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Article

Long distance truck drivers and the increasing risk of COVID-19 spread in Uganda

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Highlights

- COVID-19 was first detected in Uganda in the third week of March 2020
- Although the number of COVID-19 cases have grown steadily, data have not been analyzed to determine whether a pattern in the nature of cases has emerged
- The first cases were detected among international arrivals and thereafter their local contacts. However, in mid-April, a number of cases were detected among long distance truck drivers arriving from the neighboring countries.
- Among the 442 cases that have tested positive, majority or 317 (71.8%) are truck drivers, 75 (16.9%) were community cases and 50 (11.3%) were international arrivals.
- Majority of the community cases have been linked to contact with long distance truck drivers and interventions are urgently needed to protect long distance truck drivers

Abstract

Objectives: To examine the patterns of COVID-19 transmission in Uganda.

Methods: We reviewed press releases from the Uganda Ministry of Health from when the first case was announced on March 22 up to May 29, 2020 a 10-week period. We obtained the press releases from the MoH website and the Twitter handle (@MinofHealthUG). Data include number of persons tested and the categories classified as international arrivals, community members and long distance truck drivers.

Results: The first cases were international arrivals from Asia and Europe and thereafter community cases emerged. However, in the middle of April 2020, COVID-19 cases were detected among long distance truck drivers. By May 29, 2020, a total of 89, 224 persons had been tested and overall 442 tested positive. Of those that tested positive, majority or 317 (71.8%) were truck drivers, 75 (16.9%) were community cases and 50 (11.3%) were international arrivals. Majority of community cases have been linked to contact with truck drivers.

Conclusions: The truck drivers are the most frequently diagnosed category, and have become a core group for COVID-19 in Uganda. They have generated significant local transmission which now threatens a full blown epidemic in the country unless strict controls are put in place.

Introduction

Subgroups of the population with a higher prevalence or incidence of an infectious disease are often called core groups and can serve as a source of infection to the general population. The term has commonly been applied to sexually transmitted infections such as HIV, syphilis and gonorrhea (Watts et al. 2010, Gesink et al. 2011, Lewis 2013) but can apply to non-sexually transmitted infections (Lietman et al. 2018). Core groups may spread infection to the general population directly or through bridge populations, and will sustain infection levels at endemic or even epidemic levels unless control measures are instituted to lower prevalence of disease among them or restrict their contact with the general population.

In December 2019, cases of a rare pneumonia, connected to a sea food market were reported in Wuhan, China and the causative agent was identified as a viral agent that was named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Zhu et al. 2020), the cause of what we now know as Corona virus disease (COVID-2019). Starting in China, the infection spread very rapidly and has now nearly reached all continents. Given the scale and rate of spread, it is clear that the SARS-CoV-2 is a highly infectious agent, with a relatively large basic reproductive rate estimated to be at least three

(D'Arienzo and Coniglio 2020, Liu et al. 2020, Zhuang et al. 2020). Also, given its origin from a single country, all new cases in other countries were introduced by travellers from China and eventually to the new hotspots in Asia and Europe.

In Africa, the first case was reported in Egypt in mid-February and in Uganda, the first case was reported by the Ministry of Health (MoH) on March 22, 2020, of a traveler arriving from Dubai. The Ministry initiated steps to screen travelers from hotspot countries and presidential directives were issued to close international borders. However, long distance trucks were allowed access to bring essential goods into the country or as transit to neighboring countries of Rwanda, Democratic Republic of Congo and South Sudan. In this paper, we track the reports of new COVID-19 cases reported by the MoH and trace the emerging patterns of the new cases reported and identify the categories of persons at high risk for COVID-19 in Uganda.

Methods

We reviewed MoH reports and press releases for new COVID-19 cases detected in Uganda as they were made public on a regular basis. The reports are regularly posted on the Twitter page for the Ministry of Health (@MinofHealthUG) and all entries were verified based on posts at this handle. Data were entered into Excel and analyzed using STATA version 12. We plotted an epidemic curve using a 7-day interval as the unit on the time scale. We classify the cases into three categories namely: international traveller, local/ community cases, and long-distance truck drivers. International travellers are those passengers who arrived from a foreign country regardless of their citizenship. Local cases are those that were diagnosed among local residents and had no evidence of recent foreign travel, and these were assumed to be a result of local transmission, or what the MoH refers to as community cases. Long distance truck drivers are those who arrived at Uganda's borders as drivers of trucks carrying merchandise or goods, regardless of their nationality. We report a combination of both Ugandan and foreign national cases detected in Uganda and do not specify the nationalities of the cases.

Results

We tracked new cases of COVID-19 detected between March 22, 2020 and May 29, 2020 a period of 10 weeks. The first case was reported on March 21, 2020. A total of 89, 224 persons were tested and overall 442 tested positive. Of those that tested positive, majority or 317 (71.8%) are truck drivers, 75 (16.9%) were community cases and 50 (11.3%) were international arrivals as shown in Table 1 below.

-- Insert Table 1 here --

The data are also shown in the Figure 1 below and indicate that at the beginning of the Ugandan epidemic, the cases were all international arrivals. These quickly shifted to community cases but have since mid-April been dominated by truck drivers, followed by a surge in community cases starting in mid-May. The steady rise in COVID-19 cases among truck drivers has been has been accompanied by a rise in the community cases. At the beginning of the epidemic, the first 5 community cases identified were all linked to contact with international travelers. However, the subsequent community cases have all been linked to most probable contact with truck drivers.

