

Urgent COVID-19 quantitative and qualitative data collection in Ghana and Togo – supporting pandemic planning and response

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Background and brief on methodology

This international research collaboration is locally led by PACKS Africa¹ in Ghana, and in Togo by CROP². Funding is provided by the University of Southampton (UK), with technical data collection systems support by Cognate Systems (Ghana), through their Opine Health Assistant (OHA) platform.

Our objective is to provide real-time evidence for rapid national decision making by health policymakers within the 2 beneficiary countries (Ghana and Togo). Methods and aggregated findings will be openly available for consideration by other countries.

The project comprises of interview 3 streams. These include conversations with policymakers to assess research priorities and knowledge gaps; a survey assessing knowledge of the general population in Ghana; and assessing the use of a mobile phone data collection platform where individuals can report symptoms that may represent a COVID-19 infection. The project and is expected to run for 6 months – June to November 2020.

The OHA platform is being used to collect cross-sectional community data through mobile phones from specific districts in Ghana (Ashaiman, Kpone-Katamanso, Greater Accra region; Nkwanta North and South districts, Oti region), with the intention being to expand data collection into Togo (Djarekpanga, Mo district). COVID-19 related symptoms are gathered from respondents to provide insight into the

¹ PACKS Africa is a youth-led think tank, operating from Accra (Ghana) to enhance the use of research, data and other forms of evidence for policymaking. This is approached from a perspective of knowledge management, information systems and advocacy for evidence-informed policymaking. PACKS Africa has been working with the Ministry of Health in Ghana to enhance opportunities for improved evidence use since 2017.

² Center for Research and Opinion Polls (CROP) is an independent research center with a non-partisan network of social science researchers based in Togo, France, Canada and the US. The organisation aims to contribute to the public policy discourse in Africa by providing quality information and training to Africans.

potential prevalence of the disease in those communities, and to support public health decision-making.

The population survey uses smartphone technologies to explore knowledge within the larger Ghanaian society around respiratory infectious diseases and measures such as hand-hygiene. The conversations with policymakers secures insights, primarily from policy actors, on policy responses to the pandemic and how to enhance preparedness for future pandemics.

Summary of preliminary findings (Ghana)

As the objective is to provide real-time evidence to policymakers leading pandemic planning and response, it has become useful to share these preliminary insights, which will be reviewed as the study progresses. This approach subscribes to the view that the situation is a novel pandemic, which presents many opportunities for learning, while also requiring flexible decision making in response.

1. Disease surveillance

- Multi-modal disease surveillance: Preliminary findings acknowledge the use of routine and enhanced contact tracing as a primary mechanism for disease surveillance during this pandemic. There is however the need to complement existing disease surveillance methods with others that directly engage with the population. One example of this is the use of data on self-reported symptoms through mobile phone technology. With adequate awareness, it is possible to get communities around the country to participate. Such methods tend to be useful in situations such as the Coronavirus pandemic where it is not easy to get public health experts to engage with all users face-to-face. The same platform can also be used by health workers to report suspected cases as they engage with the communities.

Evidence: Using minimal social media posts and by word-of-mouth, we were able to get users to participate in the Opine Health Assistant Covid-19 Symptoms Tracker. See coverage in Figure 1.

- Use of accessible technology: If the above direction (of multi-modal disease surveillance) is to go by, engaging with citizens will require the use of technology that is:
 - Accessible to as many people as possible;
 - Has a low barrier to adoption and participation;
 - Does not incur costs for the end-user;
 - Easy and quick to deploy over existing technology.

The OHA platform used USSD (Unstructured Supplementary Service Data) technology. This is technology that is already widely used in the telecom and finance sectors for mobile banking. While we do have smartphone applications for use with OHA, we adopted the USSD since it satisfies the above requirements on accessibility in the Ghanaian context.

Evidence: Our data, gathered over the past few months show submissions from users country-wide.

- Incorporate Flexibility: Modern disease surveillance methods need to adapt quickly to rapidly changing environments as our understanding of diseases, their symptoms, and their impacts increases. In the case of the ongoing COVID-19 pandemic, the symptoms list given as guidance by the WHO has been constantly added to as the virus spreads into different countries. For instance, the loss of taste and smell was added several weeks after the start of the pandemic. Any technology platform used for such surveillance must be able to adapt quickly to this. Such changes, if needed, must be made and deployed in hours, not weeks.

Evidence: On OHA, while we had already deployed the system for use, we modified the symptoms that users were asked in a matter of seconds. We were also able to exclude questions about travel from abroad a few weeks after the Ghanaian borders were closed as they were no longer relevant. These changes took effect immediately for all who were using the system. As evidence emerged around the loss of smell or taste being a possible COVID-19 symptom, this has been integrated into the system.

