neglect of the health system in Guinea.

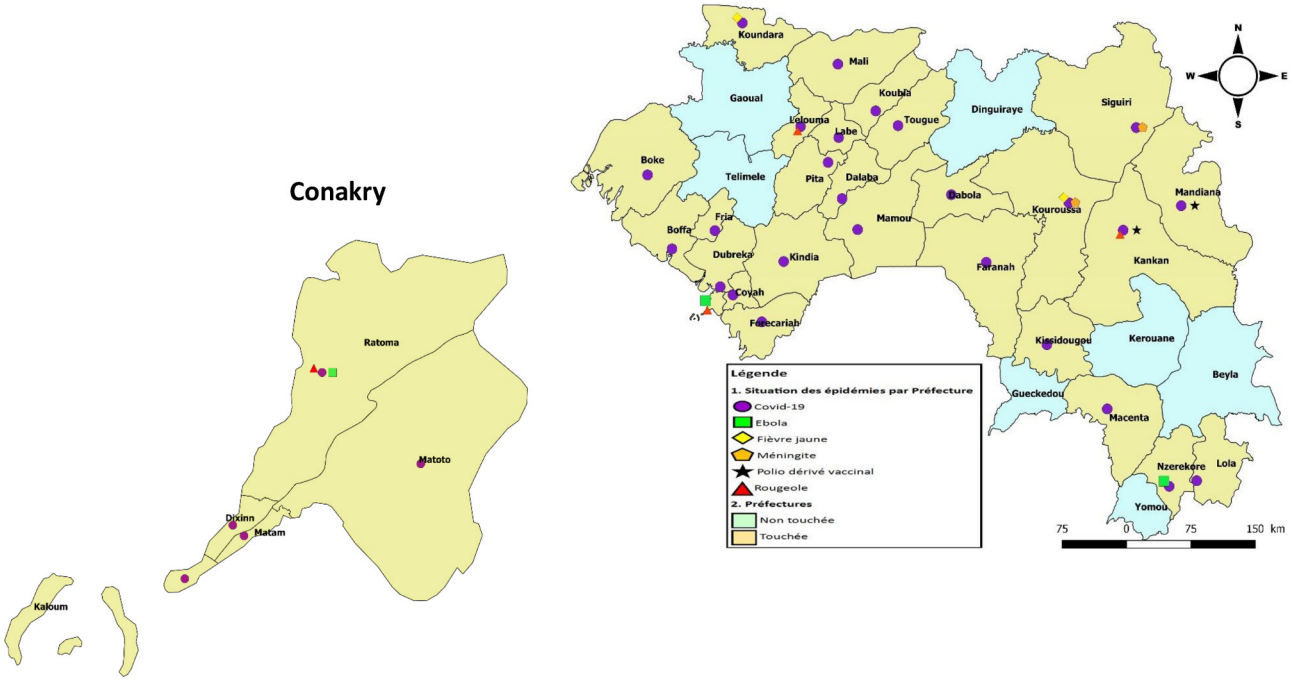

Figure 1 Geographical distribution of COVID-19, Ebola, yellow fever, meningitis, vaccine-derived poliomyelitis and measles cases in Guinea, 2021 (from the ANSS report of February 2021).

health systems actors. International health security priorities may be really different from the health and social needs that communities face on a daily basis, and that may have been neglected for a long time.[11] This commentary attempts to analyse the Guinean response to the multiple (re-)emerging infectious diseases and related challenges, focusing on the EVD and COVID-19 outbreaks in 2021. More in particular, we try to reflect on the impact of the reforms undertaken after the 2014–2016 Ebola epidemic on the ongoing health crises response. Moreover, we will provide some thoughts on what the response to 'syndemic hotspots' may imply for international cooperation, the development of resilient health systems and global health governance.

Governance aspects

The analysis of the health system response to the multiple ongoing epidemics in the country indicates key requirements for epidemic preparedness and response. This includes governance mechanisms, diagnostic capabilities and international support. In areas prone to infectious disease outbreaks, the onset of epidemics is often unpredictable. Planning, organisation and coordination of preparedness and response is thus absolutely essential. In Guinea, following the 2014–2016 Ebola epidemic, semi-autonomous governing bodies for the surveillance and response to epidemics were created across national (the National Agency for Health Security, ANSS), regional (Regional Alert and Response Team, ERARE) and local/district (District Teams of Alert and Response, EPARE) levels. This included a clear distinction of roles and responsibilities. Since then, these organisations have played an important role in epidemic response and surveillance. They have received financial and technical support of development partners such as WHO, 'Expertise France', Centre for Disease Control and Prevention (CDC) Atlanta and the World Bank.

