Successfully Coordinated Transfer of EVD Cases and High-risk Contacts within an Urban Setting: Greater Kampala Metropolitan Area

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An ambulance decontamination training session for EMS response teams

Following the declaration of the Ebola Virus Disease (EVD) outbreak in Mubende district, Uganda, on 19th September 2022, Greater Kampala Metropolitan Area (GKMA) was designated to be a high-risk area due to the 2-hour proximity to the epicentre of Mubende and Kasanda, its complex urban setting and its high population density. Sure enough, Kampala registered its first EVD confirmed case a month later, on 21st October 2022.

The Metropolitan area comprises three districts: Kampala, Wakiso, and Mukono, and its population of 5,535,700 persons as of 2021 served by 2,159 health facilities. However, 96% of these facilities lack overnight admission capacity for patients due to several logistical, system, and structural barriers and as a result, many patients require referral to higher-level facilities.
Before the Ebola outbreak, the Emergency Medical Services (EMS) in GKMA operated in line with the WHO emergency care system framework with three medical call and dispatch centres: Naguru Ministry of Health (MoH) ambulance station, Kampala Capital City Authority (KCCA), and Uganda Red Cross Society. These centres worked in collaboration to ensure the evacuation of patients from the community to facilities and between facilities. ¬ However, with the nature of the Ebola outbreak, this mechanism would make evacuations complicated; thus, one dispatch centre was adopted.

Other prehospital challenges complicating the coordination of EVD transfers included the inadequate number of ambulances in the region. In addition, only a few ambulance teams had recently trained in the safe evacuation of highly infectious conditions, and the lack of designated facilities to admit confirmed cases, their contacts and suspects.

All EVD alerts within the region were channelled through the alert desk at the KCCA Call Centre. The alert desk forwarded all verified and validated EVD cases for evacuation, to the EMS dispatch desk located at the Naguru EMS ambulance station, via a WhatsApp coordination group and phone calls. There, the IDI-supported Regional EMS Coordinator for the metropolitan area coordinated the dispatch of EVD response ambulances to evacuate high-risk contacts, suspects and confirmed cases from the community or facilities. This coordinator also handled the evacuation of some cases from the national Ebola task force; these were often cases in other health sub-regions for transfer to the national isolation centres in greater Kampala.

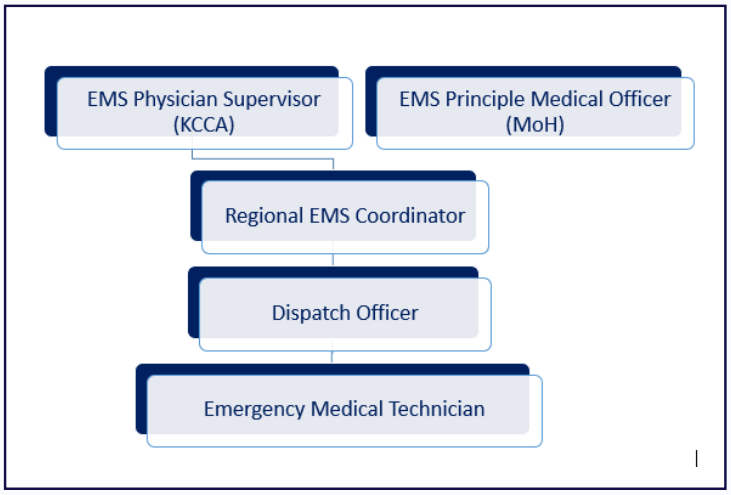
The dispatch team headed by the IDI-supported Regional EMS coordinator consisted of 2 other medical officers. The tasks of the dispatching officer included:

- Calling the referring clinician and/or patient contact person concerning the transfer
- Triaging and determining the care needs of the patient
- Selecting and notifying the EVD destination facility of choice
- Selecting an appropriately skilled transfer team and ambulance
- Obtaining updates on the patient's clinical status from the ambulance team while on-scene
- Liaison between ambulance teams and the Regional EMS Coordinator or EMS specialist supervisors for medical support and other escalations
- Updating the facility receiving team concerning the patient status and the expected time of arrival

The dispatch process leveraged some pre-existing national EMS standard operating procedures (SOPs) from the COVID-19 response, such as; Inter-facility evacuation checklist, SOP for Severe and Critical retrievals, and some specific for EVD, the Ebola Alert – Suspect case dispatch algorithm and the Uganda Prehospital Ebola triage tool.

An escalation protocol in place was utilized whenever the need arose to ensure difficult situations were handled appropriately and efficiently. There was a link between the KCCA as well as the MOH leadership to ensure clear guidance for evacuation management.

Escalation protocol for managing incidents before, during and after patient transfer.



