

Conclusions The *GKB* program has been effective in increasing booster seat use in motor vehicles for children ages 4–7 in varied school settings. These increases persisted into the following school year in a majority of the projects.

246 FIVE YEARS OF MANDATORY BICYCLE HELMETS FOR CHILDREN IN AUSTRIA – A POST HOC EVALUATION

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Background In Austria, bicycle helmets have been mandatory on public roads for children under 12 years of age since May 31, 2011 (23rd amendment to the road safety act). The regulation was introduced as an awareness measure and is primarily designed to protect children from head injuries. Thus, there are no consequences for violation of the regulation.

Methods Post hoc evaluation of the effect of the helmet wearing legislation comprised the use of existing data sources about helmet wearing and the rate of head injuries. The main data source used for the analysis, the Injury Databases (IDB Austria), is quite unique for this purpose as it provides information on both the type of road user and the type of injury. The results on helmet wearing are based on regularly conducted counts, performed bi-annually since 2005.

Results After the introduction of the regulation a significant increase of the helmet wearing rate was observed in the target group: before the introduction about 65% of children under 12 wore a helmet, by 2014 the rate was 87%. This trend in helmet wearing was mirrored also in the development of the rate of head injuries of child bicyclists who were treated in hospital after an accident: before the helmets became mandatory 47% of the children under 12 years had head injuries, by 2014 the rate was 38%.

Conclusions As intended by the regulation, an increase in the proportion of children wearing a helmet and a decrease in the rate of head injuries was observed. However, both trends need to be further observed in order to evaluate the supposed effect of the legislation in the long run. By the time of the Safety2016 taking place, the most recent data on both indicators will be presented in addition to results given above.

247 KNOWLEDGE OF, ATTITUDE TOWARD AND PRACTICE OF HELMET USE AMONG MOTORCYCLE PASSENGERS IN CAMBODIA

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Background Road crashes constitute Cambodia's most serious non-communicable public health crisis, claiming on average 6 lives per day and seriously injuring 17 more. In 2014, over 70% of victims were motorcyclists, only 12% of whom wore a helmet. AIP Foundation is implementing the USAID-DIV supported

“Head Safe. Helmet On” (HSHO) project, from 2014 to 2016 to increase helmet use, through three main components: school-based education, high-level advocacy, and behaviour change communications (BCC).

Methods Under BCC, a knowledge, attitude, and behaviour survey including 400 interviews in HSHO target provinces was implemented at baseline in August 2014 and at midline in August 2015. Based off of findings, BCC designs nation-wide mass media campaigns, including television and radio commercials, to address the public's stated reasons for not wearing a helmet and raise awareness on the importance of helmet use.

Results In the mid-term evaluation, most respondents (about 87%) reported exposure to a helmet safety message in the last year. When prompted with an HSHO BCC image, 86% of respondents recalled seeing it on a TV commercial. Respondents who reported that passenger helmet use is important increased from about 45% to 60%. The percentage of respondents who reported that they were likely or very likely to be stopped by police for not wearing a helmet as a passenger increased from 25% to 66%. However, 67% of respondents replied that they are unlikely to be stopped by police if a child is not wearing a helmet. Awareness of the passenger helmet law, expected to be enforced in January 2016, increased from 69% to 91%. Respondents reporting that they “always” wear a helmet increased from 10% at baseline to 20% at midterm.

Conclusions BBC can increase public knowledge of and attitude toward the importance of motorcycle helmet use, and thereby improve citizens' practices.

248 SYSTEMATIC REVIEW AND META-ANALYSIS OF BICYCLE HELMET EFFICACY TO MITIGATE HEAD, FACE AND NECK INJURIES

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Background Past meta-analyses of studies assessing bicycle helmet efficacy have been criticised for poor methodology and the literature has not been systematically reviewed in over 15 years. The most recent meta-analysis reported time trend and publication biases, and found the summary odds ratio (OR) diminished when combining head, face and neck injuries. However, this study did not use standard methodology to identify biases, did not systematically review the literature, and the heterogeneity among studies reporting different injury outcomes was not assessed. The aim of this study is to systematically review and summarise results from studies assessing bicycle helmet efficacy to mitigate head, face and neck injury.