ANSS, because of its improved operational capacity (multi-disciplinary teams, logistics) and autonomy (less centralised bureaucracy) has developed strong leadership in the surveillance and response to sporadic cases of human anthrax, varicella, measles and yellow fever since 2017. Its role was also crucial in the response to the EVD outbreak resurgence in 2016. In 2020, after the declaration of COVID-19 as a Public Health Emergency of International Concern by the WHO, the ANSS took substantial steps. It has developed a pandemic preparedness and response strategy, identified high-risk entry points—the airport, mining seaports, land borders and so on—and implemented preventive and surveillance measures. However, the response to the current multiple epidemics suffers from certain shortcomings that deserve attention.

On 12 February, the 2021 Ebola epidemic alert was launched by the regional hospital of N'zérékoré, not by the EPARE and ERARE teams. Eight people were admitted there for diarrhoea, vomiting and bleeding following the burial of a nurse—who died on 28 January and is up to now considered to be the index case. Primary investigations were carried out, not by regional and local teams, but by a joint team from ANSS, WHO and CDC. This signals a relative dysfunction of the local surveillance and response system, likely related to the high turnover and low presence of health professionals in rural areas and the unsustainability and erratic implementation of

the post-Ebola reforms after 2016.[12 13] In fact, at the time of notification, ERARE and EPARE programmes had not been financially supported for almost 3 years. At the same time, health workers posted in rural areas, as part of the post-Ebola health systems strengthening programme, increasingly abandoned their jobs.[13] Reasons for this high turnover include poor management and job dissatisfaction as a result of inadequate working and living conditions of health personnel in rural settings.[13] The building of a resilient national health system requires a solid and long-term commitment from both national and international political actors. A 'firefighter policy'—consisting of a short-term mobilisation, and financial injections, of programmes and personnel when epidemics hit—is not sufficient. Strong leadership at the Ministry of Health (MoH) is likewise required for future epidemic preparedness and response. This will enable improved political commitment, governance and monitoring of national health initiatives.[14]

On 3 April, three community deaths and a confirmed Ebola case – who escaped quarantine measurements – were notified in Kpaghalaye, a sub-district located 15 km from Gouécké, the epicentre of the 2021 Ebola epidemic.[15] This occurred almost 30 days after the last Ebola confirmed case was discharged and raises several questions about the effectiveness of the community-based surveillance system. One may wonder how deaths of the same family members have gone unnoticed by the local health service staff, especially given that 'dignified and safe' burial practices are now declared compulsory in the N'Zérékoré region (table 1). How has the ring vaccination strategy (for Ebola) been rolled out in the region which hosts 95% of the total 5504 people vaccinated by 3 April?[16] In our attempt to respond to these questions, we discuss two potential inter-related factors that may explain this situation including the limited governance capacity of the epidemic response.

First, the ANSS does not have sufficient human resources to effectively deal with all the ongoing epidemics. The ANSS has overstretched its mandate, for instance, in the clinical management of epidemic cases and the coordination of the response to the various epidemics. In principle, the infectious diseases department of the Donka national hospital and the MoH are in charge for these, respectively.[17] Additionally, one could question why the ANSS is leading the rollout of the ongoing epidemic vaccination strategies (including measles, yellow fever, Ebola and COVID-19) instead of the national MoH's directorate for the control of major endemic diseases, which hosts the Expanded Programme on Immunisation (EPI).

Table 1 Restrictive measures undertaken by decision-makers for containing the spread of the COVID-19 and EVDs outbreak, 2021

Decisions undertaken/ diseases	COVID-19	EVD outbreak
Ban of mass gathering	► In workshops and conferences, limitation of participants to 100 people and respect of physical distance are required. ► In leisure places, reduction of reception capacities by 50%, by no more than 100 people. ► Closure of leisure venues: bars, restaurants and nightclubs from curfew time.	Banning of: ► Gatherings of more than five people. ► Weekly markets, religious and traditional ceremonies requiring gatherings for a period of 30 days, renewable if necessary.
Curfew	► Set-up from 23:00 to 04:00 in Conakry. ► Disobedience tax can reach US$50.	None
Quarantine of cities	► Travelling out of Conakry conditional on test for drivers and passengers and a negativity test.	► Setting up by the health and security control checkpoints (taking temperatures, searching for symptoms and contacts) at the entrances and exits of the subdistricts of Gouécké and the forest region.
Mitigation actions	None	► Hand-washing facilities and support (food and condiment charges) planned to be provided to isolated households in the Goucké subdistrict.
Other preventive measures	► Facemask wearing is compulsory in public places. ► Disobedience tax of not wearing mask (US$5). ► All death cases should be tested before burial ceremonies.	► Isolation and monitoring of all patients and their contacts in Gouécké subdistrict and the forest region. ► Dignified and secure burial of all confirmed and suspicious/probable cases of death by authorised teams. ► Declaration to the Health and Administrative Authorities of all cases of death.

