Study Brief

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Trend analysis of road accident outcomes associated with enhanced traffic police enforcement during Operation Fika Salama (OFS) along Kampala-Masaka road.

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Key Messages:

1. *Staggering traffic enforcement across accident peak times is effective in reducing road traffic accidents.*
2. *Leveraging financing of traffic interventions on multi-sectoral collaborations like OFS is an effective way of optimising health benefits and cost savings of various road users.*
3. *Health benefits could optimised with adequately facilitated traffic interventions scheduled at least twice a year.*

Introduction

To date, sub Saharan Africa has one of the worst road injury rates in the world of which, Uganda has one of the worst RTA injury rates (WHO 2018). In Uganda, about 3500 people die due to road traffic accidents (RTAs) and over 12,000 others sustain non-fatal injuries in road accidents every year (UNECE 2018). Since 2011, the national road mortality rate has grown by 29 % per 100,000 and has plateaued at over 3000 deaths per year in the last five years (GSRRS 2018). Consequently, this led to over 5.7 RTA hospital admissions per day (UBOS 2016; Uganda Traffic Police Reports 2015; 2018).

According to WHO and UNECE, motor vehicle accidents account for over 45% of all seriously injured victims and most casualties were 15 - 29 year male pedestrians in the country's most productive age group (UNECE 2018). Hence, preventing RTA injuries not only has direct economic benefits to travelers, but also has potential to generate huge cost savings to hospitals, care givers and society as a whole (WHO 2018). Though several interventions have been initiated by traffic police to reduce RTAs, the accident burden is still high particularly in urban areas and along highways. The economic impact of most traffic interventions isn't known partly due to the ad-hoc nature, limited economic data and narrow scope of analysis of the trends of RTA outcomes after such initiatives (WHO 2018).

Problem

In Uganda, road traffic accidents (RTAs) have been consistently high for the past 5 years, particularly in urban areas and along highways. To reduce the high incidence of RTAs on one of Uganda's highest burden highways, in 2016 road safety stakeholders across different sectors pooled resources and launched an enhanced traffic operation code named Operation Fika Salama (OFS) along Kampala-Masaka Road. But to date, neither observations on the change in injury incidence nor health cost savings from this multi-sectoral investment have been documented. Hence, this study sought to establish the injury trends and assess the medical and non-medical cost savings of preventing RTAs through such an innovative multi-sectoral road safety initiative.

About Fika Salama

In brief, "Fika Salama" was an ad-hoc road safety response to the sudden spike in the incidence of RTAs along Kampala – Masaka highway. It was launched at the end of July 2016. In the subsequent two years up to 2018, OFS operations were done in 4 phases as summarized below.

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Figure 1. Summarized description of OFS phases

Scenarios	Phase 0	Phase 1	Phase 2	Phase 3
Description	Pre Intervention	Intervention	Relaxed	Re-intervention
Intensity of traffic checks	Low (Business as Usual)	Comprehensive Checks	Normal	Moderate
Interventions	Laxed traffic enforcement, stationery check points, receipt based penalties.	Vehicle road worthiness checks, validity checks for drivers' licenses, sensitization, mobile patrols, 24-hour road surveillance, speed checks, sobriety checks; vehicle impounding, overnight apprehension and court trials.	Reduced enforcement, Withdrawal of army, stationery check points, return to receipt based penalties.	Mass traffic sensitization, increased sobriety check points, roving patrols, and expanded, return of stationery check points.
Participants	Traffic police, hospitals	Traffic police, CSOs, UNRA, Army, MOWT, Courts, hospitals	Traffic police, hospitals	Traffic police, Armed guards, hospitals
Fatalities	High	Low	Very low	High
Extra funds	None	High	Very low	Low

Analysis of outcome trends for OFS was done from a **regulatory** and **provider perspective.** It was based on number of RTA injuries and associated Standard units of Outcome (SUOs) recorded between phases respectively.

Police stations visited included; Masaka Police, Lukaya (Kalungu) Police, Kayabwe, Buwama, Kammengo, Mpigi, Nsangi, Lwengo, Kampala CPS and Kyengera Police stations as well as Buwama HC III, Masaka, Nkozi, Mulago, Nsambya, Gombe and Mpigi hospitals.

