

# ROAD TRAFFIC INJURIES AT THE ORTHOPEDIC UNIT, PORT MORESBY GENERAL HOSPITAL



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# Introduction

- Population in Papua New Guinea ~ 8.1 million
- The hospital provides service to a population of approximately half a million people including its neighbouring provinces, Central and gulf.
- Port Moresby General Hospital is a 600-bed, tertiary care and teaching hospital located in the capital city.



# Introduction

- Road traffic injuries are a major public health problem in the developing countries, projected to become the third most common cause of disability-adjusted life years lost by 2020<sup>(1)</sup>.
- This is attributed to rapid urbanization, motorization, widespread risky driving behavior, alcohol involvement, attitude and personality, illiteracy, and lack of awareness of road signs <sup>(2)</sup>.

1 - United Nations Road Safety Collaboration. Global Plan for the Decade of Action for Road safety 2011-2020. World Health Organisation: 2011

2 - [www.who.int/roadtrafficinjuries](http://www.who.int/roadtrafficinjuries)

# Literature review

- low-middle income countries (LMIC) have shown road traffic injuries occurring commonly in the 18-40 age group,
- vulnerable road users (pedestrians, motorcyclists) at increased risk with the mean hospitalization of 9.7 days <sup>(3)</sup>.
- Anatomically the tibia/fibula was the most common fractured bone in those in the studies <sup>(4)</sup>.
- Western society, the injury profile differs greatly. The determining factors were road safety awareness and pedestrian facilities in road designs <sup>(5)</sup>.

3 – V Thomas, S Lavanya. *Epidemiology profile of road traffic accidents (RCT) admitted at a tertiary care hospital*. International Journal of Medical and Pharmaceutical Sciences. 2013

4 – Peden M, Scurfield R. *World report on Road Traffic Injury Prevention*. WHO; 2014

5 – World Health Organisation. *Road Safety in the Western Pacific region*.2009

# Literature review

- Previous studies in Papua New Guinea have reported clinical characteristics and outcome of road traffic injuries (6-9).
- These studies were published almost 2 decades ago.

P N G Med J, 1980 Jun;23(2):60-5.

**The epidemiology of road accidents in Papua New Guinea.**

Wyatt GB.

P N G Med J, 2007 Sep-Dec;50(3-4):152-6.

**The use of seatbelts in Port Moresby 12 years after the seatbelt legislation in Papua New Guinea.**

Benjamin AL<sup>1</sup>.

P N G Med J, 1983 Sep-Dec;26(3-4):186-9.

**Port Moresby road traffic accident survey.**

Lourie J, Sinha S.

# Aim and Objectives

- quantify the toll of road traffic injuries by investigating
  - *the occurrence of injuries of road traffic accidents,*
  - *average length of stay, and*
  - *compare distributions of injury patterns of patients involved and their outcomes.*

# Methodology

- A retrospective chart review - Jan 2015 – Dec 2018
- Orthopedic Unit of Port Moresby General Hospital
- Eligible cases were identified from the Orthopedic admission records. The following data were extracted;
  - *demographic characteristics,*
  - *type of injury,*
  - *whether alcohol was involved,*
  - *type of road user,*
  - *length of stay,*
  - *body regions injured,*
  - *deaths and*
  - *operative interventions performed.*