EVD, Ebola virus disease.

Second, the index case of the 2021 Ebola epidemic was a 51-year-old nurse with several years of service in this locality characterised by an over-stretched and understaffed health system. The extended professional network of this nurse may have represented a challenge for epidemic control; the first contact cases were listed in several districts across the country, including Lola, N'zérékoré, Coyah, Dubréka and Conakry. In such a context, contact identification and tracking can be difficult as it essentially relies on self-reporting. Although this region was the epicentre of the 2014–2016 Ebola epidemic and Ebola resurgence in March 2016, the response to the 2021 Ebola epidemic met considerable resistance.[18] Why Ebola control strategies still have to overcome the reluctance of communities in this region, is a question that merits more investigation. Does this relate to mistrust between state actors and these communities?

In our view, the reluctance of communities to adopt Ebola control strategies, including vaccination and contact isolation, can be at least partly attributed to long-neglected health system access and utilisation challenges. Indeed, this region has one of the worst EPI-vaccination coverage rates (35%) and poverty incidences (67%) in the country.[19] This region has recently been fertile ground for several acts of violence, sometimes involving security agents—the electoral crisis of 22 March 2020 resulted in the death of some thirty people there, for instance.[20] Against this backdrop, restrictive measures for Ebola control and the rollout of strategies like active case-finding may be interpreted differently by communities. The question can also be raised why more prevalent epidemics such as measles and meningitis rarely trigger public response, campaigns and communication efforts by the health authorities. Referring to data available as of August 2021, suspected cases of measles (181), vaccine-derived poliomyelitis (211) were notified across the country in 2021. However, at the time of writing, we could not access updated statistics of the other endemic diseases via the nationally centralised data-platform. Statistics available as of February 2021 indicated suspected cases of yellow fever (9) and meningitis (35) in the country in 2021. Addressing these multiple epidemics in the future requires addressing the spectrum of social determinants of health and the neglect of the health system in rural Guinea.[21]

Diagnostic aspects

In addition to the newly established organisations for epidemic preparedness and response, the capacity and resilience of the health system to detect epidemics needs to be improved. To date, several laboratories across the country are equipped with diagnostic tools, including for pathogens such as Ebola. For example, the first analyses of samples from suspected Ebola patients were conducted by the Guéckédou Laboratory, located 200 km from the epicentre of the outbreak. This was done before confirmation by the National Reference Laboratory. In addition, the genome sequencing of the Ebola virus realised by a national research centre (Centre de Recherche et de Formation en Infectiologie de Guinée) indicated that an Ebola survivor is likely the source of the current epidemic, implying that the virus can persist in body fluids for 5 years.[22] If these findings are confirmed additional challenges will arise in terms of monitoring of approximately 1300 Ebola survivors in Guinea, addressing their stigmatisation and also ensuring the availability of vaccines and drugs in sufficient doses in the region.[22] The health system is facing additional challenges to readapt its diagnostic capacities to the current epidemic situation. Because of a lack of supplies and diagnostic capacities in Guinean laboratories, cases of yellow fever had to be confirmed by the Pasteur Institute of Dakar. The country currently confronts a second wave of the COVID-19 pandemic with increased mortality. Health authorities have failed, up to now, to establish whether or not the country is dealing with a new variant of the SARS-CoV-2 virus. This is important to investigate as new variants of concern have been identified in neighbouring countries like Senegal.[23]

