

4E.002 THE SWEDISH 2020 STRATEGY ON THE SAFE USE OF QUAD BIKESPeter Lundqvist*. *Swedish University of Agricultural Sciences, Alnarp, Sweden*

10.1136/injuryprev-2021-safety.114

Context The Swedish Transport Administration together with major stakeholders including researchers from the Swedish University of Agricultural Sciences (SLU) developed a joint updated strategy for safe use of Quadbikes.

Process and analysis An evaluation of the previous strategy (2014–2020) was done regarding injury statistics, the development of safety features, education, training and research both in Sweden and at an international level. The development in Australia regarding ‘Crush Protection Device (CPD)’ on Quads was one of the major developments since last strategy.

Outcome The joint strategy prioritize a number of areas for further actions: a) Increased use of helmets, b) Increased use of Crush Protection Device (CPD) c) Increased use of alcohol interlocks, d) Decreased use of Quads on public roads, e) Children should not be using Quads and f) Improved information and increased education and training regarding risk awareness and safe driving.

The strategy also points out the importance of further research, development and information regarding the Crush Protection Device (CPD); alternative vehicles such as side-by-sides, small tractors or off-road motorcycles; the development and use of warning/alarm systems for roll-over situations; children and Quad bikes; risks with passengers and loads as well as further education and training issues. Each of the stakeholders stated their ambitions in order to reach the joint goal to reduce the number of fatalities with 50% by the year 2030. SLU will now work with a full-scale test with Crush Protection Device (CPD) on Quad bikes, mainly during off-road use, with 100 professional users.

4F – Future, March 24, 2021**4F.001 TRAFFIC ACCIDENTS: TECHNOLOGY THAT REBUILDS THE PAST TO SAVE THE FUTURE**Miryam Moya*. *Trimble Inc., Madrid, Spain*

10.1136/injuryprev-2021-safety.115

The accident, despite its brevity, is a dynamic process that takes place in space and time at certain points or areas and moments where events occur. The union between a point and a point takes its name from the position and involves a phase of the accident. Knowing its evolution allows investigating the applicable improvements to avoid the same errors in future cases or circumstances.

The powerful and practical solution to investigate and reconstruct traffic accidents or crime scenes, which give us the keys to avoiding them in the future, is the union of Trimble’s hardware and software solution.

With the Trimble Forensics SX10 solution, forensic teams only have to pick up the instrument and work, spending less time on the scene, minimizing the danger of being exposed on a highway to collect data after a traffic accident. Parking is fast and simple, making data capture not only more

efficient, but also extremely accurate. Even point cloud viewing and verification is done on site.

Once you are out of the scene of the accident and out of danger, in your office you can continue with the investigation and reconstruction of any type of traffic accident or crime scene, reaching its conclusion and being able to make the necessary decisions to avoid that Tragic events occur, in turn preventing thousands of deaths and serious injuries that will destroy the lives of millions of people around the world.

4F.002 COMMUNITY ENGAGEMENT FOR A SAFER FUTURE: ACTIVE TRANSPORTATION

¹Breanna Fraser-Hevlin, ^{2,3}Megan Oakey, ⁴Tobin Copley, ¹Alex Zheng*, ⁵Ediriweera Desapriya. ¹Simon Fraser University, Burnaby, Canada; ²BC Injury Research and Prevention Unit, BC Children’s Hospital, Vancouver, Canada; ³BC Centre for Disease Control, Vancouver, Canada; ⁴Fraser Health Authority, Surrey, Canada; ⁵University of British Columbia, Department of Pediatrics, Vancouver, Canada

10.1136/injuryprev-2021-safety.116

Background The purpose of this study is to examine the association between perception of neighborhood road safety and active modes of transportation among British Columbians to ensure healthy lives, and to make cities inclusive, safe, resilient and sustainable.

Methods A representative sample of adult (18+ years old) British Columbians was drawn from each of BC’s five regional health authorities (total n=842) and a survey questionnaire asking about their perceptions of neighbourhood road safety, use of physically active modes of transportation and recreation on neighbourhood streets was administered. Sample weighted values were used in all analyses reported here.

Results Among the survey participants, 65% wanted to walk or run more in their neighbourhood and identified traffic speed and traffic volume as barriers while availability of sidewalks, street lights and crosswalks were indicated as enabling factors. 45% of survey participants wanted to cycle more in their neighbourhood and indicated speed of cars and lack of bike lanes as the discouraging factors and built environment factors, particularly bike lanes were rated as encouraging factors. Younger persons were more likely to support bike lanes whereas older persons (50+) are more likely to oppose bike lanes.

Conclusion Safety perceptions of the local neighborhood road network may influence adults’ use of active transportation methods.

Learning Outcomes By improving the built environment and managing traffic speed and volume, community engagement on active transportation can be enhanced to achieve the goals of safe and sustainable cities and ensure healthy lives and promote well-being for all at all ages.

