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Mandatory Institutional Quarantine in the Response to COVID-19 in Uganda: Field Notes from Frontline Health Workers

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Abstract

Introduction/Background: On 21st March 2020, the Ministry of Health of Uganda confirmed the first case of COVID-19 and established measures like institutional quarantine for high-risk travelers to interrupt transmission.
Methods: From 21st March to 30th September 2020, alumni of Makerere University School of Public Health including Clinicians, Infection Prevention and Control Specialists, Epidemiologists and Psychosocial Experts supporting Ministry of Health conducted a prospective follow up of travelers under quarantine at 13 hotels and two Government Learning Institutions. Their roles; daily observation of the travelers, coordination to other response arms like laboratory, case management. We analysed demographics of the travelers, documented best practices and challenges experienced during implementation.
Results: We followed up 1882 travelers, and 1225/1882 (65.1%) were female, 62 (3.3%) children below 12 years, 96 (5.1%) tested positive for COVID-19 of whom 73 (76%) were male. Of the 96 cases, 29 (30.2%) showed COVID-19 related symptoms. No death was registered amongst the 96 high-risk travelers that tested positive during institutional quarantine.
Best practices: Monitoring travelers for onset of symptoms, timely onsite sample collection and writing reports.
Challenges: Logistical impediments.
Conclusion: The Ministry of Health should use experiences to revise guidelines with special focus on challenges that impeded effective implementation of institutional quarantine.

Keywords: Institutional quarantine; Frontline Health Workers; COVID-19; Travelers; Uganda

1. Introduction

Globally, COVID-19 has continued to affect many countries and communities in different ways impacting health, education, economies, travel among other sectors (Alkhamees, Alrashed et al. 2020). A total of 86,931,368 cases with 1,878,281 deaths were reported worldwide as of January 6th 2021 at 12:19 pm EAT (Worldometer 2021). In bid to control the spread of COVID-19, many countries adopted efforts including institutional quarantine as guided by the world health organisation (Jamil, Mark et al. 2020).

Institutional quarantine (I.Q) is the process when a country or individual decides to have its population or section of them kept in a predefined place for a particular time frame (Tison, Avram et

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al. 2020). In some countries, institutional quarantine took a period of fourteen days from the time a person tests positive for COVID-19 (Tison, Avram et al. 2020). Such institutional quarantine would go on until the second or subsequent test(s) were done and one turned negative for COVID-19.

For many countries in Sub Saharan Africa history of travel abroad (especially from countries categorized as high risk) was part of the case definition for COVID -19 screening hence the need for efforts to restrict interactions among travelers and home community members (Organization 2020) (Moloney and Moloney 2020). These were proactive measures that enabled early detection through epidemiological analyses of places/origin of COVID-19 which would enable interrupted transmission (Lumu 2020)(Weinberger-Litman, Litman et al. 2020).

On 21st March 2020, the Ministry of Health of Uganda confirmed the first case of COVID-19 and this person was a high risk traveller (Olum and Bongomin 2020). Following guidance from WHO, Uganda had already established places like hotels, hospitals, public schools and others to serve as institutional quarantine sites (I.Qs) (Olum and Bongomin 2020). As a management strategy, various stakeholders like the Ministries of Health, hotel owners, institution heads, hospital management, immigration, airlines, security organs, hygiene service establishments, service providers (mobile catering groups) were involved in providing services (Sarki, Ezeh et al. 2020).

Most of the high-risk travelers voyaged by air and entered through Entebbe International Airport, Wakiso district (Tumwesigye, Biribawa et al. 2020), there were both nationals and non-nationals who had travelled overseas for various reasons like work, studies, seeking treatment (Kitara and Ikoona 2020). Furthermore, ground crossings like Mutukula, Busia, Malaba border points were the other points of entry that were used by the travelers.

