<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.00am</td>
<td>Opening Remarks</td>
<td>Associate Professor Kerianne Watt, Conference Chair, James Cook University</td>
</tr>
<tr>
<td>9.05am</td>
<td>Welcome to Country</td>
<td>Songwoman Maroochy</td>
</tr>
<tr>
<td>9.15am</td>
<td>Welcome Address</td>
<td>Dr Ben Beck, President, Australasian Injury Prevention Network</td>
</tr>
<tr>
<td>9.25am</td>
<td>Official Welcome</td>
<td></td>
</tr>
<tr>
<td>9.35am</td>
<td>Keynote Address: Injury Control: Past, Present and Future</td>
<td>Professor Fred Rivara, University of Washington, USA</td>
</tr>
<tr>
<td>9.55am</td>
<td>Keynote Address: When redefining the endgame is the right thing to do</td>
<td>Professor Shanthi Amaratunga, University of Auckland, New Zealand</td>
</tr>
<tr>
<td>10.15am</td>
<td>Invited Address</td>
<td>Isaac Carlson, Accident Compensation Commission, New Zealand</td>
</tr>
<tr>
<td>10.30am - 11.00am</td>
<td>Morning Tea, Poster Displays &amp; Exhibition</td>
<td></td>
</tr>
</tbody>
</table>

Pushing the Boundaries
<table>
<thead>
<tr>
<th>Time</th>
<th>Room P8, Plaza Level</th>
<th>Room P9, Plaza Level</th>
<th>Room P10, Plaza Level</th>
<th>Room P11, Plaza Level</th>
</tr>
</thead>
</table>
| 11.00am - 12.30pm | **Concurrent Session 1 - Water Safety** sponsored by Royal Life Saving Society of Australia Session Chair: Amy Peden | **Concurrent Session 2 - Child Health and Safety**  
Estimating the burden of child drowning in the Indian Sundarbans: A novel, low-cost approach  
Medhanu Gupta, The George Institute for Global Health | **Concurrent Session 3 - Falls Prevention and Rehabilitation**  
Session Chair: Kirsten Vallmuur  
The influence of frailty on health outcomes following hip fracture  
Lara Harvey, Neuroscience Research Australia | **Concurrent Session 4 - Road and Transport Safety**  
Sponsored by the Motor Accident Insurance Commission  
Session Chair: Bridget Kool  
Social disadvantage and child passenger deaths in NSW – A ten year review  
Julie Brown, The George Institute for Global Health |
| 11.00am  | Using virtual reality to improve coastal water safety and hazard identification: A strategy for child drowning prevention  
Paola Aranzas, Swinburne University of Technology | A review of the effect of water competencies on drowning prevention in children 2 to 4 years  
Danielle Taylor, Royal Life Saving Society - Australia | Removing risk score from falls risk assessment does not impact patient falls  
Diana Clayton, Peninsula Health | Motorised mobility scooter-related injury: Pathways to action?  
Joan Ozi świec-Smith, Monash University |
| 11.30am  | The association between water, sanitation and hygiene conditions and drowning in Bangladesh  
Jason Chambers, Kidsafe Victoria | Community falls prevention presentations: Participants with high verses low knowledge  
Catherine Wold, Injury Matters | Agent-based modelling and mandatory helmet legislation: An investigation of downstream healthcare costs and benefits  
Ian Telchert, University of Melbourne |
| 11.45am  | A 10 year review of Australian unintentional fatal drowning incidents in lakes, dams and lagoons  
Danielle Taylor, Royal Life Saving Society - Australia | Analysing online forum discussions to explore the problem of infant falls  
Nipunaa Cooray, The George Institute for Global Health, University of New South Wales | Technology enabled models of care focused on patient education and primary care engagement in the recovery of fragility fractures: Meta-analysis and comprehensive systematic review  
Lail Yoldas, The University of Adelaide | Risky driver behaviours at school drop-off time and active school transportation in children across Canadian urban/suburban areas  
Alecon Macpherson, York University |
| 12.00pm  | High-risk populations for drowning in high income countries: Identifying a gap in the literature  
Suey Wilcox-Pidgeon, Royal Life Saving Society - Australia | Facilitators and barriers to child restraints use in motor vehicles: A rapid qualitative evidence syntheses  
Somyudroop Bhaumik, The George Institute for Global Health | Home ladder safety awareness and injury prevention program  
Jon Newman, Agency for Clinical Innovation | The impact of comorbidity on health outcome after a transport-related injury  
Stella Samoborec, Monash University |
| 12.15pm  | From research to practice: Applying social marketing methodology to address the awareness, attitudes and practices of recreational boaters in British Columbia, Canada  
Jennifer Smith, BC Injury Research and Prevention Unit | Keeping Western Australian children safe on our farms  
Anna Tsoutikov, Kidsafe WA | How well was an exercise-based falls prevention program for older Australians with vision impairment implemented? A process evaluation  
Lisa Dillon, The George Institute for Global Health | Using the Behaviour Change Wheel to develop a child car seat project in South Africa: A scoping project  
Kate Hunter, The George Institute for Global Health |
<p>| 12.30pm - 1.30pm | Lunch, Poster Displays &amp; Exhibition | Lunch, Poster Displays &amp; Exhibition | Lunch, Poster Displays &amp; Exhibition | Lunch, Poster Displays &amp; Exhibition |</p>
<table>
<thead>
<tr>
<th>Time</th>
<th>Room P8, Plaza Level</th>
<th>Room P9, Plaza Level</th>
<th>Room P10, Plaza Level</th>
<th>Room P11, Plaza Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.30pm - 3.00pm</td>
<td><strong>Concurrent Session 5 - Water Safety</strong>&lt;br&gt;Sponsored by Royal Life Saving Society of Australia&lt;br&gt;Session Chair: Stacey Pidgeon</td>
<td><strong>Concurrent Session 6 - Child Health and Safety</strong>&lt;br&gt;Session Chair: Kirsten Vaiimu</td>
<td><strong>Concurrent Session 7 - Falls Prevention and Rehabilitation</strong>&lt;br&gt;Session Chair: Lara Harvey</td>
<td><strong>Concurrent Session 8 - Road and Transport Safety</strong>&lt;br&gt;Sponsored by the Motor Accident Insurance Commission&lt;br&gt;Session Chair: Mohammed Aburumman</td>
</tr>
<tr>
<td>1.30pm</td>
<td>Sustainable implementation of the SwimSafe drowning prevention program in Bangladesh: Gender perspectives, impacts and influences&lt;br&gt;Medhavi Gupta, The George Institute for Global Health</td>
<td>Recognise and remove from play: Is the message getting across in sport and recreational-related activity for children and adolescents?&lt;br&gt;Andrew Fyfe, Sydney Children’s Hospitals Network</td>
<td>Reductions in the incidence of falls after first and second eye cataract surgery&lt;br&gt;Lisa Kray, University of New South Wales</td>
<td>Population-level use of comfort accessories by older vehicle occupants and effect on crashworthiness&lt;br&gt;Tom Whyte, Neurosciences Research Australia</td>
</tr>
<tr>
<td>1.45pm</td>
<td><strong>Breathalysing and surveying river users in Australia: Translating research into practice</strong>&lt;br&gt;Amy Pedon, Royal Life Saving Society - Australia</td>
<td><strong>Additional injury prevention criteria for impact attenuation surfacing used in children’s playgrounds</strong>&lt;br&gt;Hastl Hayali, University of Technology Sydney</td>
<td><strong>Eheath management and personalised health systems to support orthogeriatric services and promote patient well-being, engagement and rehabilitation (EMPOWER): A mixed methods study protocol</strong>&lt;br&gt;Lalit Yadav, The University of Adelaide</td>
<td><strong>A longitudinal study of socioeconomic status during youth and risk of car crash during adulthood</strong>&lt;br&gt;Hoiger Moeller, The George Institute for Global Health</td>
</tr>
<tr>
<td>2.00pm</td>
<td><strong>A decade of action on child drowning prevention in Thailand</strong>&lt;br&gt;Suchada Gerdmongkolgan, Bureau of Non-communicable Diseases</td>
<td>Evaluation of community coalition training effects on youth hospital-admitted injury incidence in Victoria, Australia: 2001 – 2017&lt;br&gt;Jannike Berecki Gischl, Monash University</td>
<td><strong>“It’s just a matter of adapting them accordingly”: Stakeholder perspectives of falls prevention for adults aged 50 years and above with vision impairment</strong>&lt;br&gt;Lisa Dillon, The George Institute for Global Health</td>
<td><strong>Hold the Rod: Innovative technology reducing the risk of crashes at signalised intersections</strong>&lt;br&gt;Peter Kolesnik, Queensland Transport and Main Roads</td>
</tr>
<tr>
<td>2.15pm</td>
<td><strong>NSW Study of Drowning and Near Drowning in Children (0-16 years)</strong>&lt;br&gt;Sue Wicks, Sydney Children’s Hospitals Network</td>
<td>Progress on the reduction and prevention of children fatally injured on farms&lt;br&gt;Kern-Lynn Peachey, AgHealth Australia</td>
<td>Comparing hospitalised trends, treatment cost and health outcomes of fall-related hip fractures in residential aged care and the community&lt;br&gt;Rebecca Mitchell, Macquarie University</td>
<td><strong>Exploring policy and support strategies to improve experiences of the VicRoads medical review process</strong>&lt;br&gt;Yee Wah Yam, Royal Automobile Club of Victoria (RACV)</td>
</tr>
<tr>
<td>2.30pm</td>
<td><strong>The effect of rural and remote residence on drowning rates: A review of the literature</strong>&lt;br&gt;Danielle Taylor, Royal Life Saving Society - Australia</td>
<td>You know your message but how well do you know your audience?&lt;br&gt;Louise Coxgrove, Kids and Traffic, NSW Early Childhood Road Safety Education Program, Macquarie University</td>
<td>Western Australian falls report: The incidence of fall-related injuries in 2017&lt;br&gt;Rachel Meade, Injury Matters</td>
<td><strong>Safe transportation of our community’s most vulnerable children</strong>&lt;br&gt;Jason Chambers, Kidsafe Victoria</td>
</tr>
<tr>
<td>2.45pm</td>
<td><strong>Severe and Fatal Paediatric Trauma in Queensland – Who is our most vulnerable population?</strong>&lt;br&gt;Bronwyn Griffin, Queensland University of Technology</td>
<td></td>
<td></td>
<td><strong>“My ideas are important too!”: Student perceptions of a transport safety education experience based on a critical pedagogical approach to learning</strong>&lt;br&gt;Janine Ferris, TrackSAFE Foundation</td>
</tr>
<tr>
<td>3.00pm - 3.30pm</td>
<td><strong>Afternoon Tea, Poster Displays &amp; Exhibition</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Room P8, Plaza Level</td>
<td>Room P9, Plaza Level</td>
<td>Room P10, Plaza Level</td>
<td>Room P11, Plaza Level</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------</td>
<td>----------------------</td>
<td>-----------------------</td>
<td>-----------------------</td>
</tr>
</tbody>
</table>
| 3.30 - 5.00pm | **Concurrent Session 9** - Injury Surveillance Methods  
Session Chair: Bridget Kool | **Concurrent Session 10** - Child Health and Safety  
Session Chair: Sue Wicks | **Concurrent Session 11** - Translating Research into Practice and Policy  
Session Chair: Rachel Meade | **Concurrent Session 12** - Road and Transport Safety  
Sponsored by the Motor Accident Insurance Commission  
Session Chair: Rebecca Ivers |
| 3.30pm     | Spatial and temporal variation in fatal and non-fatal drowning events across Victoria, Australia (2007 – 2016)  
Bernadette Matthews, Life Saving Victoria | A whole school approach to student safety, health and well-being in Western Australian schools  
Allison Haas, Road Safety and Drug Education Branch | Responsive surveillance for prevention policy: A case study of the lime scooter trial in Brisbane  
Kirsten Vallmuur, Queensland University of Technology and Jamieson Trauma Institute | What’s needed to improve the drug driving issue in Victoria?  
Yeeawh Yam, Royal Automobile Club of Victoria (RACV) |
| 3.45pm     | Which injured pedal cyclists are in crash data, and why?  
Angela Watson, Queensland University of Technology | When environmental solutions take too long: The vital role of education and enterprise in child injury prevention  
McKeely Donholm, Kidsafe SA | Pushing boundaries: Looking back, leapfrogging for injury prevention  
health promotion programs  
Russ Milner, Department of Health WA | Adding trains and trams to Safety Town: A government and not-for-profit road/rail education partnership  
pushing the boundaries in NSW  
Janine Finnis, TrackSAFE Foundation |
| 4.00pm     | Media as a tool for injury prevention advocacy: A drowning prevention case study from the Australian summer  
Amy Peden, Royal Life Saving Society - Australia | Swings and roundabouts - The making of child injury prevention policy in Aotearoa New Zealand: An exploration  
Julie Chambers, Chambers NZ | Biopsychosocial factors associated with non-recovery after a minor transport-related injury: A systematic review  
Stella Sambozec, Monash University | Keeping kids safe on the roads – Comprehensive road safety sessions for culturally and linguistically diverse (CALD) and Aboriginal community groups  
Stacie Powell, Kidsafe NSW |
| 4.15pm     | The effect of pre-crash health on post-crash recovery and claim outcomes after transport injury  
Catherine Niven, Queensland University of Technology | Engaging with local governments for injury prevention  
Emily Anderson, Injury Matters | Evaluation of Keys4Life Pre-driver Education in Western Australia Secondary Schools  
Allison Haas, Road Safety and Drug Education Branch |
| 4.30pm     | Biopsychosocial barriers affecting recovery after a minor transport-related injury: A qualitative study from Victoria  
Stella Sambozec, Monash University | Milestones in Childhood Safety Legislation  
Joan Pearn, Queensland Children’s Hospital | True collaboration does make a difference  
Susan Teords, Kidsafe QLD | Understanding the challenges of large agricultural vehicles use on roads: Pushing the boundaries towards improved road safety  
Richard Franklin, James Cook University |
| 4.45pm     | A systematic review and meta-analysis of impact speed and probability of pedestrian fatality or injury  
Jake Oliver, University of New South Wales | Right patient, right place? Where do seriously injured children receive care in Canada?  
Alison Macpherson, York University | How do you know your products safe?  
Ruth Barker, Queensland Injury Surveillance Unit | Getting serious about on-road bicycle use and safety  
George Rechnitzer, Victorian Institute of Forensic Medicine |
| 5.00pm     | **End of Day One** |
| 5.15 - 6.15pm | **Student Workshop - Translation of Research**  
Presenter: A/Professor Sharon Newmann, Monash University Accident Research Centre  
Sponsored by QUT’s Institute for Health and Biomedical Innovation |
**Tuesday 26 November 2019**

