

COMMENTARY

Contact Tracing in an African Megacity during COVID 19: Lessons Learned

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Abstract

Contact tracing is the process of identifying, assessing, and managing people who have been exposed to a disease to prevent onward transmission. It is an essential public health tool and a crucial component to the on-going COVID-19 pandemic response in Lagos State, Nigeria. This contact tracing exercise is the largest one to be conducted in the megacity and is leveraging on the expertise of professionals across different strata of the health care system. Following the confirmation of a positive case of COVID-19; the State's contact tracing team commenced investigations by identifying contacts and following them up daily for 14 days from the last point of exposure. In the process of conducting this large-scale exercise, several lessons that can improve contact tracing outcomes such as the need for community mobilizers and decentralization, the importance of technology and communication campaigns were learnt and can serve as good practice for other implementers. (*Afr J Reprod Health 2020 (Special Edition); 24[2]: 27-31*).

Keywords: Contact Tracing, COVID-19

Résumé

La recherche des contacts est le processus d'identification, d'évaluation et de gestion des personnes qui ont été exposées à une maladie afin de prévenir la transmission ultérieure. Il s'agit d'un outil de santé publique essentiel et d'un élément crucial de la riposte en cours à la pandémie de COVID-19 dans l'État de Lagos, au Nigéria. Cet exercice de recherche des contacts est le plus important de la mégapole et met à profit l'expertise de professionnels de différentes strates du système de santé. À la suite de la confirmation d'un cas positif de COVID-19, l'équipe de recherche des contacts de l'État a ouvert des enquêtes en identifiant les contacts et en les suivant quotidiennement pendant 14 jours à compter du dernier point d'exposition. Dans le processus de réalisation de cet exercice à grande échelle, plusieurs leçons qui peuvent améliorer les résultats de la recherche des contacts tels que le besoin de mobilisateurs communautaires et la décentralisation, l'importance de la technologie et des campagnes de communication ont été apprises et peuvent servir de bonnes pratiques pour d'autres exécutants. (*Afr J Reprod Health 2020 (Special Edition); 24[2]: 27-31*).

Mots-clés: Recherche de contacts, COVID-19

Introduction

Lagos, the most populous city in sub-Saharan Africa with a population of over 20 million people, is at the epicentre of the COVID-19 pandemic in West Africa¹. Since Nigeria reported its index case of COVID-19 on February 27, 2020, Lagos, the commercial hub of the country has accounted for more than 40% of recorded cases in the country². Following a rapid increase in the number of confirmed cases, the Lagos State Government issued a policy on lockdown and rapidly rolled out the standard measures of quarantining confirmed

cases, isolating close contacts, and initiating contact tracing to detect those who had come in contact with the positive cases. In this regard, the United Nation's Population Fund (UNFPA) particularly the Lagos Liaison Office with recent hands-on experience from the Ebola Response, was called upon to support the state respond to this unprecedented public health emergency, specifically with a focus on community contact tracing and community active case search.

Contact Tracing is a critical component of the COVID-19 pandemic response particularly at the initial stages prior to community transmission

and also throughout the response as new cases are being detected. Its main advantage is that it can identify and isolate potentially infected individuals before severe symptoms emerge thereby preventing onward transmission to the rest of the population. The strategy of Lagos State was to decentralize contact tracing to Local Government (LGA) and Ward levels, with an initial focus on the five LGAs that reported the majority of positive cases. These included Eti-Osa, Ikeja, Kosofe, Alimosho and Lagos Mainland LGAs, with the idea to scale up the tracing to other LGAs at a later date. LGAs are administrative divisions of the State which are further sub-divided into wards. Lagos State has 20 LGAs, and with 10 Wards in each LGA, almost a total of 200 administrative wards. The UNFPA team provided technical support in the two most critical LGAs (i) Eti-Osa, as it initially had the highest number of detected positive cases and (ii) Alimosho LGA because it has the largest landmass and population and shares boundary with Ogun State. Thus, the initial intervention of the UNFPA spread through two dominant LGAs and 20 Wards in Lagos State.

Methods

The Lagos State Incident Command System (ICS) was established to coordinate the state's response to the COVID-19 pandemic. It is led by the State Governor (Chief Incident Commander) and a senior management team consisting of the Honorable Commissioner for Health, Permanent Secretaries of the Ministry of Health, Primary Health Care Board, and Health Service Commission, Representatives of the National Center for Disease Control (NCDC) and Development Partners – UNFPA, AFENET/CDC, WHO and UNICEF. This team oversees the Emergency Operations Centre (EOC), which manages the day to day coordination of the response and is led by the Incident Manager (IM). The Incident Manager has nine pillars reporting to him: Coordination, Surveillance, Case Management, Infection Prevention and Control, Communication and Social Mobilization, Logistics and Supplies, Resource Mobilization, Research and Laboratory. The pillars comprise technical staff from the offices of the senior management team.