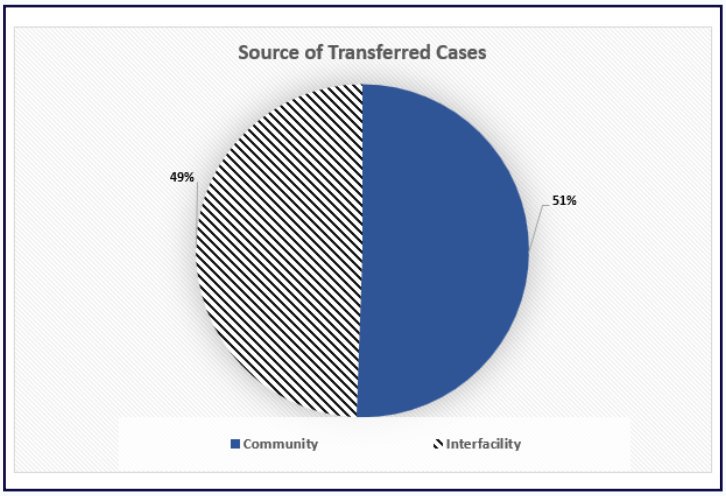
At the start of the response in early September, the transfer of EVD suspects was greatly impeded by a lack of receiving facilities and inadequate bed space at the designated holding areas of the three referral hospitals. This resulted in several hours' delays in evacuation and the pre-transfer death of two suspects. As a result, the MoH designated six facilities to readily receive and safely manage the highly infectious confirmed cases and their contacts and suspects within GKMA.

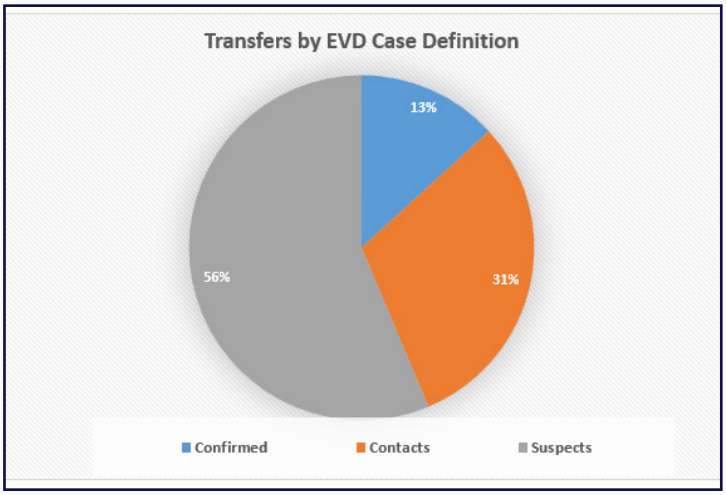
The ministry chose these facilities with additional interest in maintaining essential services. Additionally, all facilities with admission capacity were guided to have holding areas for suspects while awaiting Ebola test results.

KCCA collaborated with the MoH and Uganda Police EMS to pool five ambulances and multiple teams dedicated to EVD response. In addition, IDI conducted two training sessions on infection, prevention and control for the ambulance teams to ensure safe transfers.

Between 14th October 2022 to 10th January 2023, 174 individuals were moved to designated facilities; 23 confirmed cases, 98 suspects, and 53 contacts. There were four declined transfers; three high-risk contacts were handed over to psychosocial and surveillance teams, and one suspect was admitted at the referring facility to await their EVD test result.

In addition, there were four critically ill patients for which the KCCA EMS Physician supervisor was contacted to provide on-phone guidance to the ambulance team on the scene, to resuscitate and stabilize the patients before evacuation. Amongst the 174 transfers, one critical Ebola-positive patient died during the transfer.





In this urban setting, the evacuation burden on EMS was significantly reduced when the MoH guided health facilities to establish holding areas for at least five patients as they await EVD test results, typically available within 24 hours. As such, many in-facility validated alerts were not forwarded to the EMS dispatch desk but linked with laboratory teams for test sample collection.

The coordination of the transfers enabled timely evacuations and avoided back-and-forth transfer of patients, as well as the mismatch between patient care needs and the receiving facility. As a result, there was also a reduction in adverse events during patient transfer. In addition, the timely evacuation of EVD suspects, contacts and confirmed cases from the community and health facilities enabled reduced transmission and spread of Ebola within the region.

In addition to EMS coordination support and IPC training for ambulance teams, IDI provided emergency fuel for the response ambulances to aid in the safe and timely evacuation of EVD cases.

The successful coordination of transfers within GKMA was made possible through the collaboration of the KCCA Directorate of Public Health, District Health Offices of Wakiso and Mukono districts, Uganda Police EMS, the Ministry of Health, IDI/CDC support, and other partners.