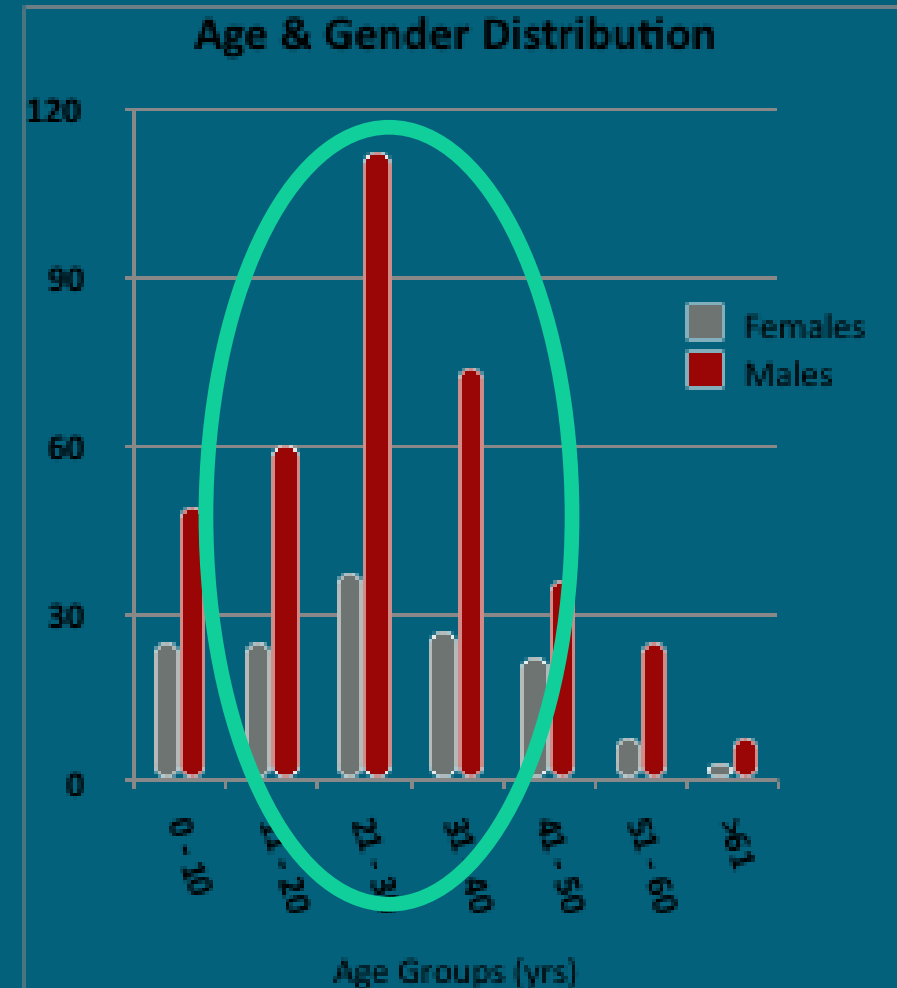
# Methodology

- All patients with road traffic injuries to the orthopedic unit were included.
- Those treated at Emergency department and discharged and patients with other organ injuries under a different unit were excluded.
- The data extracted were entered into an Excel spreadsheet and analysed using the SPSS ver 23
- The study was approved by the Port Moresby General Hospital Research committee