The country had two categories of I.Qs; Public I.Qs which were government education training centres and these were absolutely free, where the travelers did not have to pay for any services ranging from food and accommodation and Private I.Qs which were either hotels and or apartments where all services were at a cost and these constituted the highest number of the I.Q establishments that were in place (Sarki, Ezeh et al. 2020). Most f of the I.Q centers were located in Wakiso district (where the airport is located) and Kampala (the capital city of Uganda). The returnees were both males and females, though more males showed signs and symptoms for COVID-19 (Migisha, Kwesiga et al. 2020).

At each of the I. Qs , the MoH deployed frontline health workers of various cadres who included a Clinician, Epidemiologist, Infection Prevention and Control Expert and a Psychosocial Expert) (Migisha, Kwesiga et al. 2020). These health workers offered the necessary support like monitoring temperature, reporting signs and symptoms developed by persons in I.Q, coordinating with the laboratory team to take off samples, identifying underlying conditions like diabetes, hypertension, coordinating charter ambulances and offering psychosocial support given the fact many people/returnees had anxiety about the disease (Lumu 2020)(Ainamani, Gumisiriza et al. 2020). All the high risk travelers were mandated to have two COVID-19 tests with first sample at 0 days (first day at I.Q) and the 2nd at 14 days of admission in quarantine as was the practice in many countries and all the tests were polymerase chain reactions (PCR) tests (Ndejjo, Naggayi et al. 2020).

Uganda had deliberate efforts aimed at "*Flattening the Curve*" literally meaning ,keeping the COVID-19 cases as minimal as possible (Sarki, Ezeh et al. 2020). This was through early detection of cases, timely management of COVID-19 cases at Mulago National Referral Hospital, Naguru Hospital or Entebbe Grade B Hospital, all public health facilities (Migisha, Kwesiga et al. 2020). Each traveller would receive a 'Certificate of Discharge from Quarantine' from the I.Q Team after completion of the mandatory 14-daty I.Q following a negative PCR test. Their room and property would then be disinfected by the MoH Disinfection Team and they would then be ready to return home.

This paper therefore, focusses on institutional quarantine for returnees in Uganda specifically to; (1) assess demographic characteristics of the travelers who were in institutional quarantine; (2) document best practices in the management of Institutional Quarantine; and (3) describe challenges during the implementation of Institutional Quarantine. It is hoped that the lessons learnt will inform improvements in the management of institutional quarantine for COVID-19 and any other infectious diseases in the future.

2. Methods, Techniques, Studied Material and Area Descriptions

Design and population

This was a prospective follow-up of COVID-19 high risk travelers under mandatory quarantine at fifteen Institutional Quarantine Centers (IQCs) in Kampala and Wakiso Districts.

Setting

This was a follow-up of high-risk travelers (returnees) under institutional quarantine from 21st March to 30th September. When Uganda confirmed her index COVID-19 case, the Government through the Ministry of Health instituted a number of public health measures to combat the spread of COVID-19 and mitigate its effects. Among the measures employed was Institutional Quarantine (I.Q) which was directly supervised by the Ministry of Health (MoH). The MoH appointed an I.Q Secretariat that was in charge of deploying teams to do the daily I.Q follow up at 60 National and centralized institutional quarantine sites (I.Qs). Teams were set up and established in Kampala and Wakiso Districts. The teams were recruited through a rigorous formal application process and were trained on how to run I.Q sites and provided with online and hardcopies of I.Q guidelines to support their operations.

Each appointed team constituted four (4) technical staff who included a Clinician, Epidemiologist, Infection Prevention Specialist (IPC) and a Psychosocial Specialist. At each I.Q site was appointed a "team" and the team was also supported by a driver, the laboratory team, security personnel, hotel/Government facility staff and hospital focal points.

The teams were mandated to do daily observations of the travelers, monitor their temperature (thermo-flashes were provided),report signs and symptoms, coordinate laboratory teams to take off samples in the event a traveller developed signs and symptoms or was starting or completing quarantine. The teams also reported any travelers with underlying health conditions. Additionally, the I.Q teams coordinate government ambulatory services for returnees to receive medical attention whenever there was need. The I.Q team was also responsible for organizing transport from the MoH for returnees upon completing their 14-day quarantine period owing it to the fact that in the first months after institution of mandatory quarantine for every returnee, (March to June), the country was under total lockdown and people were neither able to use their private cars nor public transport.