RESULTS

In this study, the efficacy of the operation was noted by the difference in injuries recorded between each phase and the prior phases. From the results, efficacy not only varied between the injuries of the different phases of Fika Salama, but also varied largely by the number of fatalities recorded in various operation phases as shown in **Table 2.**

Table 4. Effectiveness of Fika Salama between various phases

	INJURY COUNTS			
DURATION	**PHASE 0**	**PHASE 1**	**PHASE 2**	**PHASE 3**
Minor	316	283	220	380
Moderate	110	113	96	93
Serious	68	76	65	112
Severe	38	47	60	74
Critical	9	7	1	20
TOTAL	541	526	442	679
Deaths	29	5	26	10

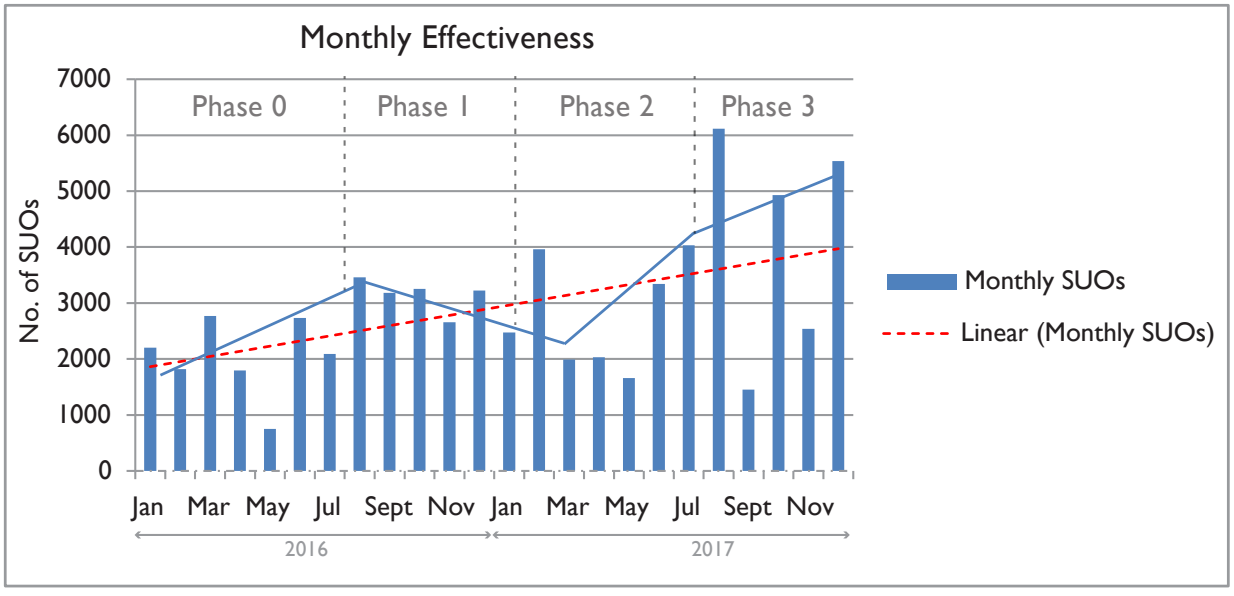
Data Source: Primary and secondary hospital data

Considering the incremental effectiveness of all phases, the intervention phases of Fika Salama i.e the Intensive and Reloaded phases registered a sizeable reduction in the number of Critical injuries and fatalities. With a reduction of 83% (24 deaths) in the intensive phase and 65% (19 deaths) in the reloaded phase, the operation far exceeded the annual target of a 50% reduction in fatalities, recommended by WHO (WHO 2018).

Trends of RTA outcomes (SUOs) between various phases of Fika Salama

Compared to the pre-intervention period (Phase 0), there was a modest decrease of 38% in the number of SUOs derived from severe injuries in Phase 1 (between July - December 2016). Similarly, a 22% reduction in SUOs was realised from critical injuries from the same period (July - December 2016).