**Room P10 & P11, Plaza Level**

**Plenary Session Two**  
Session Chair: Associate Professor Kirsten Vilmur, Conference Program Convener, Queensland University of Technology

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.05am</td>
<td>Welcome Day Two &amp; House Keeping</td>
</tr>
</tbody>
</table>
| 9.10am     | Keynote Address: Social Marketing for Injury Prevention: Shift attitudes, transform behaviours, reduce injuries  
Dr Ian Pike and Jennifer Smith, University of British Columbia, Canada |
| 9.55am     | Keynote Address: Using Digital Health and Digital Technologies to Understand Injury Better – What are the opportunities?  
Dr David Hansen, CSIRO, Australia |
| 10.15am    | Morning Tea, Poster Displays & Exhibition                                |

<table>
<thead>
<tr>
<th>Time</th>
<th>Room P8, Plaza Level</th>
</tr>
</thead>
</table>
| 10.45am - 12.15pm | Concurrent Session 13 - Digital Applications and Innovations in Injury Prevention  
Session Chair: Russ Milner |
| 10.45am    | "bstreetsmart and beyond" – An outcome evaluation for behaviour change in adolescents transitioning to driving, using a smart-phone based app (BackPocketDriver)  
Lisa Sherwood, University of Sydney |
| 11.00am    | Using a Google Grant: Artificial intelligence for social good to establish a national suicide surveillance system  
Debbie Scott, Monash University |
| 11.15am    | Active & Safe Central: A resource to support the prevention of sport injury  
Sarah Richmond, Public Health Ontario |
| 11.30am    | Interactive Technology to Overcome Multilingual Boundaries: Industry Collaboration in a System Designed to Reduce Fatalities  
Jennifer Tichon, Queensland University of Technology |

<table>
<thead>
<tr>
<th>Time</th>
<th>Room P9, Plaza Level</th>
</tr>
</thead>
</table>
| 10.45am - 12.15pm | Concurrent Session 14 - Workplace Injury and Safety  
Session Chair: Kirsten Vilmur |
| 10.45am    | Creating safer workplaces: Learning from work-related fatal injury in New Zealand  
Rebecca Lillie, Injury Prevention Research Unit, University of Otago |
| 11.00am    | Work-related injury and illness among older truck drivers in Australia: A population based, retrospective cohort study  
Sharon Newman, Monash University |
| 11.15am    | Severe non fatal injuries to older farmers  
Jarrad Walker, The University of Sydney |
| 11.30am    | Which factors are associated with having yet another injury at work?  
Findings from a prospective cohort study in New Zealand  
Helen Harcombe, University of Otago |

<table>
<thead>
<tr>
<th>Time</th>
<th>Room P10, Plaza Level</th>
</tr>
</thead>
</table>
| 10.45am - 12.15pm | Concurrent Session 15 - Translating Research into Practice and Policy  
Session Chair: Kerrianne Watt |
| 10.45am    | Expansion of the OnLine Concussion Awareness Training Tool  
Sheila Babul, University of British Columbia |
| 11.00am    | Button batteries, the perfect product safety storm  
Ruth Barker, Queensland Injury Surveillance Unit |
| 11.15am    | The influence of program evaluation on the Keep Watch toddler drowning prevention program in Western Australia  
Rachel Murray, Royal Life Saving Society WA |
| 11.30am    | "The dignity of risk", and other lame excuses  
Ruth Barker, Queensland Injury Surveillance Unit |

| Time       | Concurrent Session 16 - Water Safety Sponsored by Royal Life Saving Society of Australia  
Session Chair: Bridget Kool |
|------------|--------------------------------------------------------------------------------------|
| 10.45am - 12.15pm | The more things change, the more they stay the same: Fatal drowning surveillance in 1894 and 2019  
Keesley Allen, Royal Life Saving Society Australia |
| 11.00am    | Read me a story - Keeping safe in the surf  
Louise Lambeth, Ocean Beach Surf Life Saving Club |
| 11.15am    | Drowning - Differential Diagnosis in Special Cases  
John Peaim, Queensland Children's Hospital |
| 11.30am    | Drowning mortality in 0-14 year olds, Victoria, Australia: A detailed epidemiological study 2001 - 2016  
Susan Chang, Monash University |
<table>
<thead>
<tr>
<th>Time</th>
<th>Room P8, Plaza Level</th>
<th>Room P9, Plaza Level</th>
<th>Room P10, Plaza Level</th>
<th>Room P11, Plaza Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:45 am</td>
<td>The concussion female athlete: Miserable minority or a missed opportunity</td>
<td>Theory and data tells us: An evidence-based approach to developing electrical safety</td>
<td>Coroner’s recommendations and responses for child drowning 0-14 years, Victoria,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Andrew Pyffe, Sydney Children’s Hospitals Network</td>
<td>campaigns</td>
<td>Australia, 2001 - 2016</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mohammed Aburumman, Monash University Accident Research Centre</td>
<td>Susan Chang, Monash University</td>
<td></td>
</tr>
<tr>
<td>12:00 pm</td>
<td>An innovative methodology to engage the voices of children and youth in improving</td>
<td>RAPID FIRE PRESENTATION (5MIN)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>community safety and injury prevention policy and programming</td>
<td>reducing serious injuries within trampoline parks</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jennifer Smith, BC Injury Research and Prevention Unit</td>
<td>David Eager, UTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:05 pm</td>
<td></td>
<td>RAPID FIRE PRESENTATION (5MIN)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>HOT DRINKS BURNS LIKE FIRE: Multi-lingual campaign to reduce scald injuries in children</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stacie Powell, Kidsafe NSW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:10 pm</td>
<td></td>
<td>RAPID FIRE PRESENTATION (5MIN)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>An application (app) for child drowning and road traffic injury prevention: Global</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Safety Zone</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Susan Chang, Global Safety Village</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:15 pm</td>
<td></td>
<td>RAPID FIRE PRESENTATION (5MIN)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Using hospital discharge data for injury research or surveillance? An observational</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>study illustrating the impact of administrative change</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:15 pm</td>
<td>Lunch, Poster Displays &amp; Exhibition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Australasian Injury Prevention Network Annual General Meeting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Room P11, Plaza Level, 12:30 pm - 1:00 pm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rooms P10 &amp; P11, Plaza Level</td>
<td>Plenary Session Three</td>
<td>Session Chair: Associate Professor Ioni Lewis, Queensland University of Technology</td>
<td>Rooms P10 &amp; P11, Plaza Level</td>
<td></td>
</tr>
<tr>
<td>1.15 pm</td>
<td>Invited Address: Behaviour Change in 2019: The Old and The New</td>
<td></td>
<td>Workshop: Building Research Teams and Your CV</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Associate Professor Peter Bragge, BehaviourWorks, Australia</td>
<td></td>
<td>Professor Rebecca Ivens, University of NSW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ian Forsyth, The Shannon Company, Australia</td>
<td></td>
<td>Associate Professor Julie Brown, The George Institute for Global Health</td>
<td></td>
</tr>
<tr>
<td>1.55 pm</td>
<td>Workshop: 90% of All Injuries are Preventable – Really?!?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dr Ian Pike, University of British Columbia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dr Alison McPherson, York University, Canada</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dr Ben Back, Monash University, Australia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3:15 pm</td>
<td>Express Afternoon Tea</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Room P8, Plaza Level</td>
<td>Room P9, Plaza Level</td>
<td>Room P10, Plaza Level</td>
<td>Room P11, Plaza Level</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| 3.30pm - 4.30pm | **Concurrent Session 17 - Trauma Care**  
Session Chair: Kerrianne Watt  
Asnaire Selaw, Monash University | **Concurrent Session 18 - Workplace Injury and Safety**  
Session Chair: Sue Wicks  
Raphael Grebieta, Monash University | **Concurrent Session 19 - Translating Research into Practice and Policy**  
Session Chair: Susan Teerds  
N2PATHS, University of Otago | **Concurrent Session 20 - Intentional Injury and Violence Prevention**  
Session Chair: John Pearn  
Rebecca Brookland, University of Otago |
| 3.30pm   | **Pre-injury health status of major trauma patients with orthopaedic injuries**  
Asnaire Selaw, Monash University | **In-field operator protective device safety survey of Australian and New Zealand workplace quad bike riders**  
Raphael Grebieta, Monash University | **A prospective investigation of barriers and facilitators to alternate transport use amongst older drivers**  
N2PATHS, University of Otago | **Why we need to know more about the health needs of victims and perpetrators of family and intimate partner homicide**  
Patria Cullen, University of New South Wales |
| 3.45pm   | **Potential survivability of prehospital injury deaths in New Zealand**  
Bridget Kool, University of Auckland | **Work-related motor vehicle traffic crash fatalities in NZ, 2008 - 2014: Occupational risks and opportunities to improve workplace road safety and reduce the road toll**  
Rebecca Liley, Injury Prevention Research Unit, University of Otago | **Using multiple data sources to inform non-fatal fire-related injury prevention efforts in New Zealand**  
Amy Richardson, University of Otago | **Identifying prevention points in firearm related suicide deaths in Tasmania**  
Debbie Scott, Monash University |
| 4.00pm   | **Access to advanced level hospital care from locations of injury resulting in prehospital trauma fatalities: Exploring patterns of survivability and road-trauma**  
Gabrielle Davie, Injury Prevention Research Unit | **3 steps workplaces can take to reduce chronic disease risk factors and improve injury outcomes**  
Roslyn Miller, Queensland’s Healthy Workers Unit | **Equity, social inclusion and human rights: Improving recovery outcomes in burns survivors, India**  
Jagnoor Jagnoor, The George Institute for Global Health | **Establishing the empirical evidence-base to develop a model for family homicide prediction**  
Lyndal Bugaja, Monash University |
| 4.15pm   | | **Causes of hospital-treated unintentional farm injuries, Victoria, 2008 - 2018**  
Jane Hayman, Monash University Accident Research Centre | **Burden of mental illness and substance use in patients with spinal trauma**  
Lisa Shanwood, University of Sydney | **Using ambulance clinical records to understand the relationship between violence, alcohol and other drugs, mental health and self-injurious thoughts and behaviours**  
Debbie Scott, Monash University |
| 4.30pm   | | | | **End of Day Two** |

