

# Improving and promoting emergency medical services (EMS) for road traffic injury victims in Uganda. Let us act now



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## Introduction

According to the 2017 Global Burden of Disease (GBD) report, road traffic injuries (RTIs) are the sixth leading cause of death and number one among children and young adults aged 1 – 29 years [1]. Every year, 1.35 million deaths occur on the world's roads as a result of road traffic injuries (RTIs). Over 90% of these deaths are in low and middle-income countries LMICs) [1]. The proportion of deaths which happen in the pre-hospital period are highest in Sub-Saharan Africa [2]. Indeed, over 85% of RTI deaths occur in pre-hospital settings [3]. Studies indicate that poor pre-hospital care contributes significantly to excess death rates [2, 4]. This is attributed to the under-developed pre-hospital emergency care systems which are least prepared to meet the challenges in LMICs [5].

Emergency Medical Services (EMS) is a system that organizes all aspects of care; involving rapid assessment, timely provision of appropriate interventions, and prompt transportation to the most appropriate health facility by the best possible means to enhance survival, control morbidity, and prevent disability [6]. The swift arrival of an ambulance at the scene of an acute event coupled with appropriate patient transportation to hospital may reduce morbidity (sickness), prevent disability, and enhance survival. Unfortunately, lives that could have been saved are lost before they reach hospital, and many preventable disabilities result from delayed and inappropriate pre-hospital and acute health facility care [4, 7].

In addition, patient survival and recovery are dependent on the presence of appropriately trained medical personnel, and the availability of the necessary equipment, medicines, and supplies in the minutes and hours following the arrival of a critically ill patient at a health facility [8]. Pre-hospital care time covers the period from the occurrence of an acute event (e.g., a RTI, stroke, cardiac arrest) to the arrival of a patient at a health facility.

With a well-established EMS system (i.e., functional pre-hospital care, transportation, and hospital care) as found in most high-income countries, many emergency medical conditions can be resolved in a few hours or days [6].

Uganda has been named among the countries with an alarmingly high number of RTIs globally. According to the Uganda Ministry of Health, RTIs is 7<sup>th</sup> among the top ten causes of death [9]. In 2017, deaths from RTIs reached 10,675 (4.13%) of the total deaths in the country. This has earned Uganda's roads the 6<sup>th</sup> position among the most dangerous places to travel in globally [9]. Lay-bystanders/responders promptly gather at a traffic crash scene, but because they lack appropriate knowledge and skills, the key functions of scene management, emergency stabilization, patient retrieval, triage, and evacuation are not achieved.

### **What did we do?**

We conducted a nationwide survey to assess the EMS system capacity and existing gaps in pre-hospital care across 38 randomly selected districts and seven of 14 health regions of Uganda. We included government, private for-profit, and private not-for-profit health facilities in the sample. This resulted in a sample of 111 health facilities and 52 pre-hospital service providers.

We also included 16 of the 27 administrative regions of the Uganda Police Force (UPF). Three regions; Greater Masaka, Rwizi, and Kigezi, were purposively added to the sample due to their location along the Trans-African Highway. We adapted the World Health Organization (WHO) Emergency Care Systems assessment tool [10] [11] to collect data on EMS at pre-hospital and health facility levels. We defined a road traffic death as any death occurring within 30 days of a road traffic injury.

### **What did we find?**

#### **Pre-hospital setting**

Motorcycles (Boda-bodas) were the most common means of transportation of injured victims to health facilities. The Police, which was responsible for most (69%) casualty transfers, had no trained medical personnel on board. They also used pick-up trucks with no provision for patient space beyond the bare floor of the truck. Three-quarters (75%) of

the Police stations that responded to road traffic crashes did not have ambulance services. For a few Police stations that had some sort of ambulance or response vehicle, half of them did not have any criteria for selection of dispatch points, and so these vehicles were stationed at the Police stations.

All these response vehicles did not have basic lifesaving medication or equipment transition board. Most of the police stations did not have designated personnel to respond to emergency calls. While most of the Police personnel were confident in conducting scene management of a road traffic crash, none of them had undergone any first aid training in managing injured victims. In addition, they did not use any defined triage process. There was no data being collected in the pre-hospital phase regarding care provided to the injured victims.

We also found that pre-hospital care was provided by untrained laypersons who were the first to respond to the injury scene. Some officers reported that they did not provide any care in the pre-hospital phase. There was no information in form of handover tools when handing over patients to the health facilities. Half (50%) of the 52 EMS providers reported that they never notified health facilities before transferring emergency cases there.

### **Emergency care at health facilities**

Nearly all the health facilities did not have all the required medicines, supplies, and equipment necessary for management of emergency cases, especially the injuries. We found that half of the facilities did not have personnel trained in emergency care. Three-quarters (75%) of the health facilities reported that they did not have any incident plan for mass casualties. None of the health facilities had a designated rapid response team. In addition, three-quarters of the health facilities had experienced stockouts of emergency medications and supplies in the previous month. It is not known how many deaths occurred at the scene or on the way to a health facility.

Only 27% (30/111) of the health facilities had permanent (non-rotating) staff in their emergency unit. Only three of the seven regional referral hospitals had permanent emergency room staff. Furthermore, 91% (101/111) of the emergency personnel (regardless of the level of care), were not specifically trained in the management of

emergencies. While it was expected that the emergency services at the higher levels of the healthcare system (district hospitals and regional referral hospitals) would be available 24 hours a day, 18.4% of the emergency departments were not available 24/7. About 37.8% (42/111) of the health facilities did not have laboratory support for part of the day. Moreover, there was little capacity to manage extra-ordinary events such as mass causality events at all levels of the healthcare system.

## Conclusion

The Police patrol vehicles and boda-bodas remain the most common means of transportation of injured people to health facilities. However, these do not constitute ambulance services as they lack the medicines, equipment and supplies, and skilled personnel for care during transit to a health facility. There is a clear lack of an EMS in a country with a high burden of road traffic injuries.

## Recommendations

### **Short term**

- ❖ The Uganda Police should always ensure that there are trained personnel on board every time they respond to a crash scene. The curriculum of Police training should be revised to include training on emergency care for road traffic injury victims.
- ❖ The Ministry of Health should put in place systems (standards, guidelines) for the training, deployment, and supervision of emergency medical services personnel.
- ❖ The government should establish systems that can accurately predict stockouts of essential emergency medicines and equipment.

### **Long term**

- ❖ The government should establish a functional system with an active 24-hour call center tasked to dispatch at least two response vehicles to every crash scene.
- ✓ The police (to protect the crash scene)
- ✓ The medical team (to provide required emergency medical care)
- ❖ Police should be gradually phased from transporting injured victims as adequate numbers of EMS personnel become available.
- ❖ The government should provide sustainable funding for road traffic crash response through tapping into existing funding structures such as the Road Fund and the Stamp Duty. This will help increase funding for response to road traffic crashes.

## References

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