concussion education materials, will further aid POLs with having conversations.

Learning Outcomes Describe how MS parents/coaches/staff evaluated concussion education training sessions.

3E – Road – Data, March 23, 2021

3E.001 ASSESSING THE REAR-END CRASHES CHARACTERISTICS ON A RURAL MULTILANE EXPRESSWAY IN INDIA

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10.1136/injuryprev-2021-safety.81

Expressways are rural multilane intercity highways which are being built rapidly lately in India. As per Indian government data, the recorded deaths on intercity highways such as national highways (NHs) and expressways are 36% of the total fatalities on Indian roads in 2018. However, the contribution of NHs in total road network length is 1.94%, whereas the existing length of operational expressways in India so far is unknown. Hence safety of rural multilane intercity highways such as expressways is a significant concern in India and need to be investigated. In this study first objective was to assess the characteristics of the rear-end crashes of the 165 km long rural multilane intercity expressway using the crash data from August 2012 through October 2018. The second objective was to identify the factors affecting rear-end crashes using random parameter count model. The factors considered are geometric design elements, service lane status and access points density. Results show that rear-end crashes constitute 49% of the total fatal crashes and 34% of the total non-fatal crashes. Besides, it was also revealed that truck-involved and car-involved crashes are prominent rear-end crash types. Also, truck-strike-truck and car-strike-car crashes have the highest number of cases for both fatal and non-fatal rear end crashes. There exists variation in the safety of horizontal curve segments as compared to linear segments. However, linear sections were having more rear-end crashes comparatively. At the end, possible interventions were discussed according to the findings to reduce the rear-end crashes on the expressway.

3E.002 IDENTIFYING MODIFIABLE FACTORS RELATED TO NOVICE DRIVER FAULT IN MOTOR VEHICLE COLLISIONS

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10.1136/injuryprev-2021-safety.82

Background Motor vehicle collision is a leading cause of injury and mortality in teens. Graduated drivers licensing (GDL) is a common practice to help mitigate risk associated with younger and inexperienced drivers. However, gaps and inconsistencies exist across regions in how restrictive GDL rules are.

Methods This study used police collision report data from Alberta, Canada for the years 2010–2016. An automated, previously validated, culpability analysis tool was applied to collisions involving drivers between 16 and 19 years of age to score fault. Factors that increase odds of fault in all-collisions were identified using logistic regression.

Results There were 45,938 motor vehicle collisions involving young drivers. of these, approximately 71% of young drivers were identified as at-fault. Crude analyses indicate that driving between 2300 hrs and 600 hrs increase odds of being at-fault (OR= 1.39; 95% CI: 1.27–1.51). Odds of being at-fault in collision were lower with the presence of an adult passenger over 20 years of age (OR= 0.62; 95% CI: 0.57–0.67) or a single peer of similar age (OR= 0.90; 95% CI: 0.83–0.97). Other passenger categories (younger passenger or multiple teens) were not significantly associated with young driver culpability.

Conclusion Passenger type and time of day may both be contributing to young driver fault in collisions. Future directions include multivariable analysis as well as analysis on teen driver fault in severe injury collisions.

Learning Outcomes There exists a potential opportunity for policy regulations that may modify or reduce exposure to factors contributing to teen driver culpability in motor vehicle collisions.

3F – WHS – Hazard and Risk, March 23, 2021

3F.001 ANALYSING SUBJECTIVE INCIDENT DATA TO GUIDE STRATEGY

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10.1136/injuryprev-2021-safety.83

Context Incident-reporting systems enable organisations to capture and analyse large volumes of occupational safety incidents. By counting and categorising hazard and incident reports, these systems are crucial to understanding broad organisational risk. However, these systems often ask incident 'victims' to pick from set categorical fields restricting the identification of micro-trends, local hazards and those not anticipated by the system designers. Qualitative data analysis is not a standard function of most large scale reporting systems, identifying local or unique hazards often occurs outside the reporting system relying on free-text comments. Addressing hazards in this manner is labour intensive and not often integrated into risk management pathways.

Process Cluster analysis using the freely available NODEXL software program provides means to analyse subjective incident data in a semi-quantitative manner. The data can self-categorise to form a picture of local level hazards. This presentation includes examples of this method used to analyse Workforce MSI, challenging behaviour and Mental Stress incident reports in Healthcare.

Outcomes A visual representation of qualitative incident data to inform local strategy.

A repeatable and targeted method of hazard ID.

