

846 TOWARDS AN EVIDENCE-BASED ZERO VISION ON RESIDENTIAL FIRES

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Background Sweden has a national zero vision on fire. Nobody should be killed or seriously injured from fires. Despite this, some 100 people are killed annually with most victims being of poor health, elderly or disabled. A multi-centre research program from 2014 to 2017 involving more than ten researchers, aims to investigate why these groups are at excessive risk of dying or getting seriously injured in residential fires, and to explore further preventative possibilities with regard to these vulnerable groups.

Methods The program consists of seven sub-projects, derived from a tentative generic model of the residential fire process. Quantitative and qualitative approaches are applied.

Results By 1st of November 2015 the project has yielded five international publications:

- Jonsson A et al., Assessing the number of fire fatalities in a defined population (Accepted with minor rev., Journal of safety research)
- Jonsson A et al, Fire-related mortality in Sweden – temporal trends 1952 – 2013 (Accepted with minor rev., Fire Technology)
- Nilson, F et al., Differences in determinants amongst individuals reporting residential fires in Sweden – results from a cross-sectional study (Fire Technology, 2015)
- Bonander C et al., Investigating the effect of banning non-reduced ignition propensity cigarettes on fatal residential fires in Sweden. (Accepted, European Journal of Public Health)
- Jaldell H et al., How important is the time factor? Saving lives using fire and rescue services. (Submitted to Fire Technology, August 2015)

Conclusions In line with zero vision philosophies in parallel policy fields, such as traffic safety, merely preventing accidents (crashes or fires) and rescuing victims appear insufficient strategies for protecting human life from residential fires.

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Traffic Safety

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847 LONGITUDINAL STUDY OF DRIVER LICENSING AND MOTOR VEHICLE CRASH RATES AMONG TEENS WITH AUTISM

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Background Two-thirds of teens with ASD without intellectual disability (ID) reported that they plan to drive but deficits in attention, cognition, and executive function may impact their ability to drive safely. Almost nothing is known about licensure and crash rates among these teens. We conducted a longitudinal study within a large paediatric healthcare network to compare

the rate of obtaining a driver's license and risk of motor vehicle crash involvement among teens who have ASD without ID and a comparable group of teens who do not.

Methods We linked two unique data sources: (1) electronic health records for 68,592 New Jersey (NJ) residents born 1987–1995 who were patients of the CHOP network within 4 years of driving-eligible age; and (2) a database containing the full licensing and crash history of all NJ drivers through June 2012. Subjects were classified as having ASD using ICD-9-CM diagnosis codes and known chronic conditions from their EHR; those with ID were excluded. Licensing rates and crash risk were compared for 682 patients with ASD and 62,719 without ASD using Cox regression to estimate adjusted hazard ratios (HR).

Results Subjects had a median [interquartile range] of 6 [2, 17] CHOP visits, were 16.7 [14.7, 18.5] years old at their last visit, and were 20.8 [18.8, 22.9] at the end of the study. Although teens with ASD were much less likely (39% vs. 84%) to obtain a driver's permit by age 21, the majority (91%) of those who obtained a permit went on to become licensed. Overall, the crash rate for subjects with ASD was lower than for those without ASD (21% vs 33%) with an adjusted HR of 0.75 (95% CI: 0.55, 1.03).

Conclusions This is the first study to report objective license and crash data for a cohort of teens with ASD. These findings suggest families decide about independent driving primarily before teens get behind the wheel. Future studies will examine parent-teen interactions and account for driving exposure in effect estimates.

848 USE OF HEALTH ACTION PROCESS APPROACH & PROPENSITY SCORE TO EVALUATE A SOCIAL MARKETING CAMPAIGN

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Background Bicycle injuries represent an important proportion of injuries among Canadian children. Since helmet use was mandated in 1996 in BC, Canada, use has increased and head injuries have decreased. Despite the law, many child cyclists don't wear a helmet. This study determines additional factors that may influence child helmet use by studying caregiver attitudes and behaviours. We study whether intention to wear a bicycle helmet is moderated by planning skills of the individual, and whether individuals exposed to a social marketing campaign have higher scores in risk awareness, intention and behaviour as compared to propensity score (PS) matches without exposure to the campaign.

Methods We use the Health Action Process Approach to identify single traits that lead to helmet use. PS is applied to address the lack of a control group: the social marketing campaign is a population-wide campaign. PS allows a matched group to be drawn, enabling comparative analysis of the impact of the social marketing campaign on bicycle helmet use. A survey collects detailed bicycle helmet use information from 25–55 yr olds (n = 300) in BC, as part of the continual monitoring and evaluation of a social marketing campaign. Data is examined using multiple regression to identify factors and moderating effects that influence bicycle helmet use. PS is calculated using socio-economic data and injury history over the past 12-months. PS is used to match pairs of individuals with equal PS but different levels of campaign exposure: exposed vs. not exposed. The matched groups are analysed using tests for independent groups.

Results Data will be collected by Dec 2015. Data cleaning and analysis will be completed by Mar 2016, and final results will be presented at Safety 2016.

