

# Set up and management of quarantine centres during early phase of COVID-19 Pandemic, Masindi District, Uganda

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## ABSTRACT

On May 1, 2020, Masindi District reported its first confirmed case of COVID-19, identified through a rapid community assessment survey. By May 2, 2020, 104 contacts had been identified and quarantined; however, the number increased beyond the capacities of the quarantine facilities as more people were being admitted. We supported the district to assess, modify and setup quarantine centres to interrupt further transmission of the virus in the communities. We assessed and modified existing quarantine facilities for suitability to accommodate contact persons and set up new ones based on the national quarantine guidelines. We considered only institutional and geographical quarantines. The institutional quarantines accommodated persons who had been in contact with the case-patient less than 14 days before he was evacuated and these were categorised according to their relationship with the case-patient. For each institutional quarantine, we provided follow up forms for monitoring temperature changes and development of COVID-19 related symptoms. Geographical quarantine consisted of all persons who were staying in the same residential area with the case-patient. By the 3rd week of the response to COVID-19 outbreak in Masindi District, we had established and functionalized four institutional and one geographical quarantine facilities. We quarantined 465 persons, 125 (27%) of which were under institutional quarantine. We recorded one escapee out of the 465 quarantined persons who was traced and returned within 24 hours. We relocated and distributed contacts to the newly set up centres in order to adhere to the holding capacity given the space and other amenities. Provision of adequate hand washing facilities and other social amenities in all the quarantine facilities prevented cross-mixing of contacts from one wing to another. Separation of toilet and bathroom facilities (for males and females) also prevented sharing by the different sexes. In addition, all the rooms were cleaned and disinfected twice every day, which provided a clean and friendly environment for the quarantined persons to stay. Daily follow up of quarantined persons was achieved which involved checking their temperatures and monitoring them for development of COVID-related symptoms. All quarantine facilities were enclosed in fences to ensure security of the quarantined persons. The area Police and Military personnel were deployed for further enforcement of COVID-19 preventive measures. All the quarantined persons were discharged after completing the 14-days period. We established and functionalized two institutional quarantine facilities in addition to the already existing two which we modified.; We quarantined 465 persons, 125 of which were under institutional quarantine. The overall management of quarantine centres improved and was characterized by less congestion in the facilities, proper record keeping, strengthened security, and appropriate use of hygiene facilities.

**KEYWORDS:** COVID-19, Contacts, Quarantine, Uganda

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## Lessons from the field

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On 21 March 2020, Uganda reported its first COVID-19 confirmed case. The case-patient was from a business trip in Dubai and detected through the routine screening process at Entebbe International Airport. Subsequently, the number of cases increased and most were travellers from high risk countries, truck drivers and their contacts. As the number of cases increased, several measures such as closing of international borders and lockdown were put in place to control the spread of the disease. Quarantining of individuals who have been exposed to confirmed cases of COVID-19 is one of the containment measures that Uganda implemented [1].

On May 1, 2020, Masindi District reported a confirmed case of COVID-19, identified through the rapid community assessment survey. This was the first community case to be reported with no travel history to or from any COVID-19 risk area and had no link to truck drivers who were the major source of COVID-19 transmission in the country at the time. The case-patient was a police detective and his routine roles included arresting crime suspects, enforcing curfew restrictions on police patrols, which made him interact extensively with the community. By May 2, 2020, 104 persons had been identified to have had direct contact with the case-patient less than 14 days before he was evacuated. The Masindi Rapid Response Team hurriedly put these contacts under quarantine as a measure to interrupt further transmission of COVID-19 to the communities. The contacts were categorized and quarantined according to their relationship to the case-patient. Thirty-four of these were army officers who were enforcing the curfew restrictions with the case-patient and were being quarantined at Masindi Army barracks Secondary School.

The implementation of quarantine implies the use or creation of appropriate facilities in which a person or persons are physically separated from the community while being cared for [2]. To address the need for control of further spread of COVID-19 in Uganda, three types of quarantine were considered; Home quarantine in which exposed persons were asked to quarantine themselves individually at home. Institutional quarantine whereby exposed persons were kept in a monitored group setting with others. Geographic quarantine which involves quarantining people across a village, district or

region [1]. The objective of quarantine is to monitor exposed persons for symptoms and ensure early detection of cases to prevent additional exposures or spread of infection.

