

## 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 1<sup>st</sup> 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)
- Nilsson, 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.

## Posters Wednesday 21.9.2016

### Traffic Safety

#### Post Wed 3.1

## 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.