

MALAWI, TANZANIA

HEALTH IMPACTS OF EMERGENCY RESPONSE AND MEDICAL CARE



What is the impact of improved access to emergency medical services on health outcomes, disability and mortality for victims of road traffic trauma?

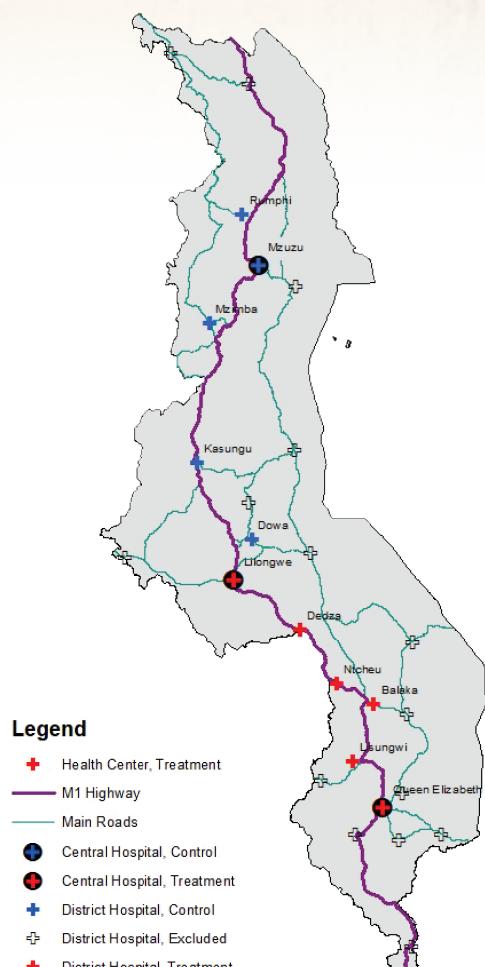


Figure 1: Treatment and Control Health Facilities

Researchers will compare outcomes of interest between treatment and control facilities. In Malawi, along the section of the M1 highway that will be part of the pilot, two central hospitals, 3 district hospitals and 1 health center will be part of the intervention. 5 facilities will serve as the control group.

Context

Fatalities and injuries from road traffic crashes represent a significant and growing economic and social cost in Africa, particularly along major trade corridors. In particular, in Malawi the World Health Organization estimated a mortality rate from road traffic injuries of 31 per 100,000 and in Tanzania the estimate was 29.2 fatalities per 100,000 (WHO Global Status Report on Road Safety 2018). Around half of all road traffic deaths occur almost immediately at the scene of the crash, but the outcome for survivors at the crash site could be affected by the quality of the medical care that they receive. A large proportion of these deaths and injuries could potentially be prevented through adequate medical care such as basic life support and rapid transport to a medical facility. Yet, in Malawi and Tanzania, adequate post-crash systems are lacking due to scarce human resources, unavailability of timely transport to hospital, basic and necessary equipment and lack of training in trauma care.

In Tanzania and Malawi, the World Bank is financing the Southern Africa Trade and Transport Facilitation Program—Phases 1 & 2 (SATTFP), with the objective of facilitating the movement of goods and people along the North-South Corridor, while also supporting improvements in road safety and health services along the corridor. The road safety components are integrated into these large transport programs as sub-components, one being an Emergency Response Services (EMS) system pilot. The EMS pilot(s), in both countries, consist of: training of community members to act as first responders at the scene; an ambulance system with a centralized dispatch system; refurbishment of health facilities to improve care of trauma victims and a new trauma registry to collect data on types and severity of trauma, trauma care and outcomes.

