

PKR.91229. Furthermore, the out-of-pocket (OOP) is lower in the helmeted group (PKR.1250) compared to the counterpart (PKR.16800).

**Conclusion** We conclude that there are substantial cost implications of not wearing helmet and the traffic and road safety authorities should make sure that all motorcycle users including riders and pillion wearers wear helmet not for their safety but also as a cost-saving approach to reduce burden on healthcare system.

#### 8A.003 DRIVERS WHO CAUSE SERIOUS INJURY – CAN WE TARGET BEHAVIOUR CHANGE?

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**Background** Road safety campaigns tend to be nationally focussed, targeting all drivers, however these are general and often ineffective in reaching drivers causing serious road injury collisions. This study aimed to identify culpable drivers involved in collisions and consider the potential of delivering focused road safety campaigns to reduce serious injury on the roads.

**Methods** This study linked UK police data (STATS19) with hospital trauma data from the Trauma Audit Research Network (TARN) to identify serious (MAIS3+) injury collisions and the drivers involved for the county of Cambridgeshire (UK). These drivers were then assessed to be culpable, contributory or non-culpable for the serious injury collision. Additionally, geodemographic profiles were identified for the drivers using ACORN (A (UK) Classification of Residential Neighbourhoods) to establish if culpable drivers differed from non-culpable drivers. ACORN uses postcodes to differentiate areas by wealth (6 categories), available money (18 groups) and household description (62 types).

**Results** A total of 399 Cambridgeshire drivers were profiled, with 276 drivers considered culpable or contributing to the collision and 123 non-culpable. The ACORN categories and groups for the proportions of culpable and non-culpable drivers were similar. However, within the household types differences existed with culpable drivers having higher proportions of semi-skilled workers living in traditional neighbourhoods. In contrast non-culpable drivers had higher proportions of larger families living in rural areas.

**Conclusion** The findings suggest there are differences in specific household types. Using additional marketing tools, targeted road safety education campaigns could be aimed at culpable drivers living in these households

#### 8A.004 MV CRASH CHARACTERISTICS AND MEDICAL CHARGES: FRONT-AND REAR-SEATED RESTRAINED AND UNRESTRAINED ADULTS

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**Background** There are reports that historically higher mortality observed for front- compared to rear-seated adult motor vehicle (MV) occupants has narrowed. Vast improvements

have been made in strengthening laws and restraint use in front-, but not rear-seated MV occupants suggesting there may be value in expanding the science on rear-seat safety.

**Methods** A linked 2016–2017 hospital and MV crash data set, the Crash Outcomes Data Evaluation System (CODES), was used to compare characteristics of front-seated (n=130,761) and rear-seated (n=6,641) adults aged 18 years and older involved in a MV crash in New York State (NYS). A primary enforced seatbelt law was in effect for front-seated, but not rear-seated occupants. Chi Square and linear regression use SAS 9.4.

**Results** Compared to front-seated occupants, those rear-seated were more likely to be unrestrained (21.2% vs. 4.3%,  $P<0.0001$ ) and to have more moderate-to-severe injury/death (11.9% vs. 11.3%,  $p<0.0001$ ). Compared to restrained rear-seated occupants, unrestrained rear-seated occupants had higher moderate-to-severe injury/death (21.5% vs. 7.5%,  $P<0.0001$ ) and 4-fold higher hospitalization. Ninety percent (9 of 10) of rear-seated deaths were unrestrained. More than 95% of ejections were unrestrained and had 7-fold higher medical charges. Hospital stays were longer, hospital charges higher and societal financial costs higher as the unrestrained were more frequently uninsured/self-insured/government-insured.

**Conclusions** These findings document increased medical charges and support the need to educate consumers and policymakers on the risks associated with adults riding unrestrained in the rear-seat.

**Learning outcomes** Describe crash outcomes and medical charges in front- and rear-seated restrained and unrestrained adult passengers

#### 8A.005 REAR SEATBELT USE IN URBAN SOUTHEAST ASIA: RESULTS FROM MULTI-ROUND CROSS-SECTIONAL STUDIES

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**Background** Road traffic injury remains a leading cause of morbidity and mortality in Southeast Asia. Rear seatbelt use, a key behavioral risk factor, is understudied. We aim to estimate the prevalence and predictors of rear seatbelt use in Bandung, Indonesia and Bangkok, Thailand.

**Methods** Roadside observational studies were conducted across Bandung and Bangkok to provide a representative picture of behavioral risk factor prevalence in each city. Trained observers collected data from stationary vehicles at intersections during the daytime throughout the week. We computed descriptive statistics and conducted multivariable logistic analyses by city.

**Results** Eight rounds of observations were conducted between July 2015 to April 2019. 39,479 and 7,207 rear-seat passengers were observed in Bandung and Bangkok, respectively. Across all rounds, 4.2% of rear seatbelt passengers used seatbelts in Bandung, compared to 8.4% in Bangkok. In both cities, males and adults, as compared to females and adolescents (aged 12–17 years), had higher odds of rear seatbelt use, as did passengers with a belted driver. Additionally,