**Meet for buses:**  
5.45pm  
Dinner: 6.15pm - 11.00pm

**Meeting Location:** Meet at the entrance of the Brisbane Convention & Exhibition Centre, Cnr of Merivale and Glenely Streets.  
Busse will return guest along progressively throughout the night from 10.00pm to the meeting point at BSEC.  
**Venue:** Cloudland, Fortitude Valley  
**Dress:** Cocktail
<table>
<thead>
<tr>
<th>Time</th>
<th>Room P8, Plaza Level</th>
<th>Room P9, Plaza Level</th>
<th>Room P10, Plaza Level</th>
<th>Room P11, Plaza Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.00am</td>
<td>Concurrent Session 21 - Alcohol and Drugs Related Injury Session Chair: Barbara Minuzzo</td>
<td>Concurrent Session 22 - Indigenous Injury Prevention Session Chair: Kazziah Bennett-Brook</td>
<td>Concurrent Session 23 - Injury Surveillance Methods Session Chair: Russ Milner</td>
<td>Concurrent Session 24 - Intentional Injury and Violence Prevention Session Chair: Debbie Scott</td>
</tr>
<tr>
<td>9.00am</td>
<td>&quot;Last-Drinks&quot; – Prospective Monitoring of Alcohol-related Injuries and Harms in Nine Australian Emergency Departments Peter Miller, Deakin University</td>
<td>Community led solutions to prevent Aboriginal child injury Melanie Anderson, University of New South Wales Tara Smith, Walgett Aboriginal Medical Service</td>
<td>Off the radar: Completing the missing pieces of the poisoning puzzle Jared Brown, Sydney Children’s Hospitals Network</td>
<td>Recognising and addressing unintentional injury inequities in Aotearoa, New Zealand Moses Atalini, Safekids Aotearoa</td>
</tr>
<tr>
<td>9.15am</td>
<td>The impact of alcohol and drugs on Australian coastal drownings Jaz Lawces, Surf Life Saving Australia</td>
<td>Does support received for subsequent injuries differ between Māori and non-Māori? Findings from a cohort study of injured New Zealanders Emma Wyeth, University of Otago</td>
<td>Spatially forecasting serious injury into the future Ben Beck, Monash University</td>
<td>Characteristics of victims attending Victorian hospitals due to assault by a stranger or multiple persons unknown, 2008 - 2018 Jane Hayman, Monash University Accident Research Centre</td>
</tr>
<tr>
<td>9.30am</td>
<td>Pathways to illicit drug overdose following a workplace injury in British Columbia, Canada Jennifer Smith, BC Injury Research and Prevention Unit</td>
<td>Inequities in Burns Injuries for Aboriginal and Torres Strait Islander Children Kate Hunter, The George Institute for Global Health</td>
<td>Evidence on injury burden: From data sources to surveillance system in India Jagnoor Jagnoor, The George Institute for Global Health</td>
<td>Identifying typologies among persons admitted to hospital for intentional self-harm in Victoria, Australia Angela Clapperton, Monash University</td>
</tr>
<tr>
<td>9.45am</td>
<td>Unintentional poisonings: The impact of Poisons Information Centres in reducing unnecessary healthcare utilisation Jared Brown, Sydney Children’s Hospitals Network</td>
<td>A 15 year analysis of drowning deaths among Australia’s First Nations (Aboriginal and Torres Strait Island) people Stacey Willcox-Pidgeon, Royal Life Saving Society - Australia</td>
<td>A review of the injury prevention workforce in Western Australia Catrina Widj, Injury Matters</td>
<td>Intentional drowning in Australia: Taking a public health approach for prevention Richard Franklin, James Cook University</td>
</tr>
<tr>
<td>10.00am</td>
<td></td>
<td></td>
<td>Can text mining and machine learning help reduce systematic review workload for injury researchers? Meita Glummarra, Monash University</td>
<td>Patterns of personal responsibility after major trauma Georgina Lau, Monash University</td>
</tr>
<tr>
<td>10.15am</td>
<td></td>
<td></td>
<td>Preventing Subsequent Injury: Healthcare Providers’ Perspectives on Untapped Potential Helen Harcombe, University of Otago</td>
<td>The clinical utility of a home-based Concussion Action Plan (CAP) in children and adolescents recovering from a sports or recreation-related concussive injury Andrew Fyffe, Sydney Children’s Hospitals Network</td>
</tr>
<tr>
<td>10.30am</td>
<td>Morning Tea, Poster Displays &amp; Exhibition</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Plenary Session Four

**Session Chair:** Dr Ben Beck, President, Australasian Injury Prevention Network

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Speaker/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00am</td>
<td><strong>Invited Address:</strong> The National Injury Prevention Strategy</td>
<td>Dr Lisa Studdert, Federal Department of Health, Australia</td>
</tr>
<tr>
<td>11:20am</td>
<td><strong>Invited Address:</strong> Mr Tim Trumper, NRMA</td>
<td></td>
</tr>
<tr>
<td>11:40am</td>
<td><strong>Keynote Address:</strong> Defining boundaries before pushing them - Improving road safety capacity and outcomes in Asia by working in partnership</td>
<td>Dr. Judy Fleiter, Global Road Safety Partnership, Switzerland</td>
</tr>
<tr>
<td>12:00pm</td>
<td>Safety 2020 Presentation</td>
<td></td>
</tr>
<tr>
<td>12:10pm</td>
<td><strong>Closing Remarks, Conference Wrap Up &amp; Awards</strong> Associate Professor Kerrianne Watt, Conference Chair, James Cook University</td>
<td></td>
</tr>
<tr>
<td>12:45pm</td>
<td>End of Day Three</td>
<td></td>
</tr>
</tbody>
</table>

### Room P8, Plaza Level

**from 1.00pm**

1.00pm - 5.00pm

**Injury Prevention in Queensland: Creating a Roadmap**

Hosted by The Jameson Trauma Institute

*Note: this event is separate to the AIHN Conference*


### Room P9, Plaza Level

1.15pm - 2.45pm

**Student Panel Discussion - Life During and After PhD**

A/Professor Bridget Kool, University of Auckland

A/Professor Janneke Berecki-Gisolf, Monash University

A/Professor Rebecca Mitchell, Macquarie University

A/Professor Richard Franklin, James Cook University

**Sponsored by QUT’s Institute for Health and Biomedical Innovation**

---

*This program is correct at time of printing. The organisers reserve the right to make necessary changes without notice.*
SCIENTIFIC REVIEW

For the purpose of this conference, all submitted abstracts were double-blind peer reviewed by an independent panel of scientific reviewers. Full papers were not required to be submitted.

The organising committee would like to thank all our reviewers for their efforts assessing abstracts for the 2019 AIPN Conference.

- Melanie Anderson  
- Shelina Babul  
- Ruth Barker  
- Ben Beck  
- Keziah Bennet-Brook  
- Soumyadeep Bhaumik  
- Rebecca Brookland  
- Jared Brown  
- Julie Brown  
- Lyndal Bugeja  
- Cate Cameron  
- Angela Clapperton  
- Louise Cosgrove  
- Patricia Cullen  
- Erica Davison  
- Lisa Dillon  
- Richard Franklin  
- Raphael Grebieta  
- Bronwyn Griffin  
- Lara Harvey  
- Helen Harcombe  
- Hasti Hayati  
- Jane Hayman  
- Jagnoor Jagnoor  
- Lisa Keay  
- Bridget Kool  
- Monique Kurdin  
- Ioni Lewis  
- Rebecca Lilley  
- Reidar Lystad  
- Alison Macpherson  
- Bernadette Matthews  
- Rachel Meade  
- Russ Milner  
- Barbara Minuzzo  
- Rebecca Mitchell
- Aleks Natora
- Joan Ozanne-Smith
- Amy Peden
- Sarah Richmond
- Rebecca Roebuck
- Stella Samoborec
- Pooria Sarrami
- Lisa Sharwood
- Debbie Scott
- Susan Teeords
- Kirsten Vallmuur
- Kerrianne Watt
- Tom Whyte
- Sue Wicks
- Alex Willcox-Pidgeon
- Lalit Yadav
ORGANISING COMMITTEE

CHAIRS

- Chair, Organising Committee: Associate Professor Kerrianne Watt, Associate Dean Research Education, Injury Epidemiologist, James Cook University
- Co-chair, Scientific Program: Dr Ben Beck, Deputy Head Prehospital, Emergency and Trauma Research, Monash University
- Co-chair, Scientific Program: Associate Professor Kirsten Vallmuur, MAIC Principal Research Fellow, Australian Centre for Health Services Innovation, Queensland University of Technology; and Jamieson Trauma Institute, Metro North Hospital and Health Service

