Rat—a night before Eid, whilst some of them were also reported on normal week-days.

Conclusions Prevalence of MOW crashes across Punjab is alarming, as initially this dangerous venture was only confined to large cities. In addition to major cities, MOW crashes are mostly reported from Kasur, which is a suburban city. Though MOW crashes constitute only 1% of reported crashes, their outcomes are very severe, as all MOW fatalities/injured included youngsters have devastating psycho-social impacts on the society. A serious effort is required on part of all the stakeholders. School road safety education with parents partaking is also very important in this view.

Brain Injuries, Drowning and Water Safety, Other

Post Tue 2.6

668 RECURRENT CONCUSSIONS IN UNITED STATES HIGH SCHOOL ATHLETES

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Background An estimated 1.6–3.8 million sports-related concussions occur annually in the United States. Previous research has indicated risk of recurrent concussion is especially high within 10 days after initial concussion. Recurrent concussions have been associated with negative long-term outcomes. This study compares severity of initial and recurrent concussions.

Methods Recurrent concussions within athletes in sport seasons were identified in the High School RIO database using a combination of factors including either athlete IDs, or combinations of demographic and sports-related variables, depending on available data. We calculated days between concussions, and paired analyses were completed comparing initial and recurrent concussion within athletes on symptomatology, symptom resolution and return to play time.

Results Concussion pairs were identified in 176 athletes. Median time between initial and recurrent concussions was 21 days (IQR:10–43 days). The only significant symptom difference between initial and recurrent concussion was loss of consciousness, which occurred more frequently in recurrent concussions (6.8% vs. 1.3%, $p = 0.04$). There was no significant difference in number of symptoms ($p = 0.84$) or symptom resolution time ($p = 0.74$). Recurrent concussions were much more likely to result in longer time loss from sport participation ($p < 0.0001$), with 27.6% of recurrent concussions being season-ending.

Conclusions We did not find evidence of significant differences between initial and recurrent concussions on measures of injury severity, however clinicians and athletes are treating these concussions differently in return to play clinical decision-making. Our study found a longer average amount of time between initial and recurrent concussions than previously reported, possibly due to change in concussion management guidelines. More research needs to be done comparing initial and recurrent concussions with a clearer mechanism to link injuries within athletes.

669 PREVENTING CONCUSSION IN YOUTH ICE HOCKEY: IS RESEARCH EVIDENCE NECESSARY TO INFORM POLICY CHANGE

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Background Participation and concussion rates in youth ice hockey are high. The objective is to evaluate the effectiveness of evidence-informed policy change delaying the age of body checking in youth ice hockey compared to a rule enforcement policy change "zero tolerance for head contact" that was not evidence-informed, in reducing the risk of concussion in youth ice hockey players.

Methods This cohort study included competitive ice hockey players (ages 11–14) in leagues where body checking commenced at age 11 ($n = 1408$) and leagues where body checking was delayed until age 13 ($n = 1366$). In addition, player cohorts (ages 11–14) before ($n = 1269$) and after ($n = 830$) the "zero tolerance for head contact" rule enforcement were compared. Validated injury surveillance methodology was used. The primary outcome was game-related concussion.

Results Based on multiple Poisson regression analyses (adjusted for cluster and other covariates and using exposure hours as an offset), the incidence rate ratio (IRR) associated with policy disallowing body checking for 11 and 12 year old players was 0.2 (95% CI: 0.08–0.51) for concussion. For 13 and 14 year old players, being in a league that allowed body checking since age 11 was not protective of concussion [IRR = 0.87 (95% CI: 0.51, 1.50)]. The IRR associated with the head contact rule enforcement change in 11–12 year old players was 1.85 (95% CI: 1.20–2.86) and in 13–14 year old players was 2.48 (95% CI: 1.17–5.24) for concussion. Concussion risk increased following the head contact rule enforcement change.

Conclusions Evidence-informed policy change delaying body checking to age 13 in youth ice hockey prevents concussions in 11–14 year old ice hockey players. Head contact rule enforcement policy change (not evidence-informed) did not reduce the risk of concussion. Referral bias related to a greater awareness of concussions in youth ice hockey may have accounted for the higher concussion rate following the 2011 policy change.

670 EXPLORATION OF ACCIDENT PROBABILITY OF DRIVERS WITH BRAIN PATHOLOGIES

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Background Despite the fact that road traffic casualties presented a decreasing trend during the last years, the number of fatalities in road accidents is still unacceptable and illustrates the need for greater efforts with respect to better driving performance and increased road safety. The objective of this paper is to investigate the accident probability of drivers with cognitive impairments (Alzheimer's Disease-AD, Parkinson's disease-PD and Mild