Contact Tracing was carried out under the Surveillance pillar by the State Surveillance Team. At the LGA level, there is a replica of the EOC structure with the pillars headed by the Medical Officers of Health. To ensure uniformity in approach, the State Surveillance team trained the LGA Surveillance teams across all the 20 LGAs on the critical elements required for the successful implementation of contact tracing and thereafter deployed them to their respective LGAs.

Individuals who call into the EOC designated lines or walk into designated testing centres reporting symptoms of COVID-19 are tested in line with the State's protocols. At the point of sample collection from these suspected cases, contacts are line-listed for possible follow up. Contacts were identified by asking about the person's activities and the specific roles of people around them since the onset of illness. Contacts were defined as anyone who they had been in contact with, family members, work colleagues, friends and health care providers. Upon the confirmation of a positive case of COVID-19, the contact tracing team in the LGA where they reside is informed and they reach out to the line-listed contacts by phone. They provide them with information as regards what symptoms to look out for during the monitoring period, what to do if they become unwell and how personal information would be processed or stored. They also provide them with thermometers for twice-daily temperature charting. Thereafter, the contacts are called daily and information on their signs and symptoms are collected on a contact tracing form for 14 days. The daily calls and follow up are discontinued after 14 days if no symptom manifests. However, if there is an onset of symptoms, the case investigation team moves to the house of contact that is now a suspected case for sample collection and line-listing of contacts. The contact tracing team consisted of the LGA Medical Officer of Health, Disease Surveillance and Notification Officer, Health Educators, NCDC representative and partners - WHO and UNFPA. With the progression of the pandemic and onset of community transmission, the state introduced the case search variant whereby the contact tracing team commenced the active search for positive cases that may have filtered through into the

communities. To achieve this, the LGA team led by the Medical Officers of Health with the support of the NCDC and WHO representatives focused on Health Facilities Active Case Search while the community active case search was coordinated by the Health Educators and ward focal persons with the support of State Primary Health Care Board and UNFPA.

To conduct the community active case search, between 5 and 10 pairs of two-persons' teams (a community mobilizer familiar with the terrain and a volunteer) were recruited per ward. These field workers were trained in clusters of 8-10 persons by the Health Educator and Ward Focal Persons on inter-personal communication, community case definition of Covid-19 and the use of Open Data Kit (ODK) tool which was used in the collection of data during the field work. Open Data Kit (ODK) is a free, open-source suite of tools that allows data collection using Android mobile devices and data submission to an online server, even without an Internet connection or mobile carrier service at the time of data collection³. To ensure saturation of all the ward settlements, a comprehensive daily implementation plan which involved moving from household to household enquiring about symptoms, history of travel or contact with a confirmed case was followed by each team. In the situation where a suspected case was identified for testing, the team notified the LGA team which in turn informed the case investigation team. In the absence of suspected cases in a household, they were advised to adhere to the much-publicized safety precautions; avoid crowd gatherings, maintain social distancing of at least 2m, frequent and regular hand washing and use of hand sanitizers. For the Health Facilities case search, the team visited health facilities and reviewed the health records of patients that had visited the facilities one month before the beginning of the active search to detect patients who had presented with symptoms of fever, cough, difficulty in breathing and sore throat. These patients were then contacted, their health status determined, and appropriate follow up actions taken.

Results

As of the 29th of May 2020, there were 4123 confirmed cases of COVID-19 in Lagos State and 15.6% (646) of them are contacts that tested positive. 70% (2886) of the confirmed cases have had their contacts traced while contact-listing still on-going for the remaining cases. Overall, 4336 contacts have been listed and 74% (3212) of them have completed the 14 days daily monitoring and have exited while 26% (1124) are still under follow-up and being monitored daily. During the 14 days, 86% (2783) of these contacts were seen physically at least three times and were followed up via daily phone calls.

Discussion and Lessons Learnt

Manage the response centrally but decentralize implementation: At the initial stage of the response, coordination and implementation of all activities, including contact tracing were handled at the state level with limited involvement of the LGAs. However, this greatly stalled the process of reaching the grassroots to effectively trace contacts. As the pandemic progressed, contact tracing was decentralized to the LGAs under the leadership of the Medical Officers of Health and this led to the detection of more cases and more accelerated response.

The critical role of electronic platforms: The use of the Open Data Kit tool enabled the rapid transfer of real-time data to the central server for analysis. Data included GPS locations of each house which could sometimes contain up to 4 to 10 households. This enabled the contact tracing team to reach more than one million households within the first ten days of active case search. This ordinarily would have proved difficult with manual entry and collation.

The need for digital technology to support manual contact tracing: With the severe shortage of human resources, this exercise was arduous for the team because with each increase in the number of confirmed cases, the list of contacts to be traced

increased exponentially. We recommend that Digital Contact Tracing be looked into as a viable tool to ease the burden of healthcare workers and fast-track the process. In this form of contact tracing, smartphone users would download an app that would enable their phones to silently track people with whom they have been in contact. If one of these persons is found to be positive for Covid-19, the smartphone will send its user a notification letting them know about their potential exposure so they can report themselves to the relevant authorities.