The teams were also responsible for filling in a daily I.Q monitoring tool/checklist from the MoH for each person in quarantine, write daily reports and send them to the I.Q Secretariat. These were vital for capturing updates for each person in quarantine ranging from number of new entrants, those that developed signs and symptoms, those hospitalized either for COVID or any other disease and new positive COVID-19 cases. Additionally, monthly activity reports were also written and still submitted to the I.Q Secretariat for monitoring.

Approval to publish the field experiences was sought and obtained from the Ministry of Health, Uganda and Makerere University School of Public Health.

3. Results

From Table 1, A total of 1882 high risk travelers in 15 approved sites were followed-up under mandatory institution quarantine between 21st march and September 30th of 2020. Of these travelers, 1225 (65.1%) were female and 62 (3.3%) were children below 12 years. During the follow-up period, a total of 96 (5.1%) tested positive for COVID-19 of whom 73 (76%) were male. 41 (42.7%) of the travelers who tested positive for COVID-19 did so on the 1st test, 50 (52.1%) tested positive on the second test and 5 (5.2%) on the 3rd test of the people that tested positive,29 (30.2%) showed COVID-19 related symptoms, 21 (72.4%) of these were male (See Table 2). No death was registered amongst the 96 high-risk travellers that tested positive during institutional quarantine. A total of 66 /1882high-risk travellers reported having underlying conditions that included; pregnancy, diabetes, hypertension and asthma.

In addition to analyzing the demographic and other related characteristics of the high-risk travelers, the I.Q teams documented best practices, facilitators for and challenges that impeded effective quarantine implementation as part of their field notes. These were developed into themes that are further presented in the following account;

Table 1: Demographic characteristics of the travelers that were followed up in I.Q between 21march to 30th September 2020

	Male	**Female**	***Children (under 12 years)***	**Total**
Overall	657	1225 (65.1%)	*62 (3.3%)*	1882
Positives	73 (76%)	23	*3 (3.13%)*	96 (5.1%)
Number of Persons positive on 1st test	33	8	*1 boy*	41 (42.7%)
Number of Persons positive on 2nd test	35	15	*2 girls*	50 (52.1%)
Number of Persons positive on 3rd test	5	0	*0*	5 (5.2%)
Number that developed Signs and symptoms	21 (72.4%)	8	*2 girls*	29 (30.2%)
Deaths	0	0	*0*	0
Number with Underlying health conditions	7	9	*0*	16

Table 2: Other Traveller Parameters Analysed

Parameter	**Numbers (%)**
Reason for travel	
Work	1,7881 (94.7)
Returning home from study	**21 (1.1)**
Returning home from treatment	46 (2.4)
Came for burial	34 (1.8)
Point of Entry Used	
Entebbe International Airport	1834 (97.5)
Ground borders	48 (2.5)
Positive Cases by Institutional Quarantine Site Category	
Private	53(55.2%)
Public	43(44.8%)
Positive Cases Reporting signs and symptoms	
Males	21(1.1)
Females	08 (0.04)
Returnees category by site	
Public	937 (49.8)
Private	945 (50.2)
Total	**1882 (100)**

4. Best Practices

Health Service Delivery

The quarantine team experts followed-up, monitored and screened the travelers on a daily basis. This was premised on the notion that in case a person in quarantine developed signs and symptoms for COVID-19 on any of the days during quarantine, the alert team would be reached, a sample taken off and detection done early. Temperature readings were also taken on a daily basis as part of the screening.

In addition to our roles, we offered mental health and psychosocial support through counselling to the travelers as they had a wide range of concerns including but not limited to fear of testing positive for COVID-19, failed businesses, and marital issues. The service was also extended to their close family members as we had an uphill task of encouraging them that their loved ones would be okay. We also offered counselling particularly to travelers who tested positive in quarantine in preparation for evacuation and supported the ambulance team in picking them.