ORGANISING COMMITTEE

- Mohammed Aburumman, PhD Candidate, Monash University Accident Research Centre - Student representative
- Ruth Barker, Director, Queensland Injury Surveillance Unit
- Associate Professor Cate Cameron, Principal Research Fellow, Jamison Trauma Institute, Metro North Hospital and Health Service
- Dr Bronwyn Griffin, Senior Research Fellow, Queensland University of Technology
- Associate Professor Ioni Lewis, Principal Research Fellow, Centre for Accident Research and Road Safety (CARRS-Q), Queensland University of Technology
- Rachel Meade, Injury Prevention Manager, Injury Matters
- Clare Murray, Conference Project Manager
- Emeritus Professor John Pearn AO, University of Queensland
- Dr Amy Peden, Lecturer, Injury Prevention, University of New South Wales
- Susan Teerds, CEO, Kidsafe Queensland
- Suzanne Wicks, Department Head, Kids Health Child Health Promotion Unit, Sydney Children’s Hospitals Network
- Melissa Wilson, Director, Safekids Aotearoa
PROFESSIONAL CONFERENCE ORGANISER

Iceberg Events
Phone: 07 3876 4988
Email: jodie@icebergevents.com.au
Website: www.icebergevents.com.au
CONTENTS PAGE

SCIENTIFIC REVIEW .................................................................................................................. 11

ORGANISING COMMITTEE ....................................................................................................... 13

CHAIRS ......................................................................................................................................... 13

ORGANISING COMMITTEE ....................................................................................................... 13

PROFESSIONAL CONFERENCE ORGANISER ............................................................................ 14

CONTENTS PAGE ....................................................................................................................... 15

WELCOME MESSAGE ................................................................................................................ 17

Welcome from the Australasian Injury Prevention Network (AIPN) ............................................. 17

Monday 25th November 2019 .................................................................................................... 18

Plenary Session One ................................................................................................................... 18

Concurrent Session 1 – Water Safety ......................................................................................... 20

Concurrent Session 2 – Child Health and Safety ..................................................................... 31

Concurrent Session 3 – Falls Prevention and Rehabilitation ..................................................... 41

Concurrent Session 4 – Road and Transport Safety ................................................................. 51

Concurrent Session 5 – Water Safety ......................................................................................... 60

Concurrent Session 6 – Child Health and Safety ..................................................................... 68

Concurrent Session 7 – Falls Prevention and Rehabilitation ..................................................... 76

Concurrent Session 8 – Road and Transport Safety ................................................................. 86

Concurrent Session 9 – Injury Surveillance ................................................................................. 96

Concurrent Session 10 – Child Health and Safety ................................................................. 105

Concurrent Session 11 – Translating Research into Practice and Policy .................................... 115

Concurrent Session 12 – Road and Transport Safety ............................................................... 123

Tuesday 26th November 2019 .................................................................................................... 132

Plenary Session Two .................................................................................................................. 132

Concurrent Session 13 – Digital Applications and Innovations in Injury Prevention .................. 135

Concurrent Session 14 – Workplace Injury and Safety ............................................................ 145

Concurrent Session 15 – Translating Research into Practice and Policy .................................... 154

Concurrent Session 16 – Water Safety ...................................................................................... 168

Plenary Session Three ................................................................................................................ 174

Concurrent Session 17 – Trauma Care ..................................................................................... 175

Concurrent Session 18 – Workplace Injury and Safety ............................................................. 181

15
Concurrent Session 19 – Translating Research into Practice and Policy ................................................................. 187
Concurrent Session 20 – Intentional Injury and Violence Prevention ................................................................. 194
Wednesday 27th November 2019 ............................................................................................................................... 201
Concurrent Session 21 – Alcohol and Drugs Related Injury ................................................................................... 201
Concurrent Session 22 – Indigenous Injury Prevention ....................................................................................... 208
Concurrent Session 23 – Injury Surveillance Methods ............................................................................................ 215
Concurrent Session 24 – Injury Surveillance Methods ............................................................................................ 224
Plenary Session Four ............................................................................................................................................... 233
Poster Presentations: Monday 25th – Wednesday 27th November 2019 ................................................................. 235
THANKING OUR SPONSORS & EXHIBITORS ........................................................................................................ 246
WELCOME MESSAGE

Welcome from the Australasian Injury Prevention Network (AIPN)


With a theme of Pushing the Boundaries, this conference will challenge the traditional injury prevention paradigms to examine future disruptions and opportunities for injury prevention. This will be explored through innovative technologies and changing digital societies, and new multisectoral strategies for partnerships across government portfolios, clinicians, practitioners, industry, researchers and community. I encourage you to take advantage of the sessions, conference social event, lunches and tea breaks, and use these opportunities for networking and interaction. I am grateful to our sponsors and exhibitors, as their support and contributions reduce the cost of your participation. I encourage you to visit each of our conference exhibitors and speak to them, and our sponsors, about their services, products and organisations.

I would like to thank our keynote speakers, workshop facilitators, presenters, session chairs and all who have worked to put this event together.

I would also like to extend my personal thanks to Dr Kerriane Watt, conference chair and Dr Kirsten Vallmuur, co-chair of the conference scientific program and members of the scientific and organising committees for assisting in shaping this conference. Along with the AIPN Executive Committee, each have worked tirelessly on creating this conference experience, and I am appreciative of all their hard work and expertise.

I hope you have a fantastic conference experience and enjoy all that we have planned for you!

Dr Ben Beck
President, Australian Injury Prevention Network
Deputy Head Prehospital, Emergency and Trauma Research
Monash University
Monday 25th November 2019

Plenary Session One

Keynote Speaker

Injury Control: Past, Present and Future, Dr. Frederick P. Rivara
Seattle Children’s Guild Endowed Chair in Pediatrics Research, Vice Chair and Professor of Pediatrics and Adjunct Professor of Epidemiology at the University of Washington

Injuries occur to 1.5 billion people worldwide each year with 55 million years of life with disability resulting. As deaths from communicable diseases fall, deaths from injuries are an increasingly large portion of all deaths. Deaths from injuries have decreased over time in HIC but may actually be increasing in LMIC with industrialization and increased number of motor vehicles.

Injury control encompasses the three phases of injuries: primary prevention, acute care treatment of injured patients, and rehabilitation to restore individuals back to optimal functioning. I will primarily focus in this talk on injury prevention, which has evolved over time. Early prevention efforts were mainly focused on determining risk factors for injuries, with many of these studies being purely descriptive epidemiology. However, more analytical studies were introduced fairly early in the history of injury prevention research, starting with Haddon’s 1961 case-control study of pedestrian fatalities in Manhattan, NY. The case-control approach has been used to study other injury problems, including firearm fatalities and association with gun ownership, child and older adult pedestrian injuries, falls in children and the elderly, child drowning, suicides and many other injury problems.

One of the advances in injury prevention has been to expand beyond so called unintentional injuries to also include homicides and suicides. In many parts of the world, these are leading causes of injury deaths and the same techniques to study and prevent unintentional injuries are also applicable to injuries from assault or self-harm.

While there have been a multitude of observational studies in injury control, the number of intervention trials using randomized controlled designs has been relatively small, especially when compared to other areas of health care and public health. There are some large scale notable exceptions (Steroids in TBI; Smoke detectors) but the number has been far too few.

Injury prevention in the future should focus on a number of different areas. The first is to better study the implementation of existing interventions, whether they be legislative/regulatory, behavioral or environmental. We know little about how well many interventions are implemented outside of research studies, and the degree in which suboptimal intervention contributes to limited effect. Second, injury prevention in all aspects should increasingly use technology: using huge data sets generated form electronic health records to identify those at risk or those who were injured; combining different datasets to maximize information gain especially on outcomes as well as risk factors; using technology to better assess implementation; and using technology as the primary tools for intervention. Finally, injury prevention requires a change in culture and a mind-shift into adopting the goal of zero trauma deaths.
Keynote Speaker

When redefining the endgame is the right thing to do, Professor Shanthi Ameratunga
University of Auckland, New Zealand

At this 14th AIPN Conference, it is reasonable to consider if injury prevention as a discipline has come of age. Or, could it be argued that the terms and practices that define our field have gone past their ‘use by’ date? The frameworks that injury prevention pioneers proposed decades ago have transformed our thinking and resulted in remarkable health gains. Yet, the annual toll of injuries - whether counted as deaths, hospitalizations, disability-adjusted life years, health care costs, productivity losses, or societal pain and anguish - is a relentless reminder of work yet to be done. More particularly, the successes we celebrate are rarely borne equitably across communities, within and between countries. Striking, and in many cases, increasing disparities in the distribution of injuries and their disabling impacts, speak to the neglect of systemic failures and entrenched behaviours that sabotage the ideals we seek. Our infrastructure, consultation processes and professional practices produce, reproduce, and amplify these inequities.

This presentation will provide a contemporary view of the social, structural and commercial determinants of injury using illustrative case studies. We will consider how translating evidence to equity-focused policy and practice can remain mere rhetoric unless the socio-political contexts in which we work, the power differentials we take for granted, and the concepts we choose to embrace or impose are explicit domains of enquiry. We will then take a deeper look at the types of knowledge we privilege; if, and how, we consider advantage, alienation, individual and institutional biases; and the power and silences inherent in public health data and outcome measures.

In summary, I will argue for a reframing of our objectives, acknowledging the strengths of a life course approach to injury prevention and safety promotion, the critical need for decolonising methodologies, and the broader remits of community wellbeing and resilience. Public policies, decision making practices, monitoring processes and equity targets that reflect the lived experiences and aspirations of communities whose voices are less heard are central to a sustainable agenda that leaves no one behind.
Concurrent Session 1 – Water Safety

Using virtual reality to improve coastal water safety and hazard identification: A strategy for child drowning prevention, Paola Araiza-Alba
Swinburne University of Technology

Co-authors:
Bernadette Matthews, Life Saving Victoria
Kate Simpson, Life Saving Victoria
Grace Strugnell, Life Saving Victoria
Therese Keane, Swinburne University of Technology
Jordy Kaufman, Swinburne University of Technology

Background

Drowning is a leading cause of death worldwide with the highest incidence of fatal and non-fatal drowning in children under 18 years of age. In recent years in Victoria, drowning deaths have been on the increase as have emergency department presentations and hospital admissions for drowning. Therefore, innovative solutions are required to engage the public in water safety. Virtual reality (VR) technology is one possible solution, providing an ability to visualise objects and scenes, that would otherwise be difficult or hazardous to experience in real life, such as, rip currents.

Aim

The aim of this study was to investigate the effectiveness of VR as a tool to enhance children’s learning about coastal water safety and hazard identification.

Methods

Children (n=182) aged 10 to 12 years were randomly assigned to participate in one of three instructional methods (VR, Video or Poster). Coastal water safety information was consistent across each method. A questionnaire was utilised to measure water safety knowledge pre- and post-session and retention measured at 1- and 8-week follow-up. Participants also completed the Intrinsic Motivation Inventory (IMI) to assess interest and enjoyment levels during sessions. Focus groups with school teachers were conducted to determine children’s engagement.

