

Industry Day Theme # SUSTAINABLE MEDICAL TECHNOLOGIES

Pre hospital mode share to trauma care for time sensitive injuries,
Delhi, India

R Ahuja^a, V Kumar^b, G Tiwari^a, A Gupta^b, N Chatterjee^c
a :TRIPP,IIT-Delhi; b: JPNATC, AIIMS- Delhi, c: Dept. of Mathematics, IIT-Delhi



Abstract

Seriously injured patients require early access to trauma centre preferably in an adequately equipped ambulance with paramedics on board. In most low and middle income countries, ambulance systems are deficient in capacity. The current study aims to understand the current pre hospital transport for critical traumatic conditions to a regional trauma centre in India. Police and relatives share maximum burden of transporting victims to trauma care facility.

Introduction

Time to access appropriate care is significantly important for poly trauma injuries. General triaging recommendations for citizens identify trauma centres as the ideal destination for very severe injuries. Many people end up visiting a nearby hospital and then after preliminary stabilization get transferred to trauma care as per trauma care guidelines [1], [2]. Thus, trauma centres most often are referral centres for other hospitals. This sometimes delays the access to appropriate care for time critical emergencies[3]. The inadequacy of prehospital facilities and complex referral mechanisms leads to random utilization of available services even for the critically injured for whom reaching appropriate care late could be life threatening.

Objective

- The study aims to
- estimate the current mechanism of transport to trauma care for time critical injuries
 - highlight the service gap of ambulance based prehospital systems

Materials and Methods

Study Hospital: Jai Prakash Narayan Apex Trauma Centre, Delhi

Duration : January to June 2017

Selection Criteria: Red Zone Triaged Patients

Information Recorded: primary admission or referral, mode of transport used to come to this facility, mode of injury

