

**Methods** An injury surveillance system was introduced in the emergency departments of two hospitals in Makwanpur district. Anonymous data on patients presenting with an injury were collected 24 hours a day between April 2019 and February 2020. A process evaluation involved 14 interviews to explore sustainability of the model.

**Results** Over 11 months, a total 6942 adult patients with injuries attended the study hospitals. More than half attendees (64.3%) were male and most (55.7%) were young adults (18–35 years). Most injuries were unintentional (86.3%, n=5988); predominantly road traffic injuries (32.2%), falls (25.6%) and animal related harm (20.1%). The hospital management and clinical staff valued the availability and usefulness of injury data that had been collected from the hospital-based surveillance.

**Conclusion** A large proportion of the work presenting to these two hospitals is injury related, and potentially preventable. Road traffic injuries are a significant component of the adult injuries. The lack of capacity of hospital staff for collecting injury data is a major barrier for sustaining the injury surveillance system in the longer term.

**Learning Outcomes** Rich injury data can be obtained by embedding data collectors in emergency departments. Such data can enable monitoring of epidemiological trends. Effective surveillance systems require investment and capacity.

#### 5E.003 EPIDEMIOLOGY OF INJURIES AMONG IN-PATIENTS IN NEPAL: A SECONDARY DATA ANALYSIS

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**Background** Injuries are an important public health issue in Nepal, contributing significantly to the burden of morbidity and mortality. There is no injury surveillance system available, however healthcare service use is routinely reported to central government using the Health Management Information System (HMIS).

**Methods** To explore the epidemiology of injuries in Nepal we used published national HMIS data on inpatients with injuries from 2009/10 to 2016/17. International Classification of Disease codes were used to classify injury type.

**Results** Trends varied by injury type. Road Traffic Injuries (RTI) increased from 4.28 (95% CI 4.03–4.52) per 100,000 in 2009/10 to 10.55 (10.17–10.92) in 2016/17, while injuries from poisoning almost halved over the same period (from 8.71 (8.36–9.06) to 4.46 (4.22–4.71) per 100,000). Inequalities by age and gender were noted; in 2016/17, RTI was the most common unintentional injury affecting adults aged 15–59 years (14.26 (13.70–14.82) per 100,000), while RTIs were almost twice as common in men (13.76 (13.14–14.48) per 100,000) than women (7.66 (7.21–8.11) per 100,000). In contrast, trends in intentional injuries appear to have fallen over the same time period.

**Conclusion** In the absence of surveillance data, routine inpatient data can provide evidence of injury epidemiology though underestimates the true burden of disease. Such data may provide evidence to monitor progress towards Sustainable Development Goals (SDG 3.6).

**Learning Outcomes** HMIS data have not previously been used for injury research in Nepal. The established reporting system

offers the potential for basic epidemiological analysis, though the available data fields are limited.

#### 5E.004 INJURY MORTALITY TRENDS OVER A DECADE: FINDINGS FROM NATIONAL POPULATION BASED-SURVEY

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**Backgrounds** More than 90% of global deaths occurred due to injuries in low-and middle-income countries. This paper is focused to reflect the changes in injury mortality and events over the last decade.

**Methods** Two cross-sectional surveys were conducted in Bangladesh in 2003 and 2016. Multistage cluster sampling method considering probability-proportional-to-size strategy was used in both surveys to obtain the desired sample. Verbal autopsy method was used to ascertain the cause of death.

**Results** An estimated 70,897 deaths occurred during 2002 due to injuries, whereas, around 108,000 deaths were caused by injuries in all ages 2015 reflected by the death rates 56.0 (95%CI;64700–77680) and 67.5(95%CI;93120–122800) respectively. According to survey data suicide, road traffic injury and drowning were the top three causes of injury mortality of all ages. Drowning ranked as the first leading cause (13.9%) in 2003, became third leading cause (11.7%) in 2016. RTI ranked as the second leading cause (11.7%) and (12.9%) in 2002 and 2016 respectively. Suicide rank as the fourth leading cause (7.4%) in 2002, it became the first leading cause (14.7%) in 2016. Male were the highest in terms of mortality in both 2002 and 2016, 59.3%, 63.5% respectively. A total of 37.8% death occurred at home in 2003 and 45% in 2016, followed by hospital and spot death.

**Conclusion** Injury mortality in Bangladesh was increasing. Suicide, road traffic injury and drowning were the main causes of injury mortality.

**Learning Outcomes** Government, non-government and development sector need to work together for reducing leading causes of injury mortality.