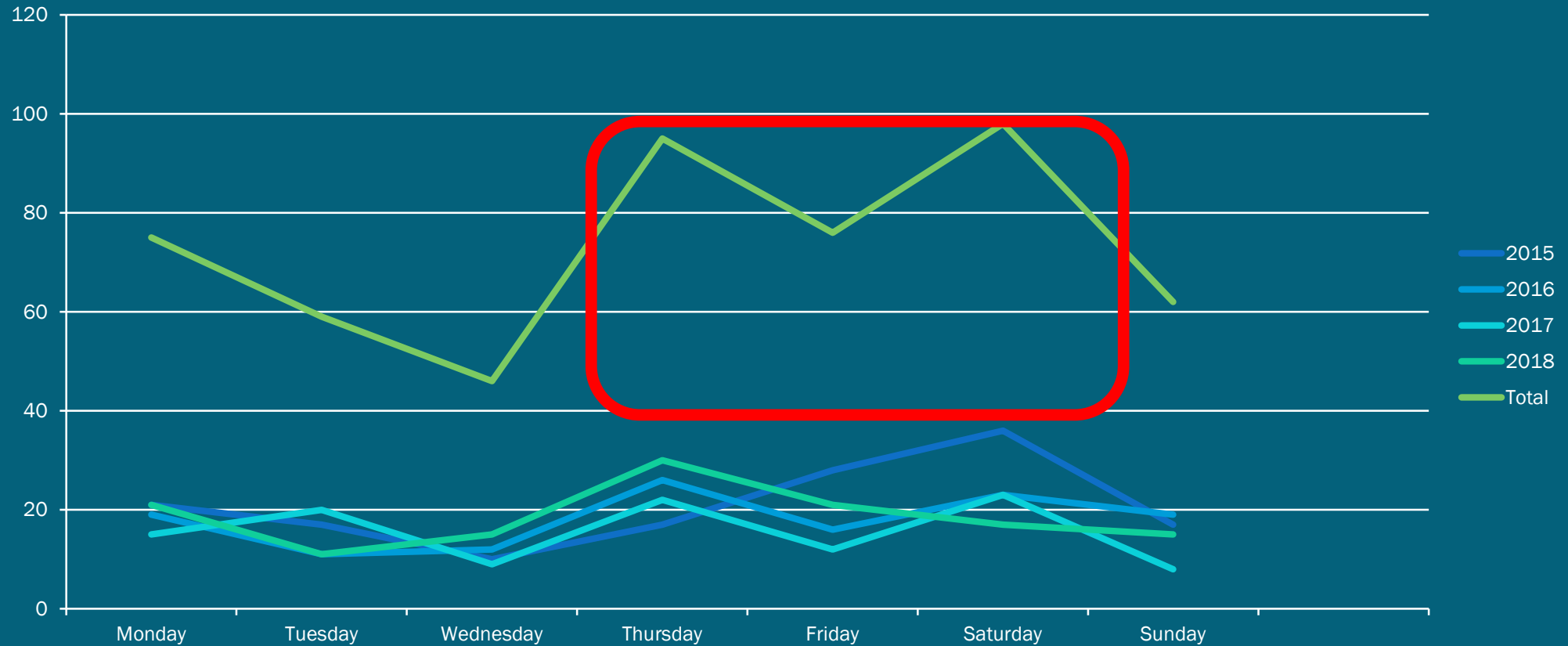


# Results

- 5978 admissions records over four years (2015 - 2018)
- n=511 (8.5%) were motor vehicle related
- Males 364 (71%)
- male to female ratio of 1:0.4.
- Mean age was 28.8 years (range 1-80)