4F.003 SPATIALLY FORECASTING SERIOUS INJURY INTO THE FUTUREBen Beck*, Belinda Gabbe. *Monash University, Melbourne, Australia*

10.1136/injuryprev-2021-safety.117

Background Understanding how injury varies across space and time is critical for informing injury prevention activities at a population level. The aim of this study was to use

spatiotemporal modelling to investigate spatial and temporal variation in major trauma.

Methods A retrospective review of major trauma was conducted using the population-based Victorian State Trauma Registry (Victoria, Australia) from 2008 to 2018. Coordinates of ambulance attended major trauma event locations were mapped to small statistical areas. Bayesian spatiotemporal modelling was used to investigate spatial and temporal patterns and generate forecasted counts in each small area to 2023.

Results Over the 11-year period, there were 28,630 major trauma patients with known event coordinates. Substantial spatial variation in the incidence of all major trauma was observed. Generally, area-specific incidence rates were higher in regional areas than metropolitan areas. Global temporal trends in the incidence of major trauma demonstrated a significant increase, with relative increases greater in regional areas compared to metropolitan areas.

Differences in spatial and temporal variation were observed between causes of injury. For motor vehicle collisions, area-specific incidence rates were higher in regional areas than metropolitan areas. Conversely, for low falls, area-specific incidence rates were higher in metropolitan areas than regional areas.

Conclusion Spatiotemporal forecasting enables the identification of small areas of relatively high incidence and of increasing incidence over time. Furthermore, these models can be used to derive forecasted counts of trauma counts that can be used to inform injury prevention activities at the small spatial area.

4F.004 PREDICTIVE INTELLIGENCE TO PREVENT WORKPLACE INJURY

Jaimie McGlashan*, Scott Norris, Steven Armstrong, Kathryn Gulifa. *WorSafe Victoria, Geelong, Australia*

10.1136/injuryprev-2021-safety.118

Preventing workplace injury is critical, however to effectively target preventative activities we need an understanding of the future risk of a workplace. Innovative methods from predictive analytics offer an opportunity to predict future risk of workplace injuries and strategically target preventative regulatory activity.

Predictive models were built to predict the likelihood of a workplace injury, as well as the occurrence of eight distinct hazard types; mental, body stressing, chemical, vehicle, hit by moving object, hit object with body, sound, and fall injuries. Gradient boosting machine algorithms from Machine Learning were utilised, leveraging a range of administrative data from WorkSafe Victoria, such as past injuries, inspections, incidents and workplace details. The model development process involved collaboration with health and safety stakeholders and subject matter experts.

The models varied in predictive accuracy from 69% to 91%, with body stressing injuries having the strongest predictive accuracy. The predictive power of input features offers insight into lead indicators of workplace injury. While there was variation of feature importance across models, features such as past claims, workplace remuneration and geographic location were consistent lead indicators.

Emerging techniques from predictive analytics can provide an important evidence base on which to direct preventive approaches. Workplace risk scores produced by the models can inform the implementation of strategic workplace inspections and other initiatives to create safer workplaces. Future model development will involve expanding the input features and outcomes to enhance the utility of this new application of predictive analytics.

4G – WHS – Mental Health, March 24, 2021

4G.001 IMPROVING WORKER MENTAL WELLNESS – FROM THE OFFICE TO FRONT LINE WORKERS

Samantha Barker*, Jimmy Twin. *Monash University – ISCR, Melbourne, Australia*

10.1136/injuryprev-2021-safety.119

Context Mental health is one of the major health issues affecting workers worldwide, and in Australia represents 12% of the overall burden of disease. It is estimated one in five working Australians will experience an affective, anxiety or substance use disorder in any given year and the cost of mental health conditions to Australian business is estimated at \$10.9 billion per year.

Process WorkSafe Victoria, through the Institute for Safety, Compensation and Recovery Research (ISCR), has invested in a range of research projects over the past ten years to increase our understanding of how to design and improve workplace mental health programs. This has involved systematic reviews of available evidence, environmental scans of best practice initiatives globally, evaluations of current programs and analysis of workplace compensation claims data. ISCR has been actively translating the findings of this research to inform the development of new workplace mental health programs, including WorkSafe Victoria's current \$50 million (AUD) state-wide WorkWell initiative.

Outcomes This research has led to many unique insights, however some of the major overall findings are:

1. Programs that effectively prevent work-related mental health conditions deliver a financial return to companies.
2. Workload management for office workers is critical to preventing work-related stress and effective tools exist to assist organisations to better manage workload.
3. No single intervention is effective at preventing and supporting frontline workers experiencing vicarious trauma, instead a multi-faceted approach tailored to the workplace setting is recommended involving both worker and employer.

4G.002 EFFECTIVENESS OF EMPLOYEE ASSISTANCE PROGRAMS IN MITIGATING WORK-RELATED STRESS & TRAUMA

¹Emma Wyhoon*. ¹Djambul Pty Ltd, Cairns, Australia; ²Kitney OHS, Brisbane, Australia

10.1136/injuryprev-2021-safety.120

There has been more of a focus on the need to protect workers mental health in the workplace with the emergence of a more holistic approach to psychological safety management