We report herein Uganda's experience with quarantine management in the control of the spread of COVID-19. We supported Masindi District to respond to the outbreak by conducting epidemiological investigations, upgrading, setting up and managing of quarantine centers to interrupt further transmission of the virus into the communities. In this article, we document the experiences of setting and managing the quarantine centers during the COVID-19 response in Masindi District.

### Description of the quarantine setting

Twenty-eight of the contacts, including family members of the case-patient and workmates at Masindi Police Station, were quarantined in Masindi General Hospital whereas 42 persons who had been arrested by the case-patient shortly before he was evacuated were being held in Masindi Police cells. The number of quarantined persons in the hospital increased from the originally admitted 28 persons to 49 as more people were admitted, claiming to have been in contact with the case patient and this caused congestion. Males and females were sharing the same toilet and bathroom facilities. At some point, male and female quarantined persons were sharing the same ward and though the newly recruited contacts were being put in a separate wing of the ward, they could still cross to the wing of those who had been recruited earlier. The location of the hospital quarantine was not appropriate as it could expose the hospital staff given that the centers were holding high risk contacts. At the same time, the inmates who had been granted police bond could not be left to return to the communities but rather were put in quarantine. The hospital quarantine lacked records on when the contacts were last with the case-patient and when they were recruited into the facility, which made monitoring quite challenging. Security was lacking which led to easy entry and exit of unauthorized people in the quarantine facilities.

*Set up and management of quarantine centres - Institutional quarantines*

Possible settings for quarantine include hotels, dormitories, other facilities catering to groups, or the contact's home. Regardless of the setting, an assessment must ensure that the appropriate conditions for safe and effective quarantine are being met. We assessed the already existing quarantine centres and modified them according to the National Quarantine Guidelines of the Ministry of Health (National Quarantine Guidelines, 2020). These included Masindi General hospital and Masindi Army barracks. The army barracks quarantine was fairly organised, with two people per room, adequate ventilation, availability of records, restricted movement except that there was only one hand washing facility. We ensured that each room was provided with a jerrycan of water and soap.

The hospital quarantine on the other hand, was congested, with no proper records, inadequate hygiene and hand washing facilities. Men and women were sharing the same ward and washrooms. The facility was not fenced and there was no security to restrict movement, hence, unauthorised people kept on crossing through the premises. More people kept on admitting themselves claiming to be contacts to the confirmed case-patient. We ensured that more hygiene and hand washing facilities were provided, we provided forms for temperature monitoring and proper record keeping. We liaised with the army and police to provide security at the quarantine facility to ensure movement restrictions.

We set up new institutional quarantine facilities based on the National Quarantine Guidelines of the Ministry of Health (National Quarantine Guidelines, 2020). The purpose of setting up new facilities was to relocate some people from the congested hospital quarantine as well as those who were being kept in the police cells after they had been granted police bond. The Masindi District Task Force identified two schools (Masindi Public School and Kabalega Secondary School) which had the potential of being used as institutional quarantine facilities. We assessed them for suitability to accommodate the contacts based on the provisions of the National Quarantine Guidelines of the Ministry of Health. According to the Uganda National Quarantine Guidelines, quarantine centres should have adequately ventilated spacious rooms in which beds could be placed at least 1 metre apart; adequate food, water, and hand hygiene provisions for the quarantine period; waste disposal facilities;

provision for regular cleaning and disinfection of the rooms, toilets and bathrooms; possibility for daily follow up of quarantined persons; and security measures. We ensured that all these were put in place. We relocated people who had been kept in the police cells to Masindi Public School whereas the excesses from the hospital to Kabalega Secondary School.

#### *Masindi Police Barracks Geographical Quarantine*

Masindi Police Barracks was cordoned off as a geographical quarantine, for all the people who were staying in the same residential area as the COVID-19 case-patient. However, people would still move out of the facility in search for food since it was not provided. There was only one hand washing facility which made people cross from their houses to converge at this point. We ensured that food was provided and liaised with the army to make sure people do not move out of the facility. We also provided more hand washing facilities to stop people from crossing from one place to another to wash hands or collect water. We liaised with the area police and military personnel to help with enforcement and ensured quarantined persons stayed in the facilities throughout the 14-day period. The security personnel also ensured that unauthorised people do not get into and out of the quarantine facilities. In addition, we developed registers which were given to the security personnel at the entrance/exit of the facilities for easy monitoring of the people entering the facilities.

