

Road Traffic Injuries: Cross-Sectional Cluster Randomized Countrywide Population Data from 4 Low-Income Countries**Authors:**

Syed Nabeel Zafar MBBS MPH, Joseph K. Canner MHS, Neeraja Nagarajan MD MPH, Adam L. Kushner MD MPH, and SOSAS4 Research Group

Affiliations:

SNZ: Department of Surgery, Howard University Hospital, Washington DC.
zafar.nabeel@gmail.com

JKC: Johns Hopkins Surgery Center for Outcomes Research, Baltimore, MD
jcanner1@jhmi.edu

NN: Johns Hopkins Surgery Center for Outcomes Research, Baltimore, MD; Department of Surgery, Brigham and Women's Hospital, Boston MA; drneerajanagarajan@gmail.com

ALK: Surgeons OverSeas, New York, NY. adamkushner@yahoo.com

SOSAS 4 research group members:

Shailvi Gupta, MD, MPH, Department of Surgery, UCSF-EB, Oakland, CA, USA
shailvi.gupta@gmail.com

Joseph K Canner, MHS, Johns Hopkins Surgery Center for Outcomes Research, Baltimore, MD
jcanner1@jhmi.edu

Tu M. Tran, Duke Global Neurosurgery and Neuroscience, Durham, NC, USA,
tu.tran@duke.edu;

Neeraja Nagarajan MD, MPH, Department of Surgery, Brigham and Women's Hospital, Boston, MA. – Previously Johns Hopkins Surgery Center for Outcomes Research, Baltimore, MD; Department of Surgery drneerajanagarajan@gmail.com

Barclay T. Stewart, MD, MscPH, Department of Surgery, University of Washington, Seattle, WA, USA stewarb@uw.edu

Thaim B. Kamara, MD, Department of Surgery, Connaught Hospital, Freetown, Sierra Leone
thaimyangbay@yahoo.co.uk

Patrick Kyamanywa, MD, College of Medicine and Health Sciences, University of Rwanda, Kigali, Rwanda pkyamanywa0@gmail.com

Kapendra S. Amatya, MBBS, MS, Nepal Cancer Hospital and Research Center, Lalitpur, Nepal
Moses Galukande, MBChB, M.Med, MSc: galukand@gmail.com; Makerere University College of Health Sciences, Kampala, Uganda

Robin T. Petroze, MD, MPH, Department of Surgery, University of Virginia, Charlottesville, VA, USA ksa712@yahoo.com

Benedict C. Nwomeh, MD, MPH, Department of Pediatric Surgery, Nationwide Children's Hospital, Columbus, OH, USA bnwomeh@gmail.com

Emily R. Smith, PhD, Duke Global Neurosurgery and Neuroscience, Durham, NC, USA.
emily.smith1@duke.edu

Michael M. Haglund, MD, PhD: michael.haglund@duke.edu; Duke Global Neurosurgery and Neuroscience, Durham, NC, USA

Benedict Nwomeh: MD, Nationwide Children's Hospital, Columbus Ohio, bnwomeh@gmail.com

Reinou S. Groen, MD, MIH, PhD, Alaska Native Medical Center, Anchorage, AK, Affiliate Department of Gynecology and Obstetrics, Johns Hopkins Hospital, Baltimore, MD, USA
rsgroen@hotmail.com

Adam L. Kushner, MD, MPH, Surgeons OverSeas, New York, NY, USA
adamkushner@yahoo.com

Author for correspondence

Syed Nabeel Zafar MD MPH

Department of Surgery, Howard University Hospital

2041 Georgia Ave NW, Washington DC, USA

Ph: 202-865-4608

Fax: 202-865-6728

Email: zafar.nabeel@gmail.com

Current address

Department of Surgery, University of Maryland Medical Center
22 S Greene Street, Rm S8B03

Baltimore, Maryland 21201

Ph: 410-446-7225

Fax: 410-328-0401

Email: zafar.nabeel@gmail.com

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Abstract

Introduction: Road traffic injuries (RTI) are a leading cause of morbidity and mortality around the world. The burden is highest in low and middle-income countries (LMICs) and is increasing. We aimed to describe the epidemiology of RTIs in 4 low-income countries using nationally representative survey data.

Methods: The Surgeons Overseas Assessment of Surgical Needs (SOSAS) survey tool was administered in four countries: Sierra Leone, Rwanda, Nepal and Uganda. We performed nationally representative cross-sectional, cluster randomized surveys in each country. Information regarding demographics, injury characteristics, anatomic location of injury, healthcare seeking behavior, and disability from injury was collected. Data were reported with descriptive statistics and evaluated for differences between the four countries using statistical tests where appropriate.

Results: A total of 13,765 respondents from 7,115 households in the four countries were surveyed. RTIs occurred in 2.2% (2.0-2.5%) of the population and accounted for 12.9% (11.5-14.2%) of all injuries incurred. The mean age was 34 years (standard deviation ± 1 years); 74% were male. Motorcycle crashes accounted for 44.7% of all RTIs. The body regions most affected included head/face/neck (36.5%) followed by extremity fractures (32.2%). Healthcare was sought by 78% road injured; 14.8% underwent a major procedure (requiring anesthesia). Major disability resulting in limitations of work or daily activity occurred in 38.5% (33.0-43.9%).

Conclusion: RTIs account for a significant proportion of disability from injury. Younger men are most affected, raising concerns for potential detrimental consequences to local economies. Prevention initiatives are urgently needed to stem this growing burden of disease; additionally,

improved access to timely emergency, trauma and surgical care may help alleviate the burden due to RTI in LMICs.

Keywords: Road Traffic Injury, Disability, Epidemiology, Global Surgery.

Introduction

Road traffic injury (RTI) accounts for about 1.24 million deaths annually.¹ It is the 8th leading cause of death globally and the number one cause of death in the youth (aged 15-29 years).² The global burden of RTIs has been growing over the past decades and it is estimated that it will become the fifth leading cause of mortality by 2030³. In addition, RTIs are the tenth leading cause of disability adjusted life years (DALYs).⁴

RTIs disproportionately affect low and middle income countries (LMICs) with the severest burden in middle income countries especially in Africa.^{5,6} About 91% of injury related deaths and 94% of injury related disability occurs in LMICs.^{7,8} Despite the disproportionately high burden, epidemiologic data for RTIs in LMICs are poorly described.^{5,9-11} Data are most limited from low income countries where the case fatality rates are the highest and likely underestimates the true burden of disease. Additionally, the burden of non-fatal road injuries in low income countries is poorly reported.¹⁰ Nationally representative survey data can help to fill these gaps.

Previously, four cluster randomized countrywide population surveys were performed in Nepal, Rwanda, Sierra Leone, and Uganda.¹²⁻¹⁵ These surveys assessed the countries' surgical need and also collected information on death and disability related to road traffic injuries. Nepal, Rwanda, Sierra Leone, and Uganda are all low-income countries. A basic profile for each is provided in supplementary table 1 (data from USA is also provided for context). The purpose of