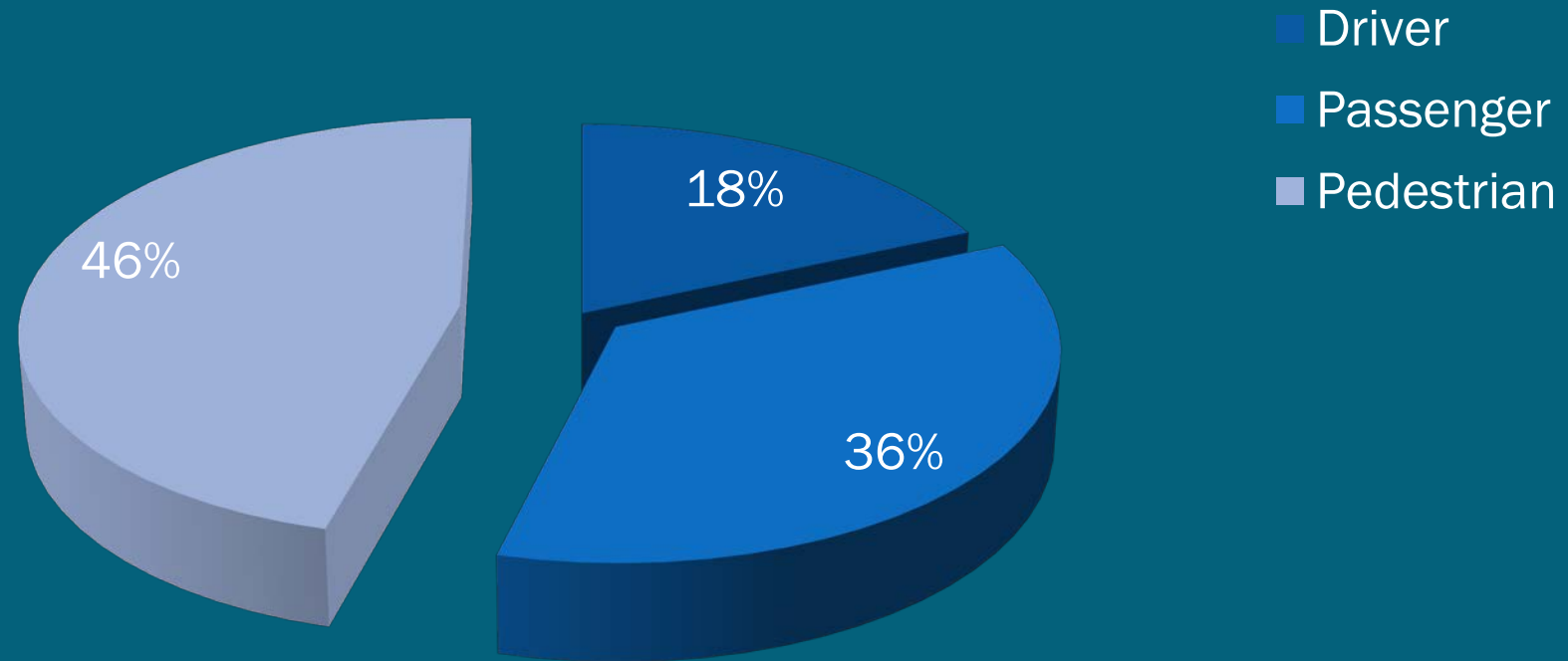


# Daily admissions



Due to the increased motorization, and increase activities during the weekends – greater number of injuries.