- Real-time: During a pandemic, while it is necessary to get data through disease surveillance, it is even more critical that this data is timely. Therefore, there is the need to have data continually streaming in as the situation evolves on the ground. Real-time data analysis and visualizations using maps and charts give decision makers actionable insights. Having timely data also makes it easier to observe relevant patterns of spread from the data reported by users.

Evidence: During the first few weeks of the COVID-19 pandemic in Ghana, before an official announcement of positive cases in the Eastern Region, the dataset gathered from a few days' prior indicated that there were likely to be positive cases present. We are yet to understand the correlation between reported symptoms and the presence of positive cases in different parts of the country. See Figures 1 and 2.

2. Case management: treatment, isolation & quarantine

Comparatively, Ghana has experienced better case management regimes. "At least we have identified holding centers, isolation centres and treatment centers" (INT-PI-01). Adequate provisions have been made for both symptomatic and asymptomatic carriers of the virus (according to WHO standards), despite logistical inadequacies. This level of care at national-level facilities was corroborated from the district level, but "when you come to the district, we are doing home management because we don't have treatment and isolation centers and we have our clinicians going to the homes of the people to show them what to do ... [although] some people don't adhere" (INT-DI-01).

Such challenges make case management a little problematic in the districts. If there are opportunities for enhanced capacities, these local level systems should be of priority, considering that "these are the [units which] need things like ventilators and all that, those ones are not available" (INT-PI-01). At the moment, there are minimal facilities (at least PPEs) to "receive" (INT-PM-01) and quickly refer patients to a higher facility that handles that. These can be improved with the necessary resourcing, since "the drive of government is to make sure that patients are not transported from one place to another because that will also lead to spread" (INT-PI-01).

3. Laboratory & testing, including ports health

Ghana is acknowledged to be doing quite well (at least in Africa) in the number of tests conducted, however this effort happens to be dwindling in recent times (with backlogs accumulating). The initial increased capacity was attributed to expanded testing infrastructure (initially from 2 centres – Noguchi and KCCR), through upgrading existing health reference and other laboratories across the country – albeit at regional levels. However, district health teams are calling for localized testing infrastructure, recognizing that they normally face logistical challenges in transporting samples to – and waiting for results from – remote reference facilities. According to a national level policy implementer, there are gene experts at district levels "if we could equip them with [the necessary logistics], that will be [a] positive way to go" (INT-PI-01).

4. Risk communication

Risk communication was recognized to be a significant challenge within the current set of interventions. Although efforts have been made through traditional and social media platforms to communicate and educate the public on the virus and its associated risks, behavioral change has been minimal. Quite a considerable proportion of the population does not "accept" that the disease exists (INT-DI-01). "According to them, they do not see it [...at least in Ghana]" (INT-PI-01), and

moreover, “they are not sick but [are being told after testing positive that] they have the disease”. Such groups demand to see evidence of people dying from the virus on TVs, as portrayed in other jurisdictions. But “our culture is different from that of Europe and America. Of course, we want to give some dignity to the dead and so we might not necessarily do that. But if it becomes necessary, we can, with the permission of the family, use [the corpse] as a point of contact for the rest of the nation” (INT-PM-01).

Well intentioned effects of current communication initiatives is neutralized by an ever-growing phenomenon of fake news (infodemic), which the WHO has acknowledged as a significant challenge in risk communication. While these have largely resulted from general break in trust in governance structures (due to corruption and over-politicization of issues), others have included conspiracy theories on the origins and objectives of the virus, either as a (5G) technological invasion or as a biological weapon.

At the district levels, District health teams have collaborated with governmental structures like District Assembly, the National Commission for Civic Education (NCCE) and the Information Services Department (ISD). But change has been minimal, which is attributed to behavioral and literacy factors. In the words of INT-DI-01 “having to deal with people who are a bit learned, when you tell them that they are positive, they will tell you “doctor take me so that I don’t [infect] my family” or “I want to do self-isolation”. So he does home management and he even doesn’t come to his family”. This proactiveness is not common in areas with low educational levels.

Recommendations provided by respondents;

- I think they should do a lot more [adverts and jingles] in the local language because if you do it in English and they don’t understand, then you are not going too far (INT-PI-01).
- I think right now; they have opened churches, the church can come in. People will rather accept things from their pastors and imams. And then we also engaged the assemblymen and the family heads, because they are the people [who are listened to by] the people listen to. (INT-DI-01).
- For me, forget about building huge isolation centers, huge treatment centers, if you don’t tackle it from the roots...; if you are able to bring the change in the community, the rise will flatten and the curve will start coming down (INT-PM-01).