Conclusions An important step to increasing bicycle helmet use is to determine additional factors, beyond laws, that may influence helmet use, such that social marketing campaigns can deliver targeted messages.

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PREVALENCE OF ALCOHOL AMONG CAR DRIVERS IN ROAD ACCIDENTS IN LATVIA: AN OVERVIEW FROM 2010 TO 2014

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Background According to European Commission's data safety on Latvian roads is improving in recent years, however fatalities and casualties are still significantly higher in comparison with the situation in other countries. The aim of the study was to examine the prevalence of alcohol in blood samples from casualties in injury accidents (where at least one road vehicle in motion is involved, resulting in at least one injured or killed person) in Latvia from 2010 to 2014.

Methods Road safety accident database includes all the cases for which the police are informed. The cut-off concentrations for alcohol findings in blood samples were set according to the legislative limits (permissible alcohol level in blood is up to 0.5 ‰, but up to 0.2 ‰ for young road users having driving license for less than two years).

Results Out of 22 332 persons injured in road accidents during this five year period, 965 were dead in 30 days after the accident. Alcohol consumption was tested for all persons involved in injury accidents. 7.2% of injured persons and 11.6% of killed persons in injury accidents were caused by drunk driving. Both victims of injured traffic accidents and accidents with alcohol involved were mostly males (60%). The prevalence of alcohol was higher among persons killed twilight than daylight or night time. Drunk driver injured accidents have decreased during this five year period (2010–7.3%; 2011–8%; 2012–5.2%; 2013–6%; 2014–5.6%) but it was not statistically significant.

Conclusions Alcohol still remains important contributing factor of traffic accidents in Latvia. In spite of legislation and public awareness campaigns, situation with drivers, who participate in road traffic under the influence of alcohol did not change significantly during past years.

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LONGITUDINAL STUDY OF MOTOR VEHICLE CRASH RATES AMONG LICENSED TEEN DRIVERS WITH ADHD

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Background Several small studies suggesting teens with ADHD are at heightened crash risk were conducted among more severely affected teens in highly specialised samples but had substantial methodological limitations. Thus, we conducted the first truly longitudinal study focused on comparing crash risk between teen drivers with and without ADHD. We also aimed to determine if

the association between ADHD and risk varies by sex, licensing age, or over the course of licensure.

Methods We utilised electronic health records (EHR) to identify residents of New Jersey (NJ) born 1987–1995 who were patients of The Children's Hospital of Philadelphia's six NJ primary care practices within 4 years of driving-eligible age. EHR records were linked to NJ's state-wide driver licensing and crash databases through June 2012. Subjects were classified as having ADHD using ICD-9-CM diagnosis codes and known chronic conditions from their EHR. Cox regression was used to estimate adjusted hazard ratios (HR) to compare crash rates for 1,307 licensed teens with and 10,415 licensed teens without ADHD.

Results Subjects had a median [interquartile range] of 17 [9, 28] CHOP primary care visits, were 18 [16, 19] years old at their last visit, and were 21 [19, 23] years old at study end. Overall, the crash rate for teens with ADHD was 35% higher (95% CI: 1.22, 1.49) than for teens without ADHD. Modelling revealed heightened risk for male teens (HR [95% CI]: 1.43 [1.27, 1.61]) with less evidence of an increase among females (1.17 [0.97, 1.42]). Conversely, the association between ADHD and crash involvement did not vary by licensing age or over time.

Conclusions Young novice drivers with ADHD—and in particular males—appear to be at increased crash risk, although the estimated increase is notably lower than frequently cited figures from previous small studies of self-reported crashes. Additional research is needed to understand the specific mechanisms by which ADHD influences per-driver crash risk.

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CHILDREN & ROAD SAFETY- A MULTIPRONGED APPROACH

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Background 'Safe Kids Foundation's, Walk This Way'-a pedestrian safety program teaches children to 'Walk Safe and Cross Safe' through educational sessions and awareness activities. Annually more than 220,000 children from 350 schools in Mumbai, Delhi and Ahmedabad are benefited by this program. While educating children on road safety, it was observed that children were receptive, willing to adapt to road safety rules and thereby act as 'young advocates' to facilitate behaviour change.

Objective To train teachers and build their capacities to carry out age specific innovative interventions on road safety in schools. To conscientize students, parents communities and other stakeholders on the issues of road safety through various activities in school/communities to naturally build the safety culture amongst the targeted stakeholders. To conduct research to study impact of educational sessions on children.

Results Teachers, children, parents and communities are conscientized on road safety. In this model, to reinforce the messages at regular intervals, activities like game, songs, competitions are conducted. Educational tools such as flipcharts, posters, banners, demonstrations materials like dummy signals, zebra crossing, activity books etc, help in better understanding and comprehension of the information provided. Peer to peer education enabled sensitise 2,500 children by fellow mates. Children's initiative as safety advocates helped in effectively bringing attitudinal & behavioural changes amongst children and adults. Photo voice, model school zone are research based interventions, initiatives like observing Global Road Safety Week, Road Safety Week- India