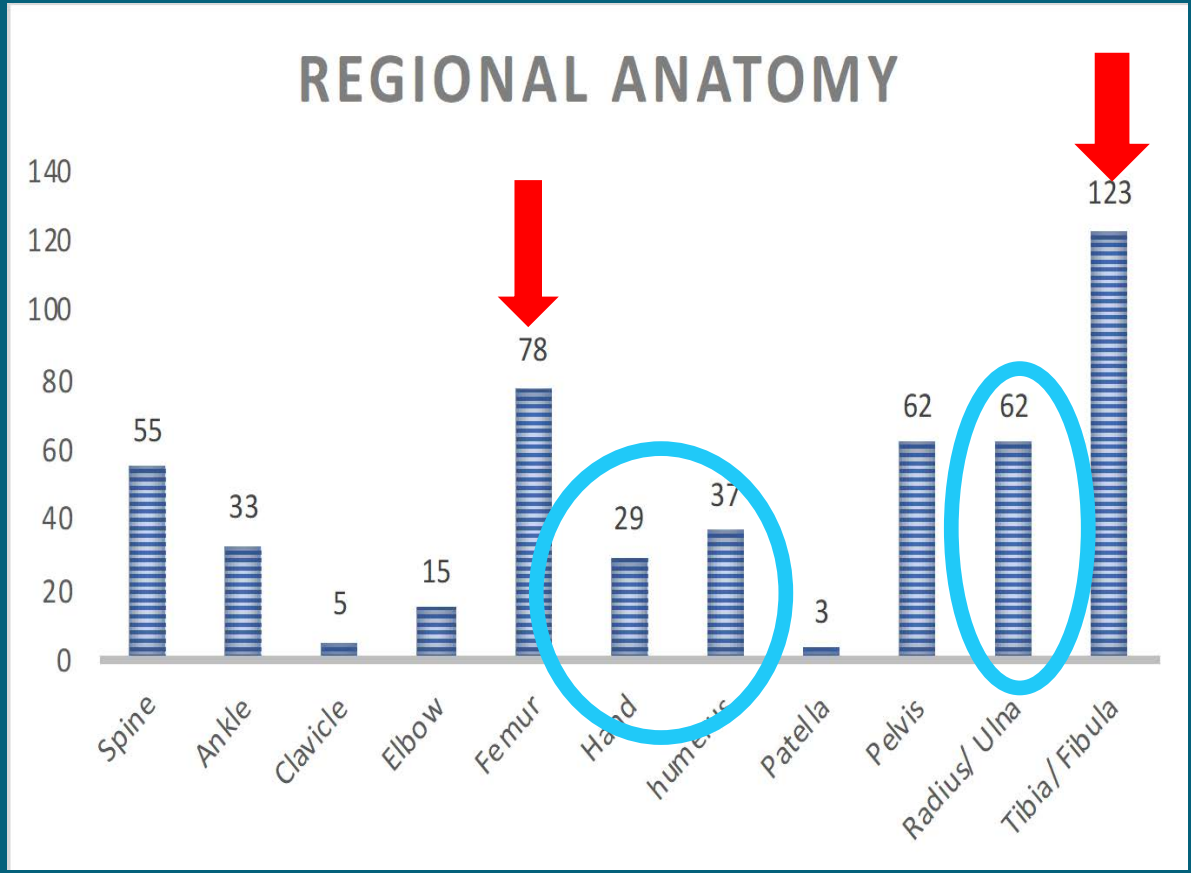
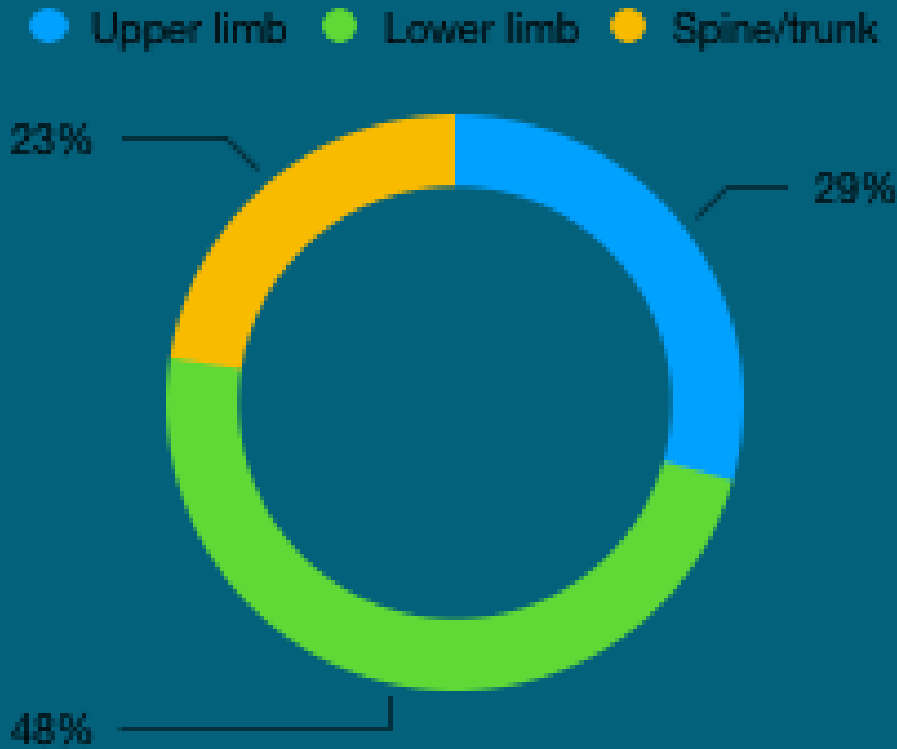
# Type of road user



# Results

	Upper limb # (%)	Lower limb # (%)	Trunk/Spine # (%)	Total
No. of patients	149 (29)	246 (48)	116 (23)	511
Gender				
Male	98 (66)	179 (73)	87 (75)	364
Female	51 (34)	67 (27)	29 (25)	147
Age stratum				
<18	48	49	13	110
18- 29	34	81	39	154
30-49	52	76	49	177
50 - 64	14	28	7	49
>65 yrs	1	12	8	21
Origin				
Southern	66 (44.2)	118 (47.9)	46 (39.7)	230
Highlands	60 (40.3)	99 (40.2)	52 (44.8)	211
Momase	14 (9.4)	21 (8.5)	7 (6)	42
NGI	8 (5.4)	6 (2.4)	9 (7.8)	23
Other	1 (0.7)	2 (0.8)	2 (1.7)	5
LOS (days)				
Median (IQR)	17	13.5 (IQR	17	
Alcohol involved	56 (26)	103 (48)	56 (26)	215
Compound fractures	17 (20.5)	65 (78.3)	1 (1.2)	83
Discharge	140	229	103	