Results

One hundred and fifteen (63%) participants were included in the final analysis, of these 58% were female and the mean (SD) age was 10.95 (0.575). Overall 109 (94.7%) participants increased their learning scores (Mean=3.50, SD=0.178) after participating in the water safety learning session and retained their knowledge during the subsequent test at four and eight weeks. There was no difference in the level of water safety knowledge across the three conditions, however, participants in the VR sessions reported higher levels of interest and enjoyment than participants in the other instructional methods (91% of students in the VR group found the activity engaging vs 61% for video and 51% for the poster). Furthermore, feedback from the children’s teachers found that they felt VR was a useful, engaging and effective method of learning.
Discussion and conclusions

VR provides children with an engaging, immersive learning opportunity to experience the beach or ocean, while also empowering them with knowledge and skills on key coastal waterway safety elements, i.e. rip currents and reading safety signs.

How research pushes the boundaries

Children can learn via engaging technology about being caught in a rip current without having to be exposed to this hazardous situation in real life.

Theme: Water safety (including drowning), Presentation Type: Oral
A review of the effect of water competencies on drowning prevention in children 2 to 4 years, Danielle Taylor
Royal Life Saving Society - Australia

Co-authors:
Amy Peden, Royal Life Saving Society - Australia
Richard Franklin, James Cook University

Background

Australian children aged 2-4 years are over represented in drowning statistics. Water competencies are proposed as fundamental skills for children to reduce drowning risk. For evidence-based best practice to be established, there is a need to understand what water competencies are required (including age-appropriate developmental milestones) and how these competencies act to reduce drowning.

Methods

A systematic review was undertaken to identify and critically analyse studies relating to water competencies designed to prevent or reduce the severity of drowning events in children 2-4 years of age. This review followed the PRISMA guidelines and used the McMaster Critical Review approach to review papers.(1-3) English language peer-reviewed literature published between 1930-2018 were searched for skill acquisition and drowning risk. (7-9) The findings were applied against developmental milestones.(4-6)

Results

Data was extracted from twelve studies.(10-21) Key water competencies extracted were; propulsion/locomotion, flotation/buoyancy, submersion and water exits. Skill acquisition was achieved at an age appropriate level and was reported to hold benefit for the reduction of drowning risk, however evidence was limited. No studies were found on water competencies impact on the reduction of injury severity. Two studies explored of the relationship between competencies and neurodevelopmental readiness, where age was an important predictor. No study showed that participation in swimming lessons increased drowning risk. Limitations include small number of studies and participants, lack of consistent terminology, inconsistent outcome measures and lack of comparisons.

Discussion and Conclusions

Evidence is necessary to formulate effective policy that reduces drowning risk. Early exposure to new skills, while not immediately used, provide the benefit for future learning.(11) Developmental readiness to learn motor skills has been studied, however no study has linked the optimal readiness for a child to learn water competencies.(20,22,23) Understanding developmental readiness of the paediatric population to learn specific water competencies is needed, adding to the argument that water competencies should be classed as a fundamental movement in childhood development.

How research pushes the boundaries

There is a common acceptance in the learn to swim industry that children should learn water safety skills from an early age (6 months onwards) and this will prevent drowning. This study challenges this assumption by undertaking
a systematic review to validate the usefulness of water competencies skills in 2-4 year olds. Further understanding into the neurodevelopmental readiness to acquire each skill is needed.

Theme: Water safety (including drowning), Presentation Type: Oral
The association between water, sanitation and hygiene conditions and drowning in Bangladesh, Jagnoor Jagnoor

The George Institute for Global Health

Co-authors:
Medhavi Gupta, The George Institute for Global Health
Kamran Ul Baset, Centre for Injury Prevention and Research
Daniel Ryan, Royal National Lifeboat Institution
Rebecca Ivers, University of New South Wales
Aminur Rahman, Centre for Injury Prevention and Research

Background

Bangladesh experiences a particularly high rate of drowning, causing 43% of deaths for children aged 1-4 years. Limited analysis has been conducted to date to understand how specific water, sanitation and hygiene (WASH) facilities, such as drainage coverings and access to piped water, may influence the risk of drowning. The present study investigates associations between WASH factors and fatal and non-fatal drowning events in Bangladesh.

Methods

Here we report findings from a large household survey (89,700) conducted in Barisal Division of Bangladesh. Questions for data collection were adapted from the validated Bangladesh Demographic Health Survey (BDHS), which is used to determine health outcomes and other socioeconomic indices across Bangladesh. Questions relating to WASH were extracted for the present study.

Results

Both fatal drowning and non-fatal drowning events were associated with accessing surface water for household needs, such as unprotected wells, open ponds, and rain water. Univariate analyses showed that the use of surface water rather than piped water was associated with an increased risk of both fatal and non-fatal drowning events. Multivariate analyses showed odds risk of 1.9 (CI 1.5-2.2; p <0.0001), for fatal drowning with households for surface water vs piped water access for households. Additionally, increased risk of non-fatal drowning events was associated with shared toilet facilities, lack of toilet facilities, and non-cemented flooring such as bamboo and wood.

Discussion and conclusion

The findings support the hypothesis that improving access to WASH may reduce exposure to drowning hazards and subsequent risk. These findings suggest that there is potential to reduce drownings in low income countries through work to improve WASH facilities and that reduced drowning risk may be considered a positive outcome of WASH programmes that reduce reliance on surface water.

How did the research push the boundaries

This research is novel in looking at upstream social determinants that impact exposure to natural water bodies and thus risk to drowning. It promotes multi/inter-sectoral action for drowning reduction in Bangladesh.

Theme: Water safety (including drowning), Presentation Type: Oral
A 10 year review of Australian unintentional fatal drowning incidents in lakes, dams and lagoons,

Danielle Taylor
Royal Life Saving Society – Australia

Co-authors:
Amy Peden, Royal Life Saving Society – Australia
Richard Franklin, James Cook University

Background
Exploring location specific drowning deaths allows for targeted prevention initiatives. Rivers, beaches and backyard swimming pools have been explored (1-2), however little is understood about lakes, dams and lagoons. This study aimed to determine the prevalence of drowning deaths in lakes, dams and lagoons, identify high-risk populations and risk factors to inform prevention strategies.

Methods
A total population survey of all unintentional drowning deaths in Australian lakes, dams or lagoons between 1-July-2008 to 30–June-2018 were extracted from the National Coronial Information System for analysis.

Results
There were 255 lake, dam and lagoon drowning deaths; 129 lake, 113 dam and 13 lagoon. This is an annualised crude rate of 0.11 per 100,000 population. Over one third (66%) of the cases related to the agricultural industry, 70.5% of all dams. Risk factors included; male (87.5%), consumption of alcohol (30.6%), fall into water (21.6%) and swimming/recreating (20.4%). As rurality increased, so did the crude drowning death rate; major cities 0.04 per 100,000 population/annum compared to remote (0.51) and very remote (0.75). CPR was only attempted in 23.9% of cases. The age distribution of dams displayed a bimodal distribution with young children and elderly over represented. For children risk factors included, indirect supervision, work related activities of the responsible guardian and lack of effective barriers between the dam and the child were common factors.

Discussion and Conclusions
Each location has a unique set of behavioural patterns that will need to be targeted to reduce drowning – for example a child walking off at a picnic at a lake, or safe-play area on farms. Dams on agricultural farms propose a unique risk for young children. CPR training is both needed and important as is insuring appropriate training for emergency services and access to locations (including location descriptors). Time taken to find drowning victim significantly impedes survival. Alcohol is a contributor and further work around effective strategies to reduce drowning are required.

How research pushes the boundaries
While location specific risk factors and prevention strategies have been established for rivers, there is little research to determine if the prevention strategies are transferable to the lakes, dams and lagoons. The development of effective prevention strategies are required noting that supervision and visibility strategies will be challenging. A detailed analysis of population data, like this study provides, helps guide advocacy for future drowning prevention strategies in the given environment.
Theme: Water safety (including drowning), Presentation Type: Oral
High-risk populations for drowning in high income countries: Identifying a gap in the literature, Stacey Willcox-Pidgeon
Royal Life Saving Society - Australia

Co-authors:
Richard Franklin, James Cook University
Dr Peter Leggat, James Cook University
Dr Sue Devine, James Cook University

Introduction

Drowning among children has declined over the past 20 years, however, adults have been less prone to reductions in drowning. It has been hypothesised that this is due to injury prevention strategies failing to account for the influence of social determinants (such as ethnicity, socio-economic status, and level of education). Ethnicity/race is one determinant that significantly impacts health outcomes. High-risk populations such as ethnic minorities are overrepresented in injury statistic, however, this is not well explored in drowning literature. The aim of this study was to identify within the drowning literature high-risk populations, risk factors and characteristics.

Methods

A systematic literature review using the PRISMA approach was undertaken of peer-reviewed literature in English, published between 1-January-1980 and 30-April-2018 from high income countries. Search terms included drowning, water safety, ethnic minority, migrant, culturally diverse and vulnerable populations.

Results

A total of 35 articles were included in the review. The majority (71%) of studies were quantitative study designs. Three themes emerged: characteristics, risk factors, prevention strategies. High-risk populations identified: ethnic minorities, Indigenous/Aboriginal people, migrants, and rural residents. Most (51%) studies focused solely on children (0-18 years). Risk factors were social determinants, swimming ability and knowledge, attitudes and behaviour. Four intervention studies were found. A range of prevention strategies were proposed, ranging from education-based, practical skills, research, community engagement and policy.

Discussion

Ethnic-minority populations, including Indigenous/Aboriginal peoples, migrants, and rural residents were reported as being of high-risk for drowning, however, it is unclear from the literature as to the reasons why. Limited literature exists pertaining to drowning among adults in high-risk populations. Social determinants were a key risk factor across these high-risk populations, yet are very rarely addressed in interventions despite the recommendations proposed in the literature. Only four articles explored evidence-based, evaluated interventions targeting high-risk populations. To improve drowning, and injury prevention outcomes for high-risk populations globally, effective, evidence-based interventions are needed.

Conclusion

Social determinants need to be considered at the individual and community level, and incorporated into policy to practice to achieve meaningful change. A balance between respecting cultural values, traditional knowledge and
providing factual based education through culturally appropriate methods should be considered when developing injury prevention strategies.

Acknowledgement: This research is supported by Royal Life Saving Society – Australia. The drowning prevention research of Royal Life Saving Society – Australia is supported by the Australian Government.

Theme: Water safety (including drowning), Presentation Type: Oral
From research to practice: Applying social marketing methodology to address the awareness, attitudes and practices of recreational boaters in British Columbia, Canada, Jennifer Smith

BC Injury Research and Prevention Unit

Co-authors:
Tessa Clemens, Drowning Prevention Research Centre
Alison Macpherson, York University
Ian Pike, University of British Columbia

Context

In British Columbia (BC), Canada, one-third of fatal drownings are related to recreational boating. Not wearing a lifejacket and consuming alcohol are widely-established risk factors for recreational boating-related deaths and injuries; however, compliance among boaters remains low in BC. Baseline survey data of 400 recreational boaters aged 18-55 showed that boaters were somewhat concerned about safety, but believed that other boaters are more at risk than themselves. Most reported that they take safety precautions, but not consistently. One-third consumed alcohol and 1/5 consumed cannabis when boating; very few considered themselves to be at elevated risk of injury.