We checked the temperatures and monitored development of symptoms of the quarantined persons on a daily basis. All the details of the individual quarantined person were recorded using contact follow up forms. Appropriate samples of all quarantined persons (Oral-pharyngeal swabs) were collected and sent to the Uganda Virus Research Institute (UVRI) for testing. These samples were collected twice during the quarantine period, i.e. at the beginning and of the quarantine period (day 1 and day 13) to ensure none of them is discharged with the disease.

We provided psychosocial support by visiting every quarantine facility at least twice a week and explained to the quarantined persons how COVID-19 is transmitted and the rationale of their quarantine. We also taught them good personal

hygiene practices and measures to minimize contact with other quarantined persons.

We ensured availability of transport to the hospital just in case anyone of the quarantined persons had developed a fever and other COVID-19 related symptoms or even other illnesses. While in the quarantine, we ensured all residents were provided with three meals a day; i.e.; breakfast, lunch, and dinner as well as adequate safe drinking water.

For geographical quarantine, we restricted peoples' movements from and within the quarantine area. We provided hand washing to the different homes within the geographical quarantine locality. We ensured that food items were provided so that they could not find a reason to move out of the quarantine facility. We also provided security to enforce the movement restrictions.

### **Ethics approval**

This activity was conducted as part of the activities of the Ministry of Health in response of COVID-19. The activity was approved as non-research by the Office of the Associate Director for Science at the United States of America Centers for Disease Control and Prevention (US CDC).

### **Availability of data and material**

The data used and analysed belongs to the Uganda Public Health Fellowship Program and are not publicly available. However, the datasets could be availed by the corresponding author upon reasonable request and with permission from the Uganda Public Health Fellowship Program.

Within 3 weeks, a total of 465 persons were quarantined, 125 of these had been in direct contact with the COVID-19 confirmed case and were put under institutional quarantine. Those who had been staying in the same residential area with the case-patient totalling 340, were cordoned off in the Geographical quarantine.

Of the 465 quarantined persons, only 1 (0.22%) escaped from the facility, however, security was notified early enough (within 24 hours). He was traced, brought back and separated from the rest of the former inmates and the number of his stay in the quarantine facility increased as we had to restart

counting. The rest of the quarantined persons complied with quarantine regulations until the end of the 14-day period. Of those, only 3 (0.65%) sought medical care as they developed other health conditions while in the quarantine.

On the 18th May, 2020, 463 quarantined persons were discharged from the quarantine facilities after their laboratory results turned negative for COVID-19.

We assessed and modified three already existing quarantine facilities and set up two new ones. One of the already existing quarantine facilities was geographical and two were institutional. Instituting quarantine centres was a major public health measure taken as part of the country's response to the pandemic. The decision to undertake quarantine measures in Masindi was based on the fact that it was a key strategy Uganda was employing to interrupt the transmission of COVID-19 into the communities [1]. The absence of proven vaccines during the early phases of the pandemic and antiviral treatment strengthened the argument that quarantine management was necessary to stop the spread of this dangerous disease [2]. Effectiveness of quarantine as a community containment strategy is evident from 2003 global SARS outbreak [3].

There is need for the Ministry of Health to assess all quarantine centres in the country for suitability to accommodate contacts/suspects. Psychosocial support and provision of appropriate environment keeps the quarantined persons happy which in turn leads to adherence to quarantine rules and regulations and easy management. Record keeping is vital in quarantine management as it enhances proper monitoring of the quarantined persons while in the facility. Collaboration with other stakeholders such as security is critical in the management of quarantines to enforce adherence to quarantine rules and regulations [4].

### **Conclusion**

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By the 3rd week of the response to COVID-19 outbreak in Masindi District, we had established and functionalized 2 institutional quarantine facilities in addition to the already existing 2 which we modified; and followed up 125 contacts. The overall management improved; characterized with less

congestion in the facilities, proper record keeping, strengthened security, and appropriate use of hygiene facilities.

### Competing interest

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The authors declare no competing interests.

### Authors' contribution

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JN, GA, IA, and BOA were involved in the assessment and modification of the quarantine facilities that had been already set up as well as the setting up and management of new ones. DK and ARA supervised the assessment and modification activities. JN prepared the first draft manuscript. LB, DK, and ARA participated in manuscript writing and review to ensure scientific integrity and intellectual content. All authors read and approved the final manuscript.

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