Methods Four electronic databases were searched for relevant, peer-reviewed articles in English. Included studies reported medically diagnosed head, face or neck injuries, other cycling injuries and helmet usage. Non-approved helmets were excluded where possible. Summary ORs were obtained using mixed effects models stratified by injury type and severity. Time trends were tested using cumulative models and mixed models with time as a moderator. Evidence of publication bias was assessed using funnel plot methods.

Results Study is ongoing with 53/70 studies assessed. Early results suggest bicycle helmets were associated with reduced odds of head and facial injuries, with the strength of association greater for more severe head injuries. Stratification by injury type and severity reduced heterogeneity. Early analyses do not suggest publication bias and no time effects were found from 1998 onwards. **Conclusions** A systematic search of the literature is essential for meta-analysis, especially when assessing publication bias. Inadequate assessment of heterogeneity among included studies partly accounts for discrepancies in previously reported results. We found helmets were associated with significant reductions in head injury for cyclists injured in a crash.

249 ALASKA YOUNG DRIVER SAFETY: DISTRACTED DRIVING, SEAT BELT USE AND DRINKING AND DRIVING INTERVENTIONS

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Background United States teenagers have the highest crash rate of any group in the nation. Alaska data tell a similar story. Leading causes of crashes for Alaska teen drivers are: driver inattention, unsafe speed, failure to yield and driver inexperience (Alaska Injury Prevention Centre, 2012). In partnership with the Alaska Injury Prevention Centre, a resource guide was created, listing best practices in Alaska teen driving interventions connected to three areas: distracted driving, seat belt use and drinking and driving.

Methods Guide content was evaluated for alignment with best practice through a multi-step filtering process. Available literature was distilled down to a final collection of safe teen driving intervention strategies based on best-available evidence. Results were categorised into a taxonomy of approaches, and were classified into levels of promise associated with certainty of effectiveness and potential population impact.

Results Strategies found to be most promising included public policy efforts surrounding graduated drivers' licensing programs, a minimum legal drinking age of 21, cell phone restrictions while driving and seat belt requirements. In addition, community and parental roles of partnerships, boundary setting and monitoring teens' driving behaviours, were found to have equal levels of promise. Of significance was the importance of intervention strategies with diverse influences, including all levels of the Social Ecological Model.

Conclusions The developed process can be used as an effective model when synthesising large amounts of data, and can work in a variety of study areas to help practitioners understand complex research and guide them in their intervention choices. Resulting

recommendations included multiple public policy enhancements in the state of Alaska, including graduated driver's license program modifications, enhancement of the state's zero-tolerance policy and broad scale restrictions of driver cell-phone use.

250 PEDESTRIAN-VEHICLE INTERACTIONS: EARLY RESULTS FROM THE AUSTRALIAN NATURALISTIC DRIVING STUDY (ANDS)

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Background Typologies have been defined previously for pedestrian-vehicle interactions and are primarily based on retrospective analysis of crash data. The naturalistic driving study currently underway in Australia makes it possible to study pedestrian-vehicle interaction events that would not otherwise be identified in the crash data. This work evaluates the feasibility of using automated, manual, and semi-automated methods to identify pedestrian-vehicle interaction events.

Methods Sensors and cameras were installed on the vehicles of volunteers in and around two major Australian cities which recorded their natural driving behaviour for 4 months. Forward video from select vehicles was reviewed independently by two reviewers to identify potential pedestrian-vehicle interaction events from which a typology of behaviours was formulated. These events served as the gold standard against which select automated and semi-automated methods of identification were assessed.

Results A prototype typology of pedestrian-vehicle interaction events was formulated using naturalistic driving data and categorised in terms of risk of being struck. Some case scenarios will be discussed. The feasibility of using select automated, semi-automated, and manual methods to identify these events was also evaluated.

Conclusions This work provides a first look at using Australian naturalistic driving data to study the interactions between vehicles and pedestrians. These findings will assist in the development of