Community Mobilizers and Volunteers are invaluable assets in our setting: The contact tracing team often found home addresses difficult to locate and after persistent tracing failures, it became apparent that the process could be better guided by community mobilizers and volunteers. Their thorough knowledge of the landscape significantly shortened the commute time and led to more successful outcomes. Their presence also served to facilitate community entry and acceptance among residents. Therefore, they should be included as integral members of the contact tracing team.

Information, Communication and Education campaigns greatly facilitate community entry: The state government initiated an aggressive daily communication campaign across multiple media platforms early on in the response and ensured daily communication and engagement with the populace. Therefore, most contacts were well informed, were receptive to health care workers and willingly provided their home addresses. However, the occasional undue anxiety observed in some communities was abated by addressing community members' perceived risks of transmission of infection from the health care workers.

Leveraging on Contact Tracing to provide other information and services is important: Globally, the UNFPA estimates that 7 million unintended pregnancies and 31 million additional cases of gender-based violence (GBV) are expected to occur if the lockdown continues for another 6 months⁴. In this regard, contact tracing provides the health worker with a rare opportunity to discretely engage with the populace, identify

women and girls at risk of experiencing GBV, respond appropriately and provide psychosocial counselling. The Health Worker can also provide information on sexual and reproductive health and rights as well as provide non-prescriptive family planning commodities that can be utilized safely during the lockdown.

Limitations

Current information on the number of contacts that were tested is unreliable. In the first one month of the outbreak, all contacts were being tested but as community transmission became fully established and the number of suspected cases increased, mandatory testing of contacts was abandoned in favour of testing only symptomatic contacts. This is because the laboratories became overwhelmed with demand and there was a paucity of test kits and other consumables. However, exceptions were made for health facilities and quarantine hotels where all contacts are regularly tested when a case was confirmed.

Ethical Consideration

Permission to conduct the contact tracing and community active case search was obtained from the Local Government Chairmen and leaders of the Community Development Association in all the wards. All members of the contact tracing team were trained by the Lagos State Ministry of Health on the confidentiality of information collected. Participation was voluntary and individuals were allowed to withdraw or not answer any question they felt uncomfortable with. Verbal Informed consent was obtained from all household heads for persons below 18 years and directly for persons above 18 years before being interviewed. The names of respondents and other identifying information were not included in the tools rather respondents were assigned codes. The interviews were conducted in locations deemed as private and respondents were assured of the confidentiality of information provided.

Conclusion

Contact tracing and Community active case search are crucial components of an outbreak response.

When properly executed, they have the potential to break the chain of transmission and more effectively prevent future outbreaks. However, they are time-consuming and are hugely dependent on the existence of a competent and efficient workforce. Its success on the field is also dependent on other factors such as socio-economic conditions, risk perceptions, and psycho-social factors that inform the attitude and behaviour of the people within the locality the outbreak response is being conducted.

In developing countries, where there is a chronic shortage of health workers, task-shifting and sharing should be strongly considered. The training of staff with fewer qualifications such as Community Health Workers and Community Health Extension Workers on contact tracing will increase the pool of human resources and reduce the burden on higher qualified health workers thereby reducing burn-out and inefficiency. Contact Tracing is also a very expensive exercise, a significant amount of funds was used in making phone calls to over 3,000 contacts at an average of \$8 per call. The travel and logistic needs of field staff also consumed a substantive portion of funds that could have been channelled into other areas of need. In this regard, it is essential that public-private partnerships, for example, partnerships with Telecom and Logistic companies be sought out and established early to ease the operationalization of contact tracing.

Despite these challenges, members of the general populace continue to volunteer for contact tracing daily, determined to the fight against an infectious disease that may put their lives and those of their families at risk. This selfless act has thus far enabled access to over a million households with numbers steadily on the increase. To complement all these efforts, daily testing capacities have been expanded and isolation facilities have increased to cope with the expected rise in cases. Four to Eight lab personnel have also been trained per LGA with the capacity to accurately collect samples that will aid the diagnosis of positive cases. UNFPA's support to the state government has enabled the development of practical, results-based strategies that have thus far, greatly impacted the state's response to contact tracing during COVID-19. In

line with the UNFPA mandate, we continue to advocate for the continued unabated provision of sexual and reproductive health services, including family planning, as part of essential services. The advocacy also calls for attention to a higher risk of gender-based violence, and unplanned pregnancies during this period and acknowledges that information and services regarding these pertinent issues can be conveniently provided during contact tracing.

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Conflict of Interest

None.

Contribution of Authors

Ulla Mueller coordinated the study; Omolaso.O and Akinbajo.A participated in the fieldwork and collected the data. Momah-Haruna. A, Omosehin.O, Akinbajo.A, Ayanbadejo.J, Somefun.E prepared the manuscript. All authors approved the manuscript.

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