Objectives

This project was undertaken to understand the safety-related awareness, attitudes and behaviours of recreational boaters in BC, then develop and implement a targeted social marketing campaign to increase safe practices among boaters and reduce serious injuries and deaths. Rather than duplicate efforts, this project sought to leverage a multi-sectoral partnership to develop and deliver the campaign.

Key messages

The campaign comprised four main messages. The overarching message conveyed the concept that drowning is preventable. The other three messages pertained to lifejacket wear, alcohol consumption and having the required equipment on board. All four messages were designed in such a way as to acknowledge and respect the existing injury prevention knowledge of the intended audience, and challenge the attitude “it’s not going to happen to me” without attempting to shock or shame them into changing their behaviour.

Discussion and conclusions

Baseline data indicated that boaters have high awareness of but inconsistent compliance with safety practices related to alcohol and lifejacket wear. In addition to demographic and exposure information, boaters were asked about safety concerns, beliefs and practices, including alcohol or cannabis consumption and lifejacket wear. The survey will be repeated following Year 2 of the campaign in September 2019. Responses will be compared pre- and post-campaign, as well as between respondents who have seen the campaign and those who have not.

Pushing the boundaries

The campaign was delivered province-wide through social media, signage, digital ads and in-person engagement activity. Messages were displayed when and where boaters were consuming contextually-relevant content, using print and digital media. The strategy also included face-to-face conversations between recreational boaters and
partner organization volunteers on the water. The communication strategy ensured that boaters would see the campaign on their way to and at the marinas, online and on the water.

Theme: Water safety (including drowning), Presentation Type: Oral
Concurrent Session 2 – Child Health and Safety

Estimating the burden of child drowning in the Indian Sundarbans: A novel, low-cost approach, Medhavi Gupta
The George Institute for Global Health

Co-author:
Jagnoor Jagnoor, The George Institute for Global Health

Background

The Sundarbans in India are home to 4.5 million people living in high-risk conditions for drowning. According to the 6SQuID Framework, designing effective community-based programs requires identifying the nature of the problem. There is limited data on drowning mortality in the Sundarbans, in particular for groups hypothesised as the most vulnerable: children aged 1-4 and 5-9 years old. Barriers to measuring drowning mortality rates in this region include limited resources and difficult geographic conditions.

Aim

This project seeks to determine the rate of deaths by drowning in children aged 1-4 and 5-9 years old in the Indian Sundarbans. It will utilise the novel low-cost Community Knowledge Approach (CKA) which mitigates some of the barriers to data collection.

Methods

The CKA is a novel method to measure incidence in rural communities and is being applied to injury for the first time. Data collectors identify cases of drowning through engagement with communities which are then validated by the identified households. A survey will be conducted with households of verified drowning deaths to identify common risk factors. The survey will be conducted May to July 2019.

Results

Results for the survey are not yet available. Analysis will conclude before the conference commences. Mortality rates and risk factors will be reported for 1-4 and 5-9 year olds.

Discussion and conclusions

This work will inform the development of drowning reduction strategies. Additionally, the results will be used to engage policy makers and bring drowning to the health agenda. This will be the first application of the CKA in injury rate estimation, providing insights into the specific challenges and advantages of the approach.

How this research pushes the boundaries

This is the first application of the community knowledge approach to measuring the burden of injury. In particular, it will provide guidance to future researchers on the challenges and benefits of using this approach in a rural LMIC context.

Theme: Injury in vulnerable populations, Presentation Type: Oral
Paediatric spinal injury hospitalisations in Australia over a 10-year period: A nationwide population-based cohort study of incidence, costs and temporal trends, Reidar Lystad
Macquarie University

Co-authors:
Soundappan Soundappan, The Children’s Hospital at Westmead
Professor Kate Curtis, University of Sydney
Rebecca Mitchell, Macquarie University

Background

Traumatic spinal injury is often associated with long-term disability and high medical costs. There has been no comprehensive examination of the national burden of traumatic spinal injury in Australian children to date. This information is vital for priority-setting, resource planning, and evaluating the impact of traumatic spinal injury prevention initiatives.

Aims

To quantify and describe the incidence, hospital treatment costs, and temporal trends of traumatic spinal injury hospitalisations in Australian children over a 10-year period.

Methods

This population-based cohort study used linked hospitalisation and mortality data of children aged ≤16 years who were hospitalised for traumatic spinal injury in Australia from 1 July 2002 to 30 June 2012. Age-standardised incidence rates were calculated with 95% confidence intervals (CI). Negative binomial regression was used to examine temporal trends in annual incidence rates.

Results

There were 4,120 hospitalisations for traumatic spinal injury during the 10-year study period, including 13 deaths within 30 days of admission. The most common type of injury was spinal fracture (55.1%), followed by spinal dislocations, sprains and strains (32.2%) and spinal cord injury (10.0%). Boys and older children (11–16 years) accounted for 61.7% and 74.7% of hospitalisations, respectively. The overall annual incidence rate was 8.9 (95%CI: 8.6, 9.2) per 100,000 population. The annual percent change in the incidence rate was estimated to be 1.1% (95%CI: -0.2%, 2.5%) during the 10-year study period. The estimated total hospital treatment costs were $42.2 million, with an estimated mean cost per child of $10,326. The mean cost per child was $36,526 for spinal cord injuries, $9,811 for fractures, and $3,705 for dislocations, sprains and strains.

Discussion and conclusions

More than 400 Australian children are hospitalised for spinal injury each year, and the societal burden of these preventable injuries is relatively high. The incidence of hospitalisations for traumatic spinal injury in Australian children appear to be on the rise, especially among girls and children aged 6 years or older. Developing and implementing strategies to prevent paediatric spinal injury should be a national priority in Australia.

How research pushes the boundaries
This is the first study to report comprehensive, nationwide estimates of the incidence, costs, and trends of hospitalisations for spinal injury in Australian children.

*Theme: Child health and safety, Presentation Type: Oral*
Kidsafe Victoria's Online Child Injury Prevention Learning Module for Maternal and Child Health Nurses,

Jason Chambers
Kidsafe Victoria

Co-author:
Melanie Courtney, Kidsafe Victoria

Context

The Maternal and Child Health (MCH) service is a free service for Victorian families. Families visit MCH nurses at ten key stages of their child’s development with the visits focusing on child and family wellbeing, including child injury prevention.

There are regular and significant changes in the child injury prevention space due to new research, legislative change (e.g. Australian Standards), best practice recommendations and emerging issues (e.g. button batteries), which makes it a complex area to remain up to date on. Considering MCH nurses are often the only health worker that has regular interaction with new parents and families, it is imperative that they are provided with up to date, accurate and relevant safety information on critical issues, so that they are able to effectively engage parents and carers in learning about and discussions on child injury prevention.

This project involved the development of an interactive online learning module and child injury prevention reference guide for Victoria’s MCH workforce, to assist them to effectively perform their role and confidently provide up to date injury prevention information and advice.

Objectives

To develop an online learning module for Victoria’s MCH workforce that would assist in:

- Increasing their knowledge about the common causes of unintentional childhood injuries (including emerging issues) and strategies that can be put in place to prevent these injuries from occurring
- Increasing their knowledge about current Australian Standards, legislation and best practice recommendations relating to children’s products and child injury prevention
- Increasing their knowledge about the range of child injury prevention information, tools and resources available to assist them in their role
- Strengthening the MCH workforce as a source of reliable and up to date information on a range of infant and child health issues

Key messages

The online learning module covers all areas of child injury prevention, providing information and advice on the common causes of childhood injuries, case study examples of childhood injuries, tips and advice for the prevention of childhood injuries and useful links. The key messages are delivered in a variety of engaging mediums including videos, infographics, stories, interactive images and knowledge quizzes.

Discussions and conclusions

This paper will discuss all aspects of the project including the development, design and evaluation of the online learning module.
This project pushes the boundaries by exploring new ways to deliver child injury prevention learning and professional development opportunities to the Victorian MCH workforce.

Theme: Child health and safety, Presentation Type: Oral
Analysing online forum discussions to explore the problem of infant falls, Nipuna Cooray
The George Institute for Global Health, University of New South Wales

Co-authors:
Si Sun, University of New South Wales
Catherine Ho, Neuroscience Research Australia
Susan Adams, Sydney Children's Hospital
Antonia Shand, Royal Hospital for Women
Professor Lisa Keay, The George Institute for Global Health
Natasha Nassar, University of Sydney
Julie Brown, The George Institute for Global Health

Background
In Australia, falls account for almost half of all injury-related hospitalisations in children aged <1 year. Despite the widespread and potential for lifelong consequences, there has been little attention to the study of falls in this specific age group. Most studies examine falls over the wider 0-5 age range yet infants <1 year are mostly not independently mobile. Preventing falls in children <1 year likely requires parental behaviour change. Detailed understanding of what modification is required is a necessary first step in intervention development but this level of detail is generally not available. Online parental forum discussions of injury incidents might be a good source of evidence in this case.

Aims
To qualitatively explore fall mechanisms and causative factors using parental discussion of fall incidents using forums of a major Australian online parenting website.

Method
The study (HC180295) was approved for ethics by UNSW HRec committee. Site-specific search queries with terms “baby, falls, fell, drop, dropped down, fallen, fell over”, were used to identify possible infant fall discussions from an online parenting forum and these (n=450) were downloaded using a custom-written programming script. Discussions with age specifically mentioned, the word ‘newborn’ or something similar, or discussions from forums specifically for children 0-12 months were manually selected for analysis. Near fall incidents were also considered for analysis. Selected discussions (n=350) were classified by fall mechanisms and an inductive content analysis approach was used to identify factors common to each fall mechanism. Nvivo software was used for qualitative coding.

Results
The most common mechanism discussed was falls from household furniture. Discussions related to falls occurring when the infant had been dropped by the caretaker and from baby products were also common. Reported parental behaviours preceding falls included leaving infant alone on higher surfaces, falling asleep while nursing baby, lapses in attention, misuse of baby products and parental trips and slips. Rapid developmental changes occurring during this early period of life also played a role in many of the discussed falls.

Discussion and conclusions
This study provides important detailed insight into parental behaviours and awareness preceding falls in the first 12 months of life. This is being used to define target behaviours requiring modification to address common fall mechanisms affecting children in this age range.

How research pushes the boundaries

This study provides new detailed insight into parental behaviours preceding falls specifically among children less than 12 months using a novel research method.

Theme: Child health and safety, Presentation Type: Oral
Facilitators and barriers to child restraints use in motor vehicles: A rapid qualitative evidence syntheses,

Soumyadeep Bhaumik
The George Institute for Global Health

Co-authors:
Kate Hunter, The George Institute for Global Health
Richard Matzopoulos, University of Capetown
Megan Prinsloo, South African Medical Research Council
Rebecca Ivers, The George Institute for Global Health
Margaret Peden, The George Institute for Global Health

Background

Road traffic injuries (RTI) contribute a significant burden of mortality and morbidity to children globally. Improper or the non-use of child restraints is an important risk factor to road traffic injuries in children. Systematic reviews on the effectiveness of various interventions to increase the use of child restraints already exists but to the best of our knowledge, there is no qualitative evidence syntheses on the facilitators and barriers to child restraint usage.