5. Coordination & governance

Apart from the activation of existing policy instruments (including the national action plan for health security, national health policy, and a roadmap for health

emergencies) to manage the pandemic nationally, an effort has been made to ensure that “people who are infected [with the coronavirus] are not in the community to spread the disease” (INT-PI-01), however, a few challenges have been reported, including;

- The mode and manner in which people are picked up: “You have ambulance sirens blurring and all that. It eventually led to stigmatization when they eventually came out” (INT-PI-01). Such undesirable community reactions create opportunities for resistance, hence the need to adapt more patient-friendly mechanisms.
- Communication gaps: According to INT-PI-01, “they mentioned they have modified the way of picking [people with confirmed cases] up. So I don’t know how that is being done [now], that much of it has not been publicized”. This reported situation at the national level indicates time lag in communicating new directives, requiring quick fixes.
- Inadequate stakeholder consultations: Although some consultations (especially across MDAs and with the WHO, IMF, and World Bank) were acknowledged within interviews, the general response was that more could have been done to consult informed opinions from practitioner groups and opinion leaders adequately, and not just instructing them on policy decisions taken by the government. Adequate consultation of informed opinions from all stakeholders is critical in winning this warfare. Adequate consultation of informed opinions from all stakeholders are critical in winning this warfare.
- Limited community engagement: Community structures were found to be used in limited extent, particularly for educating community members about the virus and associated risks. Traditional authority and leaderships of religious groups were recommended as potentially useful stakeholders for adequate community engagement.

Civil Society Organisations (CSOs) were reported to have contributed immensely to the pandemic fight in the country, through donations of food items and equipment (including veronica buckets and PPEs). It was recommended that they get more involved in “the communication aspects” (INT-PI-01) and “research” (INT-DI-01). Technical support has mostly come from development partners like the WHO, and others have also contributed essential equipment like PPEs and veronica buckets.

- Integration with relevant stakeholders: While understanding the disease through surveillance, it is important to give other stakeholders access to aspects of the dataset to help address other social needs such as relief items. Coordinating the effort through such a mechanism ensures that citizens get the needed social relief items while they help to give real-time insights into the spread of the virus. Medical and psychological assistance can also be given to individuals who need it based on the kind of data that is being reported.

Sharing data also helps to coordinate and allocate resources to tackle the pandemic effectively. Reporting symptoms can be linked with testing such that individuals are sampled and tested to verify trends in the data. The field team conducting tests can also use the same platform to report the case data back to the testing facility. This coordination will speed up the collection of data for analysis, while decision-makers await the test results.

Evidence: In OHA, we included the users' option to indicate their need for food and shelter. We have a system that maintains a list of food banks, shelters, other social relief items, and their locations. Based on a user's location, we can send an SMS back to the user with a list of the places close to them where they can access these resources. We are still in the process of getting other stakeholders involved, especially providers of relief items.

6. Logistics & equipment

- Generalizability (potential for multiple use of logistics): Given the varied data needs for disease surveillance, it is important to use tools and methods that can be adapted to meet different needs. Such multipurpose tools should be applicable to other diseases, epidemics or pandemics. It should be able to track the needs of the health and medical professionals, e.g. PPE shortages and other impact assessments such as mental health assessments.

It should also be possible to deploy more routine assessments for other diseases such as Diabetes, Cerebrospinal Meningitis, etc, for which early detection can help with treatments.

Evidence: We have recently had interests from groups to adopt OHA for a Diabetes Assessment tool. We have deployed it for a pilot that will be running soon.

7. Research and evidence production

It was acknowledged that the pandemic is a scientific problem, hence should be tackled with scientific evidence. Evidence from the biological and social sciences are all relevant, same as multi-disciplinary studies. COVID-related research needs identified include;

- An understanding of the genetic makeup of the virus, as was achieved through collaborations by University of Ghana scientists – whether it is the same strains of the virus or are changing
- Signs and symptoms of patients

- Prevention and treatment therapies (the drugs, traditional and herbal medicines, potential vaccines) – which ones are working? Which are not working?
- Standards of care, and guarantees that our treatment protocols are working
- An evaluation of the spread and concentration of positive cases, to inform distribution and location of facilities (like isolation centers)

However, not much of these studies are being conducted locally. “There [are] a number of proposals that have gone out. Not many have gotten funded but at least there has been a number of social science studies that are going on, looking at community perceptions and their views; a few people are trying to look into the area of stigma to see what is happening” (INT-PI-01). Instances cited were the international collaboration of vaccine development processes by the WHO and its partners (INT-PI-01), as well as findings from British scientists that inform a shift from hydroxychloroquine to using dexamethasone in providing care for COVID-19 patients (INT-DI-01).