International support

Another precondition for epidemic preparedness and response in these syndemic hotspots is the anticipation of sufficient global support. For instance, in the case of the 2021 Ebola epidemic, Guinea benefited from the provision of Ebola vaccines (25 000 doses required), experimental medicines and the deployment of 66 WHO experts, including 15 international staff. The role of international non-government organisations and agencies based in Guinea has also been crucial in the organisation of the pandemic response. Yet, many uncertainties remain, especially on access to COVID-19 vaccines. To date (25 August 2021), the country has benefited from the arrival of 1 591 900 doses (in total) of Sputnik V (~ 97 000), Sinopharm (~ 800 000), Sinovac (~ 300 000) and AstraZeneca (293 000) vaccines. Currently, 368 019 people have fully been vaccinated; a vaccination coverage of 6% of the target population (18 years and older). These vaccines were acquired through regional cooperation (63 000 doses of AstraZeneca were offered by the African Union), bilateral cooperation with China and Russia (Sputnik V, Sinopharm and Sinovac) and the international COVAX vaccine initiative (remaining doses of AstraZeneca). At the same time, although so far no studies have been carried out on the seroprevalence of the COVID-19 virus in Guinea, many parameters indicate a higher incidence rate of COVID-19 infections in the country than clinical data suggest. This can be explained by a high proportion (>80%) of healthy carriers and limited health system capacity to carry out large-scale screening. If the country's access to vaccines is not accelerated, there is a risk that the COVID-19 epidemic will linger on, especially in poor and urban settlements, and that the virus further mutates.

CONCLUSION

The response to the ongoing epidemics in Guinea, including its syndemic hotspots, provides an insight in the impact of concurrent (re-)emerging infectious diseases in many lower income countries. WHO's DG outlined this also in his speech to the World Health Assembly in 2021. He noted that 1.4 million fewer people received care for Tuberculosis last year, 21% less than in 2019. Also, 60 mass immunisation campaigns are currently postponed in 50 countries, putting around 228 million people—mostly children—at risk for measles, yellow fever, polio and more.[24] The indirect health impact of the COVID-19 measures and response might thus be considerable.

Epidemics do not thrive independently from each other. They are intimately related to the social, economic and ecological environments in which people live, or rather survive, in many cases. In the words of Dr Tedros:

> We cannot build a safer world from the top down; we must build from the ground up. It starts in the streets of deprivation and overcrowding … It starts with strong primary health care and public health systems, skilled health workers, and communities empowered and enabled to take charge of their own health.[24]

Societies across the globe, especially in poorer nations, will likely see more interconnected syndemic hotspots of impoverishment, malnutrition, violence, disease outbreaks and scarcity of health services. Unfortunately, global and national responses to the COVID-19 pandemic indicate, like in Guinea, that too often a biosecurity-focused, authoritarian top-down approach is applied.[25] Such approaches might undermine trust in the government and health authorities, and might in the end be counterproductive to contain a pandemic or its longer-term health impacts. This insight is not new. It was already noted during the response to the Ebola outbreak in 2014–2016 that a disease outbreak can be securitised and framed in a 'crisis' mode, both by international and national actors.

Instead of dealing with the impact of the actual disease and the needs of populations suffering from it, the response then reflects the needs and anxieties from the developed world.[14 21] Airborne pathogens thrive where people live in impoverished conditions, not because they are endogenous viruses in the region.[26] Rather than merely 'controlling' or 'eradicating' the disease in certain settings, public health actors, health authorities and international organisation hence need to strive to address the structural determinants of health and well-being in these places, inquiring why impoverishment exists in the first place. Inclusive and adaptive public health approaches, with their use of diverse sources of knowledge, disciplines and capabilities will turn out more effective to meet the 21st century challenges of pandemic diseases and other upcoming crises.[25]

A contextualised, dynamic understanding and country-specific version of health systems governance is thus required to address current and future syndemic hotspots.[25] This is not only relevant for consideration at the local and national level but likewise important for policy developments and global health governance agreements at the international level. Several researchers have argued that the recommendations from the IPPR and the possible development of an international pandemic treaty are (too) top-down and narrowly framed in terms of immediate health security needs. Over the decades, states have all-too-easily sidelined the international human rights framework under cover of (health) emergency responses.[27] Instead, all international support for national coordination and outbreak response capacities should consider the financial and sociopolitical realities (or nuances) of individual countries.[28]

The current epidemiological situation, with concomitant management challenges, requires a strong and long-term commitment in health system strengthening from decision makers in Guinea, thus ensuring 'proper' epidemic preparedness and response. The present analysis has highlighted how the unsustainability of the 2014–2016 post-Ebola health system reforms, the restrictive nature of the syndemic response and the political agency of key health system actors influence the control of ongoing epidemics. This provides not only lessons for the country, but is also an indication of the challenges that many countries, notably lower-income ones, face to improve public health outcomes and strengthen their health systems in a sustainable way. Addressing impoverishment and the social and ecological determinants of health including targeting the structural neglect of health systems is very much required for future epidemic preparedness and response in Guinea, and beyond.

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