#### 5E.005 INJURY MORTALITY IN SOUTH AFRICA: 2009 VS 2017

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**Background** At 109 per 100 000 population, South Africa's injury mortality rate is approximately 1.6 times higher than the global rate of 66.2 per 100 000. Although homicide rates declined since the 1990's, they remain high along with road traffic injury deaths. Two injury mortality surveys for 2009

and 2017 will be utilised to determine if there was a decline in non-natural deaths over this period, and set a benchmark for future progress towards achieving the 2030 Sustainable Development Goals.

**Methods** We conducted a retrospective review of post-mortem reports for deaths in 2009 at a nationally representative sample of mortuaries. Logistic regression analysis tested hypotheses regarding metro/non-metro areas and manner of death. We are currently completing an enhanced repeat survey for 2017 deaths. We will estimate the weighted injury mortality profile from an unweighted sample of 31 021 records for 8 provinces and 11 350 deaths, previously captured, for the Western Cape. We will calculate age-standardized rates and Incidence Rate Ratios and model estimates comparing the 2009 and 2017 injury mortality surveys.

**Results** We estimated that there were a total of 52 493 (95% CI: 46 930–58 057) non-natural deaths in South Africa in 2009. We found a significantly higher likelihood for homicide in metro areas compared to non-metro areas, while transport-related deaths were significantly lower in metro areas. Firearm use significantly explained metro/non-metro differences in homicide risk.

**Conclusion** Targeted recommendations will be made to policy makers on interventions to reduce and prevent the very high rate of injury mortality.

## 5F – Future, March 24, 2021

### 5F.001 PROTECTING ON-ROAD COLLECTORS AND ON-ROAD ENTERTAINERS FROM INJURY

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On-road intersection activities such as windscreen washing, entertaining, collecting, selling and advertising are inherently hazardous because of the presence of a vulnerable road user in an environment where, if struck by a vehicle, the forces are likely to exceed that tolerated by the human body.

From research and case study analysis of windscreen washers in Canberra, Australia the following recommendations were provided to reduce injury risk, listed under the headings of Safe System pillars:

#### Safer Roads

1. Raised intersections or raised safety platforms.
2. Confining these activities to designated 'Squeegee Zones'.
3. Audible warning of imminent signal phase changes.
4. Passive warning signs.
5. Raised intersections or raised safety platforms.

**Safer Speeds** Same as #1 above.

#### Safer People

6. Educate and enforce existing restrictions on illegal movements/activities.
7. Install CCTV cameras to monitor windscreen washers' compliance with rules.
8. Run training or information sessions with known windscreen washers or others using intersections as a method of revenue generation.

9. Determine appropriate minimum age involvement and act to minimise the risk to young community members.
  10. Continue with campaigns and behavioural change initiatives targeting driving while fatigued.
  11. Investigate whether drug and alcohol support are required.
  12. Continue with drug/alcohol and driving behavioural change programs and enforcement.
  13. Promote the public's ability to call OOO when inappropriate behaviour occurs.
  14. Ensure that intersections are well lit.
  15. Provide windscreen washers with reflective vests.
- Safer Vehicles**
16. Ensure compatibility between permitted activities and deployed Autonomous Vehicle systems.

## 5G – Product Safety/Burns/Safety in Design, March 24, 2021

### 5G.001 PETROL-RELATED BURN INJURIES – THE VICTORIAN ADULT BURNS SERVICE EXPERIENCE

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**Background** Our experience in Victoria is that burns related to petrol fires are a major cause of injury that would be better prevented. The explosive ignition that makes petrol so valuable as a fuel can cause injuries when petrol is handled carelessly. The authors believe these injuries could be prevented with better consumer education and regulation of petrol use.

**Methods** We retrospectively carried out a cohort study examining the epidemiology of patients admitted to the Victorian Adult Burns Service (VABS). Data were extracted from the VABS database on patients presenting over a seven-year period.

**Results** We found that 378 out of 1927 burns admissions (19.6%) were related to petrol use. Males aged 20–29 years were most at risk, contributing to 25.4% of petrol-related burn injuries. Alcohol was a factor involved in 21.2% of cases. The mean total body surface area (TBSA) burnt in this cohort was 19.3%, and surgery was required in 70.4% of cases. Petrol-related burn injuries are estimated to cost AU\$5,484,834 annually and have a mortality rate of 7.4%.

**Conclusion** Misuse of petrol contributes to a substantial injury burden for Victoria. Approximately 20% of admissions to The Alfred burns unit are petrol related, 70% need surgery and nearly 7.5% of these patients die.

**Learning Outcomes** Identifying petrol burns as a major health-care crisis in Victoria, and the key demographics involved, has allowed us to engage with the Country Fire Association through the Victorian Burns Prevention Partnership, to produce public awareness campaigns.