We note with concern that most studies are exclusively either funded by international organisations or from the personal resources of interested researchers. As such, “[studies] that are going on are just minimal, self-funded projects, very soft social science studies. But the big ones, the trials, they are not happening” (INT-PI-01). Observations are also being made on the drugs being administered, although these cannot be described as “full-blown research [projects]...for [reliable] interpretations”. Similar trends are reported at the district levels, including interests in “why people are not accepting that the virus exist” (INT-DI-01). Any strategy planning process should consider the role of the country's research governance process, or at least at the sectorial or situational (pandemic) levels.

Figures

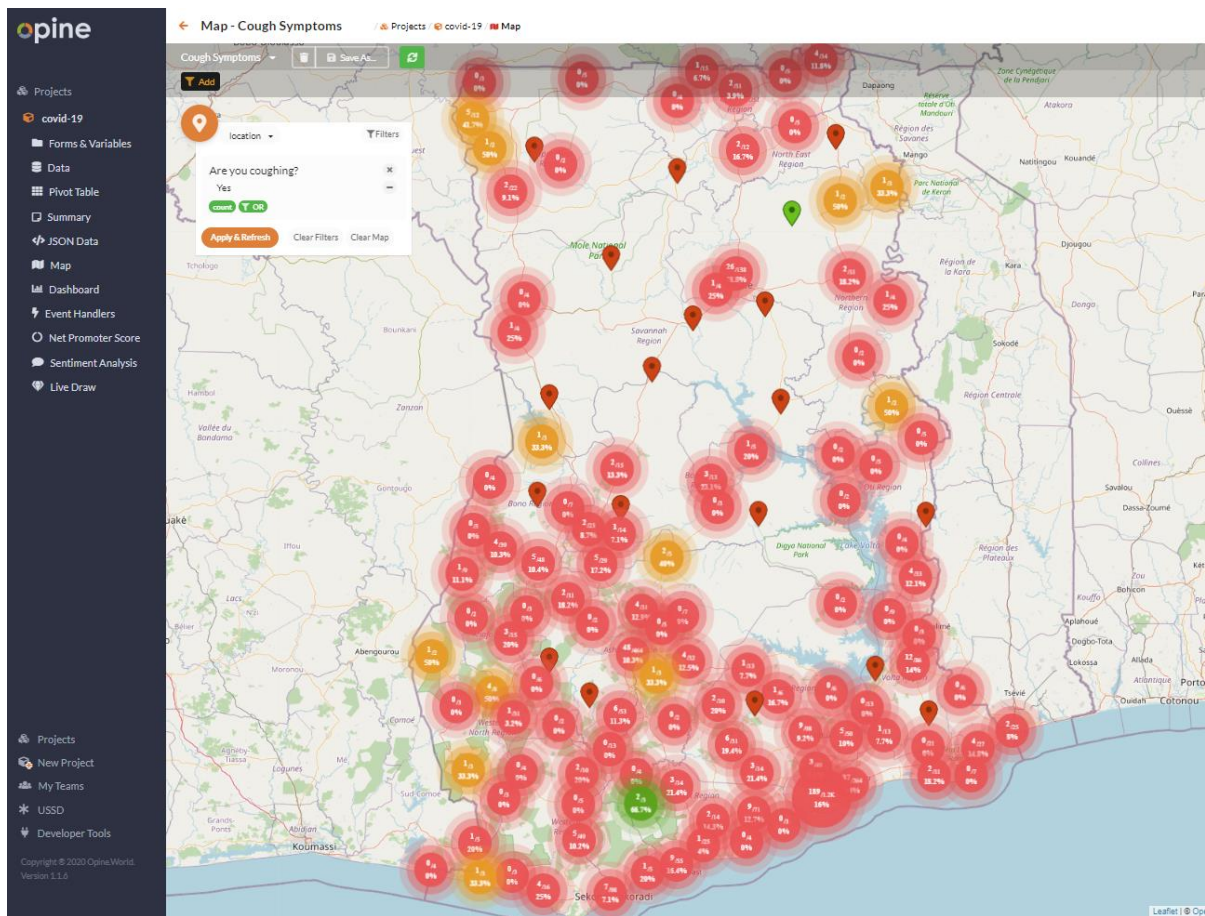


Figure 1. Coverage of self-reported data on Covid-19 symptoms on the Opine Health Assistant.



Figure 2. Real-time dashboard based on self-reported symptoms