Capacity Building and Sensitisation

Infection prevention and control (IPC) can be referred to as a '*magic bullet'* for interrupting the transmission of COVID-19.This therefore being a disease with no known cure, the I.Q

teams deliberately trained and sensitized stakeholders they were working with like the hotel staff, drivers, the travelers ,security personnel in IPC .The stakeholders were taken through lessons on hand washing, proper and consistent wearing of the mask(covering nose and mouth),physical distancing (at least 2metres) and disinfection of surfaces. All these were measures employed to ensure there is limited transmission of the virus in and out of quarantine sites

Networking and Coordination

In any public health emergency response, networking and good coordination among the different sub-pillars of the response is cardinal for efficacious service delivery. The same was the case with the COVID-19 response where pillars directly connected to the operations of I.Q on a daily basis had to build synergies to effectively complement each team's roles. Notable among them was the laboratory teams that did a tremendous job in doing free timely sample collection to ensure that the discharge process of the travelers from quarantine does not get derailed. The other team that the I.Q teams worked closely with were the ambulance services (these were government ambulances that were at no cost) that were always on time to either evacuate confirmed COVID-19 positive cases to designated treatment centres upon receipt of results from the laboratory for case management or to transfer travelers in quarantine to hospital-for those who had underlying health conditions and needed medical attention .The hotel management and security (National Army and police) were also very helpful in ensuring that standard operating procedures for quarantine are adhered to since the I.Q team members were non-residents.

Infection Prevention and Control

To ensure that we minimize the transmission of the virus in the quarantine centers, we ensured that we (the I.Q team from MoH) adhered to strict standard operating procedures. We guided that hotel staff not to return home until the end of the 14-day quarantine period of a particular cohort of high-risk travelers. At the end of this period, we would also take off COVID-19 samples from them, the time we would be taking off the travelers' day 14-day discharge sample to ascertain they are COVID- free .We also advised that hotel staff doing housekeeping minimally enter the guest rooms nor clean them but rather provide cleaning and washing materials for the guests to do their cleaning and laundry, we also ensured that only one staff was attached to a floor or section of the I.Q site for the whole time the travellers were in quarantine.

Many times the travellers wanted to exercise and also bask under the sun to enjoy and gain Vitamin D, so we, together with security would ensure there was physical distancing of 4-6 meters so as to minimize contact.

Report Writing and Documentation

There is a common adage that goes, "*what is not written is not done*" .In relation to the same, the I.Q teams complied daily and monthly reports to keep track of the updates in quarantine. Information on traveler demographics like sex, age, country of travel and date, underlying health conditions, outcome of COVID-19 PCR Test were captured in these reports. Additionally, the teams also developed and maintained a data base for all the people in quarantine in order to do systematic and strategic follow up of the travelers during and post quarantine.

5. Facilitators for Effective Quarantine Follow-Up

Good Leadership and Coordination

The COVID-19 response was well coordinated by the Incident Management Team (IMT) being at the forefront. These were in charge of the overall synchronization of all the operations of the response to ensure that not only are cases reduced but also that service delivery is effective. They harmonized all the other sub-pillars that included surveillance, logistics, security, case management, laboratory services, quarantine among others to ensure that there is proper networking and that the teams were working towards a common goal of defeating the novel COVID-19 and mitigating its effect on the population.

To further elucidate on the issue of good leadership, the I.Q teams were directly supervised by the I.Q Secretariat that was headed by the National Coordinator for Quarantine. They provided oversight direction and guidance, organized logistics and provided support supervision to the frontline teams as they executed their duties.

Generous Support of Partners

In Uganda, there was support to the COVID-19 response that included but was not limited to finances, vehicles, fuel, airtime, food items, human resource, and quarantine space from development partners, civic societies, government, Non-Governmental Organisations and even individuals. All this support was cardinal for smooth running and coordination of the different interventions. For instance, the cars, fuel, airtime, human resource were some of those support points that reinforced the effective running of I.Q.

Availability of Well Documented Guidelines

In the execution of our duties, the I.Q Secretariat availed soft and hard copies of properly documented guidelines for institutional quarantine. These offered specific guidance on areas like; persons to be quarantined, duration of admission in quarantine, requirements for an I.Q site, medical procedures, among others. The regulations in the I.Q guidelines made it easy to have uniformity and reference points for all our operations as frontline teams.