-- Insert Figure 1 here --

Discussion

We present novel data to describe the dynamics of COVID transmission in a setting where local transmission has been largely contained, but current data suggest the number of new cases could escalate. The first cases were all international travelers as described before (Olum and Bongomin 2020), then community cases arising from contact with the international travelers were detected, and currently long distance truck drivers and their local contacts now dominate the epidemic, and threatening an escalation in the epidemic. These events take place in the midst of a national lockdown that was announced on March 19, 2020 and only eased on May 25, 2020.

Long distance truck drivers have established themselves as the highest risk group for COVID-19 currently in Uganda. This population has historically been at risk and formed a core group for other infectious diseases such as HIV and other STDs (Pickering et al. 1997, Gysels et al. 2001). The reasons why long distance truck drivers are likely to test positive for COVID are not clear. There are some possible explanations. First, is that they drive long distances, and this exposes them to a larger social network, in most urban and likely crowded places such as trading centers, ports of goods shed where probability of mixing with infected persons may be increased. The second is that they may represent the general prevalence of the communities where they come from, signifying high prevalence in the neighboring countries. There is limited screening data from the neighboring countries to corroborate this hypothesis.

The data suggest that interventions for drivers to limit social contact along their journey are urgently required. Transport companies will need to test their drivers and ensure those who are positive do not proceed with the journey. Uganda embarked on testing the truck drivers in mid-April and initially allowed them to continue their journey before results were available. Samples were then transported to a hub in Entebbe, near the capital Kampala. This may have cost the country an increase in community transmission as evidenced by the growth in cases in week 9 and 10. With evidence of this increased community transmission, the MoH has changed the approach to now test the drivers at border points, and truck drivers who test positive are not allowed to continue their journey.

The strength of this report is that we present novel data, comprehensive to include all confirmed cases to-date as reported by MoH and collected using innovative means. The limitation of this analysis is that new data are added daily and the epidemic is dynamic. Data analysis should be done on a continuous basis to obtain a more complete and up-to-date picture of the epidemic trajectory.

In conclusion, the COVID-19 epidemic in Uganda was sparked by travellers from Europe and Asia. The country is now facing threats of new transmission from regional long distance truck drivers arriving from neighboring countries. The epidemic is now literally being driven by the truck drivers who have emerged as a core group for COVID in Uganda. Public health prevention measures that take into account regional integration of efforts are required to ensure success for the COVID programs in Uganda and its neighbors.

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Ethics approval: Our work did not require ethics approval as we used data in the public domain and carried no human subject issues.

Author contributions: FB conceived the idea, all authors collected data, JI did the analysis, FB created the first draft, all authors revised and contributed to the final version.

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Table 1: Number of positive COVID-19 tests reported by Ministry of Health Uganda

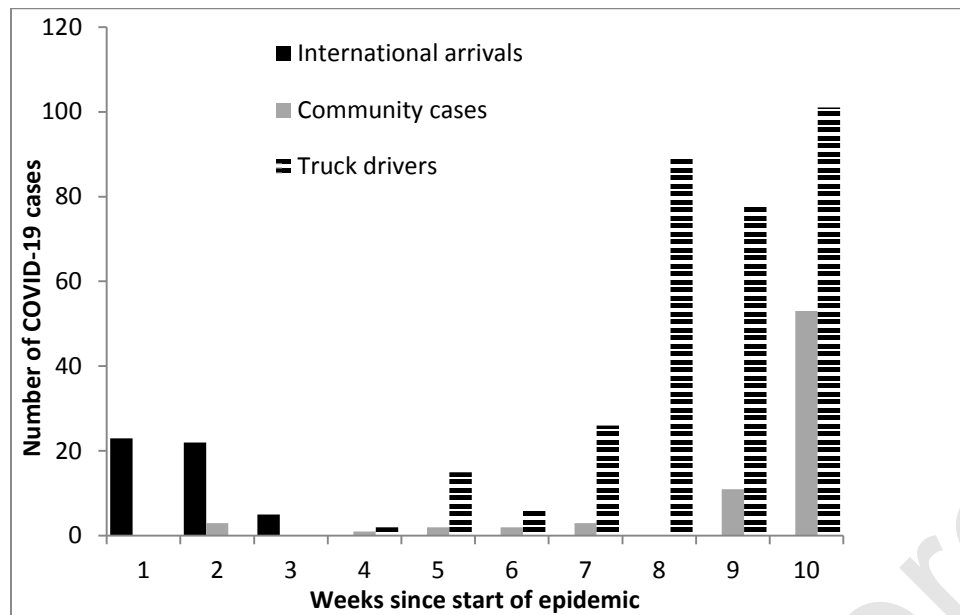|			Number of positive COVID-19 cases			
Date	Week	Number tested	Total	International arrivals	Community	Truck drivers
Mar 21-27	1	724	23	23	0	0
Mar 28-Apr 3	2	1 473	25	22	3	0
Apr 4- 10	3	2 070	5	5	0	0
Apr 11-17	4	5 302	3	0	1	2
Apr 18-24	5	7 609	17	0	2	15
Apr 25-May 1	6	12 427	8	0	2	6
May 2-8	7	20 771	29	0	3	26
May 9-15	8	15 527	89	0	0	89
May 16-22	9	11 928	89	0	11	78
May 23-29	10	11,393	154	0	53	101
Total		**89, 224**	**442**	**50**	**75**	**317**

Figure 1: Epidemic curve showing the distribution of COVID-19 cases in Uganda by category of international traveler, community case and truck drivers, March to May 2020