The identification of new or unanticipated hazards and their interactions.

Local hazards to cross-reference against key areas of organisational risk.

Evidence for policy or strategy development/recombination of corrective actions.

Analysis Cluster Diagrams for Musculoskeletal injury, Mental Stress and Challenging Behaviour incidents.

Learning outcomes Understanding of qualitative analysis for strategy development.

Identifying multi-hazard interaction and associations.

Appreciation for a visual representation of hazard identification when developing in the risk-management strategy.

3F.002 RISK ASSESSMENTS – VALUABLE TOOL OR AN EXERCISE IN FUTILITY

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10.1136/injuryprev-2021-safety.84

The question that is posed by this presentation is whether or not risk assessments are a valuable tool or an exercise in futility. Organisations are faced with a conundrum, as WHS/OHS Legislation identifies that employers must ensure the health and safety of people 'so far as reasonably practicable This is done by identifying the hazard and controlling the risk.

But regulators state that the 'method does not require elaborate systems or large amounts of paper to support it. How the method is put into action depends on the complexity of the hazards or risks, the nature of the organisation and how its business is conducted.

What happens if the risk assessment is wrong? Who is qualified to prepare a risk assessment? Assessing risk is not an exact science. It relies on knowledge, experience and an understanding of chemicals, processes and human behaviour. What one person considers as a risk another may not. This presentation also poses the question of whether or not having a poorly prepared risk assessment is better than having no risk assessment. Using case studies this presentation will examine the advantages and disadvantages of proprietary risk assessments along with other issues that are that seemed to have become urban myths when completing risk assessments.

3F.003 SAFETY DATA SHEETS EXPOSED; THE IMPLICATIONS OF POOR AND INACCURATE SDS

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10.1136/injuryprev-2021-safety.85

Safety data sheets contain critical information for the safe use, handling, storage, transportation and disposal of chemicals. SDS's provide essential information for the production of risk assessments. The reliance of such documents by occupational health and safety professionals, chemists, and students is massive.

As health and safety professionals it is important to understand that all safety data sheets are not necessarily equal. But how do you know if the information contained on the SDS is accurate? What are the implications/ramifications of having an inaccurate data and information of the SDS?

This is paper is a case study surrounding the purchase of a pack of irritant smoke tubes used for the testing of fume cupboards, and the ongoing narrative which occurred when an importing supplier was asked for an Australian GHS Compliant safety data sheet.

This presentation also looks at the implications of a poorly written SDS and the possible consequences of an inaccurate information, as well as raising questions about the use of third party SDS and who can be considered as a 'subject matter expert'.

3F.004 OCCUPATIONAL HEAT STRESS AND ECONOMIC BURDEN: EVIDENCE FOR WORKPLACE HEAT MANAGEMENT POLICIES

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10.1136/injuryprev-2021-safety.86

Background The adverse effects of heat on workers' health and work productivity are well documented. However, the resultant economic consequences are less understood. This review aims to summarise the retrospective and future economic burden of workplace heat exposure.

Methods Literature was searched from database inception to August 2019 using PubMed, Scopus and Embase. Papers were limited to original human studies investigating costs from occupational heat stress.

Results This review included 14 studies. 12 studies estimated costs secondary to decreased labour productivity. Predicted global costs from lost worktime were \$US 311 billion in 2010 (≈0.5% of GDP), \$2.5 trillion in 2030 (>1% of GDP) and up to 4.0% of GDP by 2100, with additional expenses after considering decreased work efficiency. Three studies estimated healthcare expenses from occupational illnesses/injuries due to heat with averaged annual costs exceeding \$1 million in Spain and Guangzhou and \$250,000 in Adelaide. Developing countries and countries with warmer climates had greater GDP losses. Some studies investigated and observed greater costs per worker in outdoor industries, amongst males, those aged 25 to 44, and medium-sized businesses.

Conclusions Estimated global expenses are substantial.

Climate change mitigation and adaption can minimise most future costs. Further research exploring the relationship between occupational heat stress and costs, expenses from decreased work efficiency and healthcare, and costs stratified by demographics factors is warranted.

Learning Outcomes Analysing heat-attributable occupational costs may guide the development of workplace heat management policies and global warming strategies. Responding to climate change is crucial to minimise future economic burden

3F.005 THE EPIDEMIOLOGY OF HOME AND WORKPLACE INJURIES IN NEPAL: A HOUSEHOLD SURVEY

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