Dedicated Frontline Health Workers

It cannot go without mentioning that the expertise of the carefully recruited technical frontline teams was cardinal in the effective implementation of I.Q objectives. Each team constituted a Clinician, Epidemiologist, IPC Specialist, Mental and Psychosocial Expert whose minimum qualification was a Masters Degree. These were teams of very dedicated individuals; we worked beyond the call of duty (including working over the weekends, public holidays and nights too), working overtime time, spending personal resources on airtime for the much needed coordination and communication, fuel and personal cars to travel to the quarantine centres for monitoring and internet data to download COVID -19 PCR results from the results dispatch system (RDS) of the Ministry of Health and send them to the numerous travelers' personal email accounts. We also were charged with issuing written discharge certificates (hardcopies) to all the people in quarantine upon completion of the quarantine admission period.

6. Challenges that Impeded Effective Quarantine Service Provision

Resources and Logistical Issues

Despite the fact that for most of the part, the response went well, there were a few challenges we faced as frontline health workers in the execution of our duties.

On most of the days from Mid-July to 30th September 2020, it became increasingly hard to get means of transport from MoH to travel to check on and monitor the travelers at the different quarantine sites so we had to use our private cars and some people public means to have the work done.

There was no provision of airtime to the quarantine frontline team to coordinate quarantine activities yet all operations involved a lot of phone communication with the people in quarantine themselves, hotel management, laboratory teams, our supervisors, ambulance team, catering services. Additionally, there was a dire need for internet data to download COVID-19 results for all the people in quarantine, and then send to either their personal emails or WhatsApp pages.

There was also inadequate provision of personal protective equipment (PPE) and even for the little we could get, there was no schedule or streamlined method of provision of PPE to quarantine, therefore sometimes, the teams totally lacked PPE and had to re-use masks, aprons, and lacked sanitizers or had to buy for themselves while on national duty. This lack of adequate PPE also trickled down to the hotel, apartments and institution staff at quarantine centers. This was a risk factor for easy transmissibility of the virus.

We also had a challenge of few cars to transport the many travelers per airport landing to the I.Qs. Some of the travelers would get agitated and complained bitterly at the lack of physical distancing which many said was a precursor for transmission of COVID-19.

Delayed payment is another issue that affected frontline health workers supporting I.Q. This left the workers dissatisfied with the working conditions but continued to work because of the need for service above self.

Human Resource Factors

For the months of July through to September, 2020, we experienced a reduction in the composition of some teams so there arose challenges of unreliable support due to the small numbers of the laboratory teams yet the travelers were so many in those months. The teams got overwhelmed with the work and this derailed the taking off of discharge samples thus unnecessarily extending the stay in quarantine (beyond the known 14 days). The situation was dire in that the travelers grew impatient and wanted to even leave quarantine without the final sample being taken off.

We also in the period (June to September, 2020) were faced with a reduction in the number of the technical I.Q staff because the total lockdown had been lifted and some essential workers that were on contract returned to their regular jobs leaving very few people to manage quarantine. This made the running of the daily duties very hard because this was the same time when we had an influx of travelers returning as a result of some countries opening up their air spaces and everyone wanted to come back home, only to meet a small workforce.

System Factors

Turnaround time is very important in the effective running of laboratory services. Institutional Quarantine was synonymous with COVID-19 sample collection and any delays in the receipt of laboratory results even if the setting were not quarantine causes duress among the recipients. Unfortunately, this was the case in August and September, 2020 and it caused a number of upheavals in the quarantine centres because discharge from quarantine admission was dependent on a negative PCR result. Unfortunately we had a disparity in result turnaround time from the usual 48 –hours that the travelers expected to 5-10 extra days.

7. Discussion

More Female Returnees

Most of the returnees were female estimated. This can be attributed to majority of Ugandan women travel to Asian countries to work as maids. In addition, both there was gender sensitivity while organizing for instance public and private institutional quarantine centers were available making more females to feel comfortable to stay in such institutions.