Methods

We searched for qualitative studies, which focussed on perceptions, values and experiences of children, parents/caregivers or any other relevant stakeholders on the use of restraints for children travelling in motor vehicles in PubMed, EMBASE and Global Health and screened reference lists of all included studies. We assessed the quality of included studies by the CASP checklist and used the PROGRESS Plus lens for an equity focussed analysis.

Results

We identified a total of 335 records from searching the databases and 5 records from other sources. After screening, we identified 17 studies that met our inclusion criteria. All except one study (which had children as participants) focussed on the perceptions, attitudes, and barriers of parents or caregivers. The included studies were from three high-income (n=14) and one upper-middle income country (n=3). In addition, although many focussed exclusively on participants from culturally and linguistically diverse minorities but did not address the issue of equity well. Five major themes emerged from the analysis; (1) Risk perceptions were low and differed between mothers, fathers and other caregivers and for different types of journeys (2)Parents did not recognize child restraints as a credible or practical safety measure. (3) Restraint use is considered as a mechanism to discipline children rather than a safety device by parents and as children became older they actively sought opportunities to negotiate non-usage of restraint. (4) Adoption and enforcement of laws affected perceptions and usage in all settings.(5) Perceptions and norms of child safety differed amongst culturally and linguistically diverse groups.

Discussion & Conclusions

The results of this systematic review might be considered for designing interventions to promote the uptake of child restraints and inform policy and practice

How research pushes the boundaries
The study shows need to conduct qualitative research around the facilitators and barriers to child restraint usage in low-and middle-income countries, in semi-urban and rural areas and to involve fathers, policy makers, implementers and enforcement agencies in such studies.

Theme: Child health and safety, Presentation Type: Oral
Keeping Western Australian children safe on our farms, Anita Tsvetkov

Kidsafe WA

Kidsafe WA have been operating in Western Australia for 40 years. Our mission is to promote safety and prevent childhood injuries in Western Australia. Childhood farm injuries are a significant public health issue in Western Australia, with the farm remaining a unique and high risk setting for childhood injury. For many families the farm is considered both a home and workplace, which exposes numerous hazards to children including bodies of water, unique vehicles, heavy machinery, equipment, and animals. Although there are many benefits to living within a farming environment, it is important to be aware of the hazards and the safety measures that should be taken to prevent farming injuries to children.

Due to the size and diversity of Western Australia, it is important to tailor child injury prevention resources for different communities we work within. As many Western Australians live in farming environments, it is essential to raise awareness about farm safety to reduce the risks of injuries to children. However, as many farms also attract visitors, it is also important for those living outside farming communities to be educated on farm safety, as they may not be aware of the unique risks found on farms or how to protect against these hazards. As there are specific tasks and routines that are required to operate a farm, Kidsafe WA faces the challenge and pushes the boundaries of encouraging farming communities to make environmental and behaviour changes to reduce the risk of farm injuries to children.

To achieve this Kidsafe WA has developed a number of resources to assist with educating the Western Australian community on how to reduce the risk of farm related childhood injuries. These resources are designed to be tailored to the various farming communities in our state. This presentation will provide an overview of the farm safety resources Kidsafe WA has developed, and the work being done in both metropolitan and regional communities to reduce the risks of farming injuries to children in Western Australia.

Theme: Child health and safety, Presentation Type: Oral
The influence of frailty on health outcomes following hip fracture, *Lara Harvey*
*Neuroscience Research Australia*

**Co-authors:**
*Ian Harris, South Western Sydney Clinical School, UNSW*
*Rebecca Mitchell, Australian Institute of Health Innovation, Macquarie University*
*Ian Cameron, Sydney Medical School, University of Sydney*
*Jacqueline Close, Neuroscience Research Australia*

**Background**
Frailty is an important medical syndrome which impacts between 25-50% of adults over 85 years. It is increasingly recognised as a risk factor for adverse health outcomes, separate from age, sex and comorbidities.

**Aims**
To evaluate the impact of frailty on three outcome measures following hip fracture: 30-day mortality, prolonged acute-care length of stay (LOS >75th quartile) and 28-day unplanned readmission.

**Methods**
Hospitalisation and death data for individuals aged >50 years admitted to a NSW hospital for hip fracture between 2007-2017 were linked. The frailty score was calculated using the Gilbert Hospital Frailty Risk Score (HFRS) and categorised as low (<5), intermediate (5-15) and high (>15). The Charlson Comorbidity Index (CCI) was calculated using the Quan coding algorithm. A two-year lookback period was used. Logistic regression was used to assess the association of frailty with the three outcome measures adjusting for age, sex and CCI. To assess model fit, area under the receiver operating curve (AUC) and Akaike information criterion were calculated.

**Results**
For the 55,871 patients (mean age 82.3 + 9.9 years) just under a quarter (23.3%) were categorised as low, 41.3% as intermediate and 35.4% as high frailty. Multivariable regression showed that frailty was independently associated with 30-day mortality (intermediate OR 1.3; 95%CI 1.1-1.5, high OR 1.4; 95%CI 1.2-1.6), prolonged LOS (intermediate OR 1.8; 95%CI 1.7-1.9, high OR 2.5; 95%CI 2.4-2.7) and 28-day readmission (intermediate OR 1.4; 95%CI 1.3-1.5, high OR 1.8; 95%CI 1.6-2.0). The addition of frailty did not improve model performance above that achieved by adjusting for age, sex and CCI (AUC 0.74, both models). All models had poor ability to predict prolonged length of stay (AUC range 0.55-0.62) or 28-day readmission (AUC range 0.55-0.61).

**Conclusion and discussion**
Frailty is independently associated with all three outcome measures. However, although the HFRS was developed to identify individuals with characteristics of frailty who are at risk of adverse outcomes, adjusting for frailty did not improve prediction of 30-mortality in our population and neither frailty nor CCI score were useful for predicting prolonged hospital stay or 28-day readmission.
How research pushes the boundaries

This the first study to assess the impact of frailty on health outcomes for hip fracture patients at the population level. While the HFRS measure of frailty did not improve risk prediction models in our cohort, it may be useful in identifying patients at the point of hospital admission for whom a frailty-attuned approach to care will be

*Theme: Falls prevention and rehabilitation, Presentation Type: Oral*
Removing risk score from falls risk assessment does not impact inpatient falls, Diana Clayton
Peninsula Health

Co-author:
Joanna Jellett, Peninsula Health

Introduction

Scored screening tools are frequently used to allocate falls risk scores in inpatient settings. In 2016, NICE Guidelines recommended not using a screening tool.

The primary aim of this research was to determine if removing scored falls risk status allocation from the Falls Risk Assessment Tool (FRAT) affected the rate of falls. Secondary aims included determining if there was an effect on falls with serious harm, if this change impacted completion rates of the FRAT, and any time taken to complete FRAT documentation.

Method

A prospective, stepped wedge cluster randomized control trial was undertaken within four hospitals at one health service with nine ward clusters. The intervention was the monthly removal of documentation including a FRAT score allocation which placed patients in a High, Medium or Low risk of falls. Falls rates were extracted from hospital data at a rate of falls per bed days. FRAT completions were extracted from random file audits of control and intervention wards. Staff provided an estimated time taken for FRAT completion in paper based surveys.

Results

There was no difference between rate of falls per month, per ward between control and intervention conditions (IRR = 0.84, 95%CI=0.67, 1.05, p=0.14 and favoured the intervention). Similarly, there was no difference between control and intervention conditions for rate of falls with serious injury or death per month per ward (IRR=0.90, 95%CI=0.26, 3.09, p=0.87). There was no difference in FRAT completions at intervention and control clusters (p>0.05). Staff reported a small but non-significant decrease in time taken to complete the modified FRAT from a mean (SD) of 5.34(3.31) to 3.07 (2.39) minutes.

Conclusion

These finding indicate that health care services can remove scored components of the FRAT. Future research should consider more extensive methods of collecting completion rates, and time taken for completion.

Theme: Falls prevention and rehabilitation, Presentation Type: Oral
Community falls prevention presentations: participants with high verses low knowledge, Catrina Wold
*Injury Matters*

Co-authors:
*Rachel Meade, Injury Matters*
*Roisin Sweeney Sweeney, Injury Matters*

Background

Increasing community knowledge and awareness of falls prevention is an important component of a comprehensive strategy to reduce falls and falls-related injuries in Western Australia (WA). To increase older adult awareness of falls prevention, Injury Matters, in partnership with the Department of Health WA, provides peer education presentations to older adults through the Stay On Your Feet® program. The peer presentations are delivered by trained older adult peer educators and are based on adult learning theories and behaviour change methods. The following presents results from the process evaluation of the Stay On Your Feet® peer presentations.

Aim

To assess the effectiveness of the Stay On Your Feet® peer presentations on participant awareness, motivation and beliefs to prevent falls.

Methods

Between 2015 and 2018, quantitative pre and post presentation surveys measured knowledge, motivation and beliefs of falls prevention. Participants were asked to self-rate their agreement to statements using a Likert scale (strongly disagree, disagree, neutral, agree, strongly agree). Paired samples t-tests were conducted to compare pre and post knowledge, motivation and beliefs.

Results

In total, 1,604 participants fully completed pre and post surveys. Respondents were categorised into low (scored ≤ 3 for understanding of why people fall, n=190) and high knowledge groups (scored ≥ 4 for understanding why people fall, n=1,414) based on the pre survey self-rated knowledge assessment. The high knowledge group had no significant change in knowledge (p=0.458), a slight decrease in motivation (p<0.001) and an increase in belief that falls are preventable (p=0.045) post the peer presentation. Participants within the low knowledge group significantly increased in knowledge (p<0.001) and belief that falls are preventable (p<0.001), and had no significant changes in motivation (p=0.847) post the peer presentation.

Discussion and conclusions

Overall, messages from the presentations may be reaffirming beliefs within the high knowledge group, while increasing knowledge within the low knowledge group. In a behaviour change hierarchy of effects model, participants move from recognition, or awareness of the issue, through to behaviour change. In the peer presentations, participants with low knowledge started to move along the behaviour change model by initially increasing their knowledge base.

How the research pushes the boundaries
These findings provide directions for educating older adults on falls prevention, particularly focusing on older adults with low knowledge of falls prevention.

Theme: Falls prevention and rehabilitation, Presentation Type: Oral
Technology enabled models of care focused on patient education and primary care engagement in the recovery of fragility fractures: Meta-analysis and comprehensive systematic review, Lalit Yadav
The University of Adelaide

Co-authors:
Ayantika Haldar, The Queen Elizabeth Hospital
Mellick Chehade, The University of Adelaide and Royal Adelaide Hospital
Renuka Haldar, The University of Adelaide and The Queen Elizabeth Hospital
Tiffany Gill, The University of Adelaide

Introduction
With the advancement of modern information technologies, it is possible to engage, empower older people with fragility fractures along with their carers and integrate seamlessly services from acute hospital care to community rehabilitation. The objective of this review is to evaluate the effectiveness of models of care utilising information technology enabled patient education solutions in the recovery of older adults with fragility fractures.