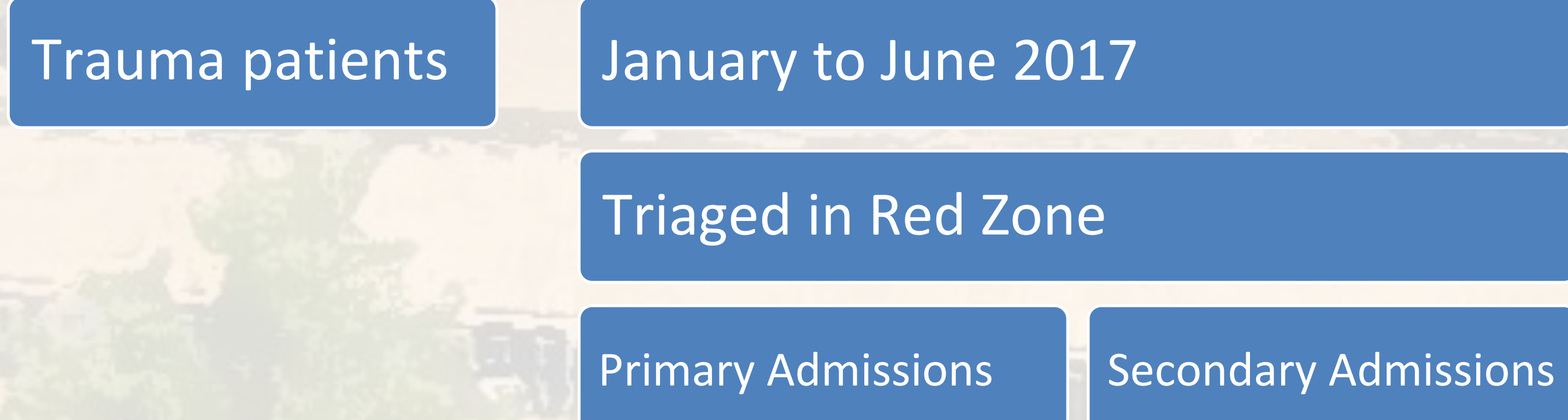


Figure 1: Respondent selection mechanism for the study

Industrial Significance

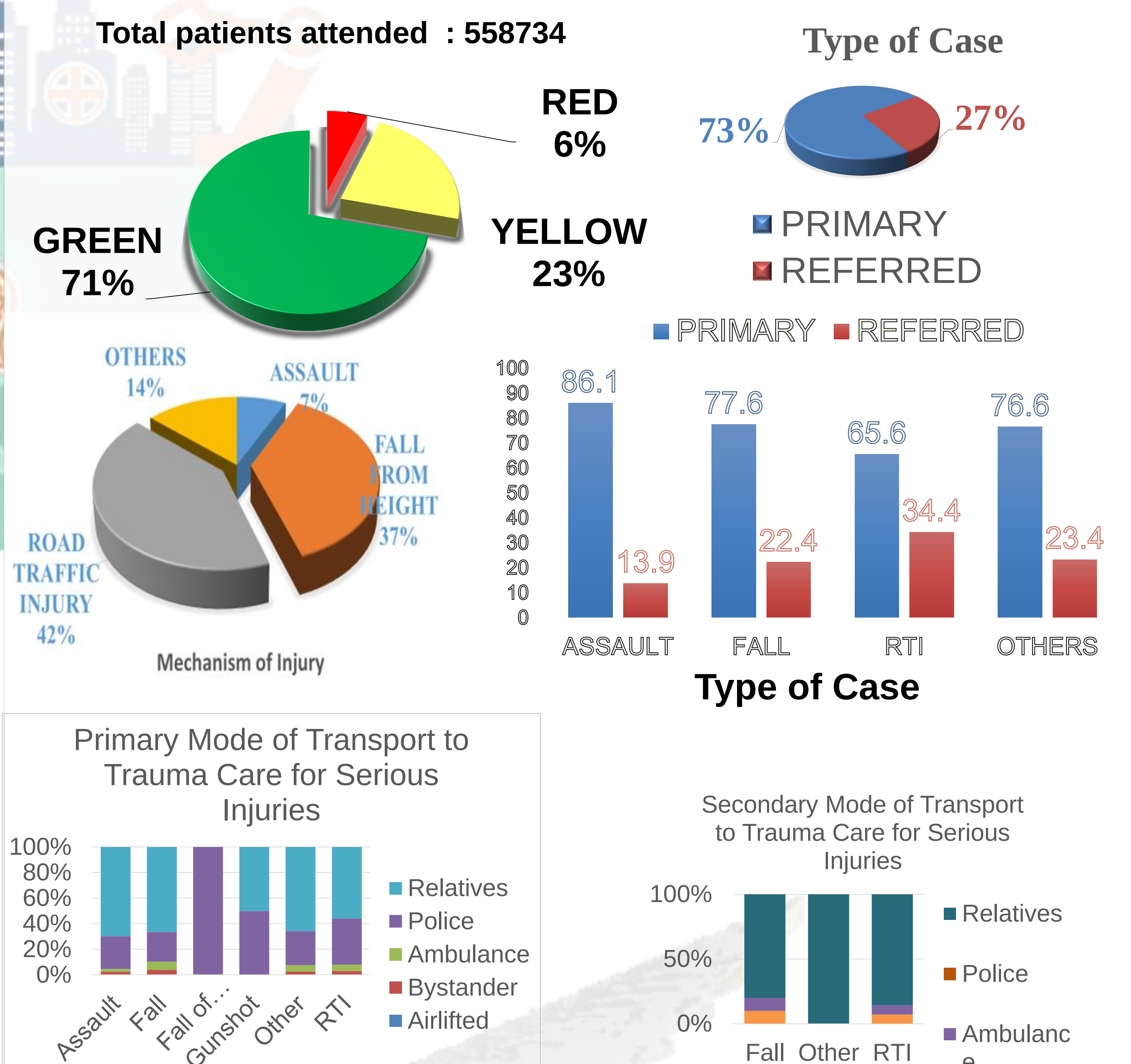
Study highlights need of implementation of better pre hospital transportation systems and provision of reception facilities at trauma care for modes of transport other than ambulances.

Technology Readiness Level: Policy directive stage

Zone triaging criteria:

1. Identified physiological conditions are:
2. Noisy breathing
3. Respiratory rate (RR) <10 or >30
4. Absent radial pulse
5. Systolic blood pressure (SBP) <90mm.Hg
6. Pulse rate (PR) <50 or >100
7. Responding only to pain on AVPU (Alert, Voice, Pain, Unresponsive)
8. Glasgow Coma Scale (GCS) <14

Results



Conclusions

- ✓ Police services and relatives are primary transport providers for severely injured.
- ✓ Ambulance share is relatively low for primary transportation of trauma victims.
- ✓ Investing in improvement of injury handling capabilities of police services and coordination of police, ambulances and trauma facilities could help improve trauma response systems.

References

- [1]D. T. Harrington *et al.*, "Transfer times to definitive care facilities are too long: A consequence of an immature trauma system," *Ann. Surg.*, vol. 241, no. 6, pp. 961–968, 2005.
- [2]World Health Organization, "Global status report on road safety," *Inj. Prev.*, p. 318, 2015.
- [3]R. Ahuja, G. Tiwari, and K. Bhalla, "Going to the nearest hospital vs. designated trauma centre for road traffic crashes: estimating the time difference in Delhi, India," *Int. J. Inj. Contr. Saf. Promot.*, vol. 26, no. 3, pp. 1–12, 2019.