More information about the Southern Africa Trade and Transport Facilitation Program—Phases 1 & 2 (SATTFP), can be found online at <http://projects.worldbank.org/P120370/southern-africa-trade-transport-facilitation-project?lang=en>

Impact Evaluation Research

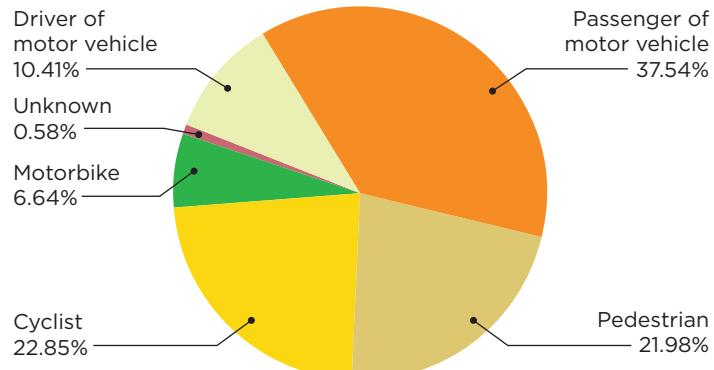
This impact evaluation (IE) aims to evaluate the effectiveness of the two pilot programs aimed at reducing adverse health outcomes from road traffic injuries (RTIs) through improved access to emergency medical services. The research team estimates treatment effects on both proximate outcomes (time elapsed between trauma and medical treatment, vital signs upon arrival in hospital, health status upon hospital discharge) and final outcomes (morbidity and mortality).

Since these programs are going to be rolled out on a pilot basis, the research team uses a difference-in-differences design to compare the change over time in key outcome indicators in the pilot facilities compared to a select group of control facilities. To do this, researchers utilize both high frequency national administrative data on traffic accidents and in-hospital trauma care, as well as data from trauma registries which the research team is supporting in both pilot and control facilities. A data system is created in each country that can be used to both evaluate the intervention and potentially help the Ministries of Health, Malawi Roads Authority and the Tanzania National Roads Agency with planning future interventions and continuously improving the current pilot projects. These data systems will also help by aggregating high quality data that can be used as a baseline for evaluating the full interventions which are planned to follow these pilots.

Data collection is already underway in Malawi, with data collected in 5 treatment and 5 control facilities for over 8 months. During this time, there has been data collected on over 27,000 trauma cases, of which 16% were road traffic crash cases. Figure 2 shows the breakdown by type of road traffic crash victim, demonstrating how this data system can not only support improved post-crash care but additionally, more targeted preventative interventions.

Policy Relevance

While some of the program components have been implemented in other contexts, there is limited evidence on the effectiveness of the implementation of this specific combination of interventions, especially in low income, high RTI incidence settings such as Malawi and Tanzania. Quantifying the impact of these programs on intermediate outcomes such as timeliness of treatment for trauma patients can help policymakers understand if the programs are being utilized effectively. Estimating the impact of the programs on the health status of trauma patients and (potentially) on their



Data represents crash victims Aug-Dec 2018 in 10 health facilities in Malawi where trauma registries have been set up to record detailed data on every case of trauma at the facility.

Figure 2: Road Traffic Crash Victims in Malawi

mortality rates will make it possible for policymakers to monitor the new EMS system and calculate the cost effectiveness and can be of help in making decisions regarding the design and scale of the EMS system to other parts of Malawi and Tanzania, or, alternatively, if other strategies should be evaluated to reduce the burden of road traffic injuries.

Relevant research on post-crash emergency medical care in developing country settings is scarce. Yet, as one of the five pillars of the Decade of Action for Road Safety, it is critical for developing countries seeking to reduce the burden of deaths and injuries due to road traffic crashes to implement post-crash response policies. The evidence generated by these two projects in Malawi and Tanzania can provide insights into how to do this in a cost-effective way that can help to maximize the results achieved. Additionally, the new data collection systems, especially the trauma registries, can act as models for how this type of data system can be set up in other countries, to collect data on necessary indicators for evaluating and improving trauma care.

The research team works closely with the Ministry of Health in Malawi and Tanzania, the Malawi Roads Authority and TANROADS in Tanzania, sharing results from analysis of the various data, and building capacity within these institutions.

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The ieConnect for Impact program links project teams with researchers to develop rigorous and innovative impact evaluations that both substantially improve the evidence-base for policy making and induce global shifts in transport policy. The ieConnect program is a collaboration between the World Bank's Development Impact Evaluation (DIME) group in the Development Research Group and the Transport Global Practice (TR GP). This program is part of the Impact Evaluation to Development Impact (i2i) multi-donor trust fund and is funded with UK aid from the UK government (DFID) and by the European Union (EU).