# Results



# Surgical procedures n=324

Procedure	Frequency	Total %
Debridement	65	20
K-Wire	58	18
MUA/Reduction	55	17
Plate & Screws	40	12.3
Rush Pin	27	8.3
K-Nail	22	6.8
Skeletal traction	17	5.3
Ext Fix	12	3.7
Crutchfield thongs	12	3.7
Others	16	4.9



# Length of stay

- important measure of morbidity among trauma patients.
- Prolong hospitalisation is associated with an unacceptable burden on resources for health and undermines the productive capacity of the population through time lost during hospitalisation and disability.
- A discussion paper published in 2008 estimated socio-economic cost of road traffic accidents in Papua New Guinea to approximately K220 million (US\$81 m) (RTA).

# Length of stay

- In this study the cost is estimated to be K168,630 (K14,052.50 per person X 12 days average length of stay) taking into consideration of a population of 8.1 million.

GDP per capita = \$4000, current exchange rate

- Individually socio-economic cost of RTA is K27.50 per person.
- Considering the minimum wage rate of K3.50 per hour, this amount equates to a days work by an average employed individual.
- With most of Papua New Guineans paying out of own pocket expenses, it certainly can be a burden.



# Conclusion

- Road traffic accidents constitute a major public health problem.
- Accidents most frequently affect young males, which is likely to have significant economic and social effects at both the national and the individual level.
- Knowledge of pattern of fracture and the acute management required will be helpful for hospital authorities in making better preparation in the hospital and trauma centres.

# Conclusion

- Safety awareness campaigns targeted at children and young adults, as well as vulnerable road users such as pedestrians and passengers in open trucks will help in reducing road traffic accidents toll.
- Data collection and analysis can be enhanced through collaboration between hospitals, Road Traffic Authorities, Motor Vehicle Insurance Limited, manucipal city authority, community and the police.

# Recommendation

- Multidimensional measures are needed to prevent road traffic accidents that include interaction between road user, vehicle and road environment.
- Legislative changes insisting on roll bars or cages to provide some protection to passengers.
- Mandatory seat belts.
- Breathalyzer.
- Regulating alcohol sales strictly with ID cards

# Recommendation

- Spot cameras or CCTV may discourage speeding
- Police presence at traffic lights and school pedestrian crossing areas.
- Speed limits within school areas during particular times of drop off and pick up
- Coloured visible reflectors at crossings with speed bumps would be of great benefit.
- Increasing the size of footpaths, and pedestrian crossings, improve pedestrian safety. (Studies from African countries )

# Recommendation

- Other deterring factors may include;
  - *demerit points system,*
  - *mandatory Community service and Hospital service for those found guilty.*
  - *Offenders should also be prompted to donate a portion of fee to charity organisations.*
- Introducing into the education curriculum about safety messages is also recommended. This can be expanded with inter school quiz, debate competitions and other practical health and safety workshops for upper secondary.

# Recommendation

- Road traffic authorities and law enforcements agencies can do a lot with their awareness campaign on social media platforms and the main stream media.
- Conducting regular and random road checks not only within the city boundaries but along the highways.
- Visible road markings, sign boards indicating various directions enables drivers to be aware.

# Recommendation

- Road designers may need to consider increasing road curbs and introduce cement or steel dividers.
- Sequencing crossing timings at busy intersections.
- National trauma audit system cannot be overemphasised enough particularly documenting the rise of road traffic injuries.

# Limitation

- Retrospective nature, although data were obtained from a prospective trauma records.
- The ISS (injury severity score) were not recorded in the data forms thus under estimating the severity of the injuries.
- Finally, the involvement of alcohol in any crash is based on patient self-report which may be misreported.



Thankyou

# Acknowledgements

- Patients under orthopedic unit
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