Methods
Participants: People, aged 50 and above with a fragility or osteoporotic fracture within hospital, residential aged care or community dwellings. Intervention: Models of care using information technology enabled education solutions delivered through internet or non-internet forms of communications. Comparators: standard care. Primary outcome included prevention of secondary fractures, diagnosis and treatment of osteoporosis and its adherence, or any functional outcomes (e.g. mobility). Secondary outcomes include quality of life, health/ehealth literacy, knowledge, or perceived service satisfaction. This review considered both experimental and quasi-experimental study designs including randomized controlled trials, non-randomized controlled trials, before and after studies. An intention to treat analysis was applied to those studies included in meta-analysis and odds ratio was calculated with random effects and I2 statistic for determining heterogeneity. Findings from rest of the studies were narratively interpreted.

Results
Altogether, 15 studies were considered in the final stage for this systematic review. Out of these, 10 studies were randomized controlled trials and 5 were quasi experimental studies, published between the years 2003 to 2016. There was variation across intervention with use of technological solutions as part of complex intervention within different models of care. Five randomized controlled trials were included for meta-analysis covering 2873 participants. The outcomes were prevention of secondary fractures, measured as a proxy through bone mineral density test and adherence to osteoporosis medication at 6 months after discharge from the acute care. Findings from this meta-analysis suggest the intervention to be twice as effective when compared with the usual standard care (OR 2.13, 95% CI 1.30-3.48) and statistically significant (z=3.01, p=0.003), though the population sample considered in these studies were not homogeneous (I2 =79, p=0.005). Narrative synthesis of the remaining studies included in this systematic review suggest improvement in secondary outcomes.

Discussion and Conclusion
Findings from this review suggests that patient education is critical in the recovery of fragility fractures and information technology based solutions can be used to educate patients on different aspects of care. How research pushes the boundaries: working together with appropriate technological solution integrating on the principle of co-creation, motivation and reinforcement in a comfortable environment and facilitation by the primary care setting and carers support.

Theme: Falls prevention and rehabilitation, Presentation Type: Oral
Home ladder safety awareness and injury prevention program, Jon Newman
Agency for Clinical Innovation

Co-authors:
Pooria Sarrami, Agency for Clinical Innovation
Glenn Sisson, Agency for Clinical Innovation

Context

Falls are the major cause of injury and deaths across NSW, particularly for those aged 55 and over. An analysis of state-wide data found 372 ladder falls (2010-2014), predominantly in older men, which resulted in major trauma and mortality (10%). While occupational injuries involving ladder falls have been addressed by standards, codes of practice and legislative measures, there is a need to encourage positive behavioural changes for the safe use of ladders in domestic settings. Non-occupational ladder falls are costly but preventable. Therefore, to improve community awareness of the risk of domestic ladder use, the NSW Institute of Trauma and Injury Management (ITIM) has developed an ladder safety and injury prevention program. This program consist of a “Steps to home ladder safety” website and other written resources together with a communication strategy to support the implementation of this injury prevention initiative targeted at active males over 55 years old.

Objectives

To increase awareness in the community of the risks of falls from ladders, with an associated reduction in morbidity and mortality due to changes in safe ladder practices.

Key messages

- Unsafe domestic use of ladders imposes a preventable risk especially among men above 55 years old
- A community awareness and injury prevention program is developed to promote the safe domestic use of ladder, especially among men above 55 years old, including the “Steps to home ladder safety” website and other resources.

Discussion and conclusions

The community awareness and injury prevention program is a collaborative work between ITIM and the communication team of the NSW Agency for Clinical Innovation and community stakeholders. The program will achieve its goals through implementing the following strategies: promotion of the website, implementing a communication strategy including use of social media; broadcast the key messages of ladder safety via printed media and online notice boards (e.g. Men’s Shed); distribute ladder safety brochures and posters to interest groups where the target group attends (e.g. RSL’s, Probus clubs); and provide education to key trainers of interest groups, who can disseminate the key message of ladder safety to their local networks.

How policy/practice pushes the boundaries

While ITIM has traditionally worked with clinicians in the acute phase of care post-injury, this program seeks to develop relationships with targeted organisations and groups to enhance community awareness and injury prevention in relation to domestic ladder use. In addition, the impact of the program on the community will be evaluated.
Theme: Falls prevention and rehabilitation, Presentation Type: Oral
How well was an exercise-based falls prevention program for older Australians with vision impairment implemented? A process evaluation, Lisa Dillon

The George Institute for Global Health

Co-authors:
Helen Nguyen, University of New South Wales
Lindy Clemson, Sydney University
Kristy Coxon, Western Sydney University
Lisa Keay, University of New South Wales

Background
No proven exercise-based falls prevention programs exist for people with vision impairment (VI), despite positive results in other high-risk populations. Process evaluations help illuminate mechanisms of intervention success.

Aims
To explore implementation of the Lifestyle-Integrated Functional Exercise (LiFE) program adapted for older adults with VI (v-LiFE) through a process evaluation nested within a randomised controlled trial.

Methods
The process evaluation was completed blinded to trial outcome. Measures included:(1) Adherence, assessed through observing a sample of Orientation and Mobility (O&M) Specialists delivering v-LiFE using a standardised checklist, where higher scores indicated fidelity (Initial session: range=0-64; sessions 2-7: range=0-60); (2) Delivery, gauged by number of sessions (range=0-11), complete delivery was considered ≥five sessions; (3) Participant receipt, assessed through post-intervention semi-structured interviews and the Attitudes to Falls-Related Intervention Scale (AFRIS), where higher scores indicated positive attitudes (range=6-42); (4) Participant enactment, gauged using the Self-Report Habit Index (SRHI), where scores ≥36 indicated habit formation (range=12-60).

Results
The v-LiFE program was delivered to 294 intervention group participants, aged 73±10 years, with 59% female and 52% legally blind. Adherence was assessed in 18/51 (35%) O&M Specialists involved in program delivery. Checklist scores indicated the program was delivered as intended (Initial session: n=5, median=54.5, interquartile range=19.5; Sessions 2-7: n=13, median=54.0, interquartile range=10.5). The majority (80.6%) of participants received the full program (mean number of sessions=5.2, standard deviation(SD)=2.1). Interviews were completed on 154/294 (52%, thematic saturation) participants and 231/294 (79%) completed surveys. Average AFRIS score was 35.8±5.6 (mean±SD) which corresponded to ‘agreed’ with the positive statements about v-LiFE. Qualitative data revealed that participants appreciated delivery by O&M Specialists in their home and found v-LiFE easy to implement. SRHI scores indicated habit formation (n=221, mean=51.2, SD=9.4) for a nominated v-LiFE activity that the participant was able to implement, and no habit formation (n=203, mean=29.4, SD=13.2) for a nominated v-LiFE activity that the participant found difficult to implement.

Discussion/Conclusions
Process evaluation findings support delivery of v-LiFE by O&M Specialists with high fidelity. While enactment varied, participant perspectives and enactment of activities indicated v-LiFE may be an appropriate falls prevention program for older adults with VI.

How research pushes the boundaries

This evaluation unpacks the mechanisms that influence intervention success, critical in designing programs for preventing falls in this high-risk group. Delivery of the v-LiFE program through existing O&M services may offer a scalable solution to preventing falls in older adults with VI if proven effective in preventing falls.

Theme: Falls prevention and rehabilitation, Presentation Type: Oral
Concurrent Session 4 – Road and Transport Safety

Social disadvantage and child passenger deaths in NSW – A ten year review, *Julie Brown*

*The George Institute for Global Health*

Co-authors:

* Lynne Bilston, Neuroscience Research Australia  
* Jane Elkington, Neuroscience Research Australia

**Background**

Despite reductions in recent decades, child passenger deaths remain one of the leading causes of death among children in Australia aged 1-17 years. Research in this area has tended to focus on factors associated with the crash, road, vehicle and child restraint, with scant attention to social determinants.

**Aim**

This research aimed to help better identify the socio-cultural factors that are associated with child passenger deaths due to road trauma so that we can better focus our interventions efforts.

**Methods**

The NSW Child Death Review Team (CDRT), convened by the NSW Ombudsmen, conducted a ten-year review of the 66 child passengers (aged 0-12 years) who died on NSW roads from 2007-2016. In addition to examining crash and restraint factors, the demographic profile of the children who died were analysed descriptively.

**Results**

Children from socio-economic areas classified as the lowest quintile (20%) by postcode of residence in NSW made up 33% of the child fatalities in this ten year period. Thirteen (87%) of the 15 children who were unrestrained at the time of the crash were in the lowest two quintiles. Children with previous contact with child protection services were significantly over-represented (30% of all fatalities) compared to the NSW population distribution of this group (three percent). The rate of Aboriginal or Torres Strait Islander children who died as passengers was 4 times higher than that of the whole population (two deaths/100,000 compared to 0.5/100,000). Children living in remote areas had 11 times the death rate due to passenger injuries than those in major cities.

**Discussion and conclusions**

The findings from this research confirm that the most disadvantaged children in our society are at greatest risk of dying on our roads as passengers in motor vehicles. While there has been increasing attention to urban/rural differences in crash location, little systematic attention has been paid to disparities in socio-economic status among child passengers killed on our roads. At the very least, we need to ensure that measures introduced to reduce road traffic deaths and injury do not increase this disparity.

How research pushes the boundaries
The system-based approach to road safety has facilitated major improvements in safety of our roads, laws, vehicles and child restraints but these are not equitably distributed among all cultural and economic groups in society. It’s time to focus on increasing access to a safer world by the most vulnerable in society.

*Theme: Road and transport safety, Presentation Type: Oral*
Motorised mobility scooter-related injury: Pathways to action? Joan Ozanne-Smith
Monash University

Co-author:
Richard Bassed, Monash University

Background

Australian studies first reported emerging trends of deaths and serious injuries associated with motorised mobility scooters (MMS) in 2006. Few regulations apply to MMS and responsibility falls across multiple government jurisdictions. There has been little uptake of research-based MMS safety recommendations. An Australian Government Senate Inquiry into regulation of MMS and electric wheelchairs reported in September 2018. The terms of reference related to epidemiological data, regulatory review and safe-use policy.

Objectives

(1) To update Australian MMS-related injury data. (2) To review the Senate Inquiry process and likely impact.

Methods

Australian MMS-related fatal injury data were extracted from the National Coronial Information System, confirmed manually, and analysed for all closed Coroner’s cases 2000-2017. The Victorian Injury Surveillance Unit provided non-fatal MMS-rider injury data for 2008/9-2017/18. Senate Inquiry submissions (available online) were analysed by respondent type and content and Inquiry recommendations and outcomes were reviewed.

Results

132 MMS-related deaths were found for 2000-2017 in Australia. 129 were MMS-riders and 92% of these were aged 60 years or above. Victorian hospital admissions of MMS-riders 60 years and above averaged 70.6/year in 2015/16-2017/18. For the 10 years 2008/9-2017/18, major injury mechanisms were falls 253/521 (49%), and transport (33%). The head was the most frequent body part injured for both fatal and non-fatal cases.

Of 133 submissions to the Senate Inquiry, 105 related to MMS: 61 from individuals and 44 from organisations/professionals. Common concerns included: reduced access to MMS, risk to pedestrians, medical assessment/education/training for users, nationally compatible regulations (e.g. speed limits, registration), improved data systems, and research. Two recommendations were made and supported in principle by the government’s response (April 2019).

Discussion and conclusions

Almost 15 years after MMS-related fatalities were first reported in Australia, there has been no comprehensive intervention to improve user safety. Current Australian injury data