In Phase 2, the decrease in SUOs was markedly high with an 85% decrease in SUOs realized from critical injuries, while the SUOs decreased by 23% among severe injuries in Phase 3. But despite the reductions that were noticed in phase 1 and 2, there was an increase of 72 % standard units for minor and serious injuries as well as a 95% increase in critical injuries in Phase 3. Thus, for the entire intervention period there was an upward trend that was greatly skewed by the number of events in the last 6 months of 2017 shown by **Figure 4.**



Due to the effect of the Phase 3 (July-December 2017), the effect of OFS was further examined between each intervention phase and the preceding phase. As part of this analysis we first compared the outcomes in the pre – intervention Phase (0) with those in the (post intervention) phase (1) of OFS.

Marked effectiveness of the "Intensive" Phase 1

In the graph above, RTAs were relatively high before any intervention and but markedly increased in the mid-year period of May to July 2016. When Fika Salama was introduced RTAs immediately reduced. As such, soon after starting OFS at the end of July 2019, there was a steady decline in SUOs up to the end of 2016. From the results in Figure 1above, it is clear that the (RTAs) of Phase (0) generated 2079.5 SUOs at the start.

Continued effectiveness of OFS in Phase 2.

In Phase 2, when OFS implementation was relaxed, the average number of SUOs per month continued to drop at a rate similar to that of the Phase 1 but experienced upward trend in August that was slowed down in the last quarter of 2017. In Phase 2, the average number of SUOs from RTAs continued to drop by 687 every month given p = 0.010 (CI; -1154.27, -219.53). However, the mid-year resurgence in the number of RTAS that prompted the re-introduction of OFS as 'Fika Salama Reloaded' in July 2017.

Diminished effectiveness in the "Reloaded" phase 3.

During the last Phase (3) that stretched from July – December 2017, there was a significant increase in RTAs from 442 to 649 as reflected in the 3037.96 SUOs compared to the prior phase (2) when Fika Salama was relaxed. As a result, Phase 3 had an increase of 86.75 SUOs compared to Phase 2 and it registered: an increase of 64 (20%) in minor cases, a steady reduction in the number of moderate cases and the number of deaths diminished by 5 (34%). All in all, Phase 3 also had the lowest number of number of deaths and minor injuries. Deaths withstanding, there was an increase in severe injuries that needed some surgery.

Impact on Police costs: By the end of 2016, annual police costs were higher in the first year of UGX 1,689,995,936. The annual costs of the subsequent year decreased to about UGX 1,047,991,257 in 2017, as reflected by the combined sum of Phase 2 and Phase 3. Of all phases, Phase 3 had the lowest implementation costs of (UGX 581, 610,534). The ultimate cost difference between all Police interventions from the Phase (0) to the end of Phase (3), was a cost reduction of close to a half the initial implementation costs. Relatedly, phase 3 incurred the least sunk costs while reductions in costs of training, outreaches and administrative costs were major costs cutters.

CONCLUSION

All the results above show that, Fika Salama operations by police were more effective in Phase (1) or the 'Intensive phase' compared to other phases and the impact on effectiveness realized in Phase 1 was extended into Phase 2. However these intervention benefits were undermined by the accident upheavals in the Reloaded phase (3) in 2017. Staggering police enforcement is effective if it is adequately facilitated and is done at least twice a year.

POLICY IMPLICATIONS

From this study it was evident that;

- **For OFS to be effective, OFS requires to maintain the set of intervention elements and vigilance as in Phase 1.**
- **Periodic initiatives like OFS are very useful especially in times when a greater number of RTAs are expected to occur, like during holidays, festive and mid-year seasons. Enhanced enforcement of traffic regulations should be done over durations of at-least 6 months.**
- **New ways of financing traffic police operations and interventions (like OFS) are necessary in the strife for Universal Health Coverage goals that seek to improve health lives and well-being of the affected populations.**
- **The reduction in RTAs and their costs (measured in SUOs) between Phase 0 and Phase 1 showed a marked reduction in the use of medical resources for all injuries. Hence, the reduction (of SUOs 1263) was associated with hospital savings in RTA treatment estimated at UGX 708,175,447 between Phase 0 and for Phase 1.**

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