More returnees preferred private I.Q centres due to privacy and safety reasons. However, the availability of low-cost hotels was an additional factor to enable many to return thus making the mandatory Institutional quarantine affordable for them. Similar findings were also noted in a study conducted in Uganda regarding improving institutional quarantine in Uganda as a key measure to combat COVID -19 which reported 54.7% of the returnees being male (Ndejjo et al, 2020). On the contrary, a higher male returnee rate has been reported in other studies from other countries, for example in Nepal, it was reported that 23% of the returnees were female{Phuyal, 2020 #111}

High Recovery Rates

Early diagnosis (detection) and treatment have proven to be one of the most efficacious ways to combat the effects of highly infectious diseases like COVID-19 (Adhikari et al., 2020). The follow-up period also showed that none of the returnees that tested positive for COVID-19 died either in quarantine or in hospital following referral from I.Q. The plausibility is that as per the Guidelines of I.Q, testing of the returnees was supposed to be done two times; on arrival (Day Zero), and second (discharge sample) on Day 14 in quarantine. In some cases, an intermediate sample on Day Seven or Eight would be taken off especially if the person had been a contact. This was useful in that detection of disease was timely and all that were found positive, were transferred by government ambulances for case management.

Another elucidation could be that Uganda's experience in the fight against other epidemics like Ebola, Marburg, could explain the robust policy and institutional frameworks the country has put in place overtime. (Namara, Nabaho, Karyeija, Nkata, & Lukwago). Additionally, the lessons learnt from other countries where the disease began from like China made Uganda to better prepare for COVID-19 interventions and can explain the 100% recovery rate as was observed in I.Q. This is because there was timely detection and management of the deadly COVID-19 virus among positive returnees. This is additional evidence to the fact that countries like China where COVID-19 originated, had no country to learn from in order to appropriately prepare and institute intervene which could in part explain the many fatalities that were fatalities were registered (Khafaie & Rahim, 2020).

Additionally, high recovery was most likely as a result of early detection of cases especially the asymptomatic ones. Immediate isolation of confirmed cases for further management and observation at various treatment centers in-turn was helpful in breaking the transmission chain. Similar findings were reported in a study conducted in China where twice viral tests were done among high risk travelers under I.Q to aid early detection of positives and timely isolation and treatment especially for those that were asymptomatic(Lio et al., 2020)

Most Positives from 1st COVID-19 Samples

There were more returnees in quarantine testing positive for their first test (on arrival at the airport or on the first day in quarantine) yet they all had negative travel samples which were always between taken off between 2-5 days prior travel. This could be related to the fact that maybe they took off samples before the virus could be detected by the PCR test. This COVID-19 incubation period was varying from individual to individual and there was no knowledge that kept emerging overtime since the disease was new. This study is in agreement with studies done in Uganda among truck drivers who entered at ground ports of entry and majority could test positive to COVID-19 (Bajunirwe, Izudi, & Asiimwe, 2020). Furthermore, our finding is in line with other studies done in USA and California where most of the returnees tested positive during screening before entering the airport (Dollard et al., 2020) (Bendavid et al., 2020).

More Positives being Male

Although majority of the people were asymptomatic, our findings still show that among the symptomatic cases, there were more male returnees turning positive than females yet they were even fewer in number. More male travelers in this follow-up period in I.Q reported signs and symptoms for COVID-19 than their female counterparts. This is no wonder because signs and symptoms increase the odds of one testing positive for COVID-for the disease. This can be examined by the fact that that genetically females are less susceptible to acquire viral infections and reduced cytokine production (Lu et al., 2020).

Additionally females have a higher macrophage and neutrophil activity as well as antibody production and response that gives them a protective effect to most viral infections including COVID-19.Our study findings are in agreement with other studies conducted in Wuhan China where more males tested positive for COVID-19 than female counterparts (Kopel et al., 2020).

Comparing Positive cases by I. Qs Category

The data for this follow-up period reported more returnees in private facilities turning positive for COVID-19 than those in public facilities. For the public I.Qs, they were sharing of common places like bathrooms and toilets because rooms were not self-contained, queuing for food, some were sharing rooms, characteristics that are synonymous with home quarantine. Such conditions are risk factors for increased transmissibility of COVID-19.Even when our findings show that there were positive cases in private I.Qs, the number of positive cases in the private I.Qs was equally high. And if the numbers in the private I.Qs were comparable to the public ones, we probably would have had more cases in the public facilities. These findings therefore agree with a study in China that reported a higher likelihood of transmission of COVID-19 in home quarantine(which has similar characteristics with the public I.Qs in our findings(Lio et al., 2020).

Comparing Positive Cases by Point of Entry

For the follow-up period, there were no travelers that used ground crossings to get into the country that tested COVID-19 positive whether for the first, second or third tests. To offer some explanations, it is highly likely that some of the travelers using the airport tested positive because of the way they were transported to the quarantine sites. Travelers were transported by MoH and because of the overwhelming numbers per flight, they used to use same vehicles without appropriate physical distancing. Additionally, considering that those who were going to private I. Qs had different choices, the drivers would make rounds dropping each of the travelers at their respective I. Qs thus increasing the time of contact in case there were some who were positive on the same vehicle. Similarly, a study reported that there was an increased likelihood of travelers contracting COVID-19 in transit after leaving airport to their respective places of abode (Maji, Choudhari, & Sushma, 2020).

On the other hand, however, even when there were fewer returnees that reported using ground crossings, there is need to mention that there were none of them tested positive. This could in part be related to the means of transport they used to their I. Qs of choice. They reported that would travel in cars alone and sit in the back seat of the car with just a driver and both had to have their masks on for the whole journey. The sitting arrangement would provide for appropriate physical distancing and the mask protective efficacy for both the driver and returnees. These findings are synonymous with a study in Nepal where 2/3 of travelers reported that they travelled comfortably from the airport and there was no fear of contracting COVID-19 in transit.(Phuyal et al., 2020)

Another explanation could be that some of the people got infected on the plane, stopovers, where most reported that there was hardly any physical distancing. Findings from some studies have shown that there (Barnett, 2020; Pavli et al., 2020)

Best Practices and Facilitators for Effective I.Q

For any public health intervention, programme or project to succeed, there must be guidelines to provide the basis of all operations for the same and these ultimately culminate into the best practices. COVID-19 being a novel virus, all line ministries and departments including but not limited to health, foreign and internal affairs, aviation, security instituted measures in place to ensure they combat and or mitigate the effects of the viral disease. Coupled with best practices like early detection through testing, timely case management and facilitators like support from stakeholders, financing from Government and her partners, a number of countries Uganda inclusive could easily conclude that I.Q was largely successful and effective in interrupting transmission of I.Q. A study conducted in China provides the same evidence that effective containment of susceptible sections of the population like was the case for this study(high-risk travelers)(Maier & Brockmann, 2020)

Challenges during the Implementation of Quarantine

COVID-19 is a novel disease and many countries faced a number of challenges implementing measures to combat and mitigate the pandemic. The case was not any different from Uganda's experience where a number of challenges were faced in the execution of a number of interventions including I.Q.(Lucero-Prisno, Adebisi, & Lin, 2020; Maqbool & Khan, 2020)Most findings report challenges relating to inadequate supply of PPE, transportation problems for I.Q teams, long laboratory turnaround time.

8. Limitations

We were not able to capture all the information because of operational challenges like lack of transport on some days for the I.Q Teams to access the quarantine sites.

The team did not do statistical analyses because the data collected was not intended for research purposes but it is rather for documentation of the I.Q implementation process during follow-up of high risk returnees.

9. Conclusion

It is undeniable that I.Q is one of the interventions across the globe that have proved to effectively interrupt the transmission of highly infectious diseases like COVID. The Ministry of Health should

use the experience to revise standard operating procedures and guidelines for managing institutional quarantine in the future with special focus on the challenges that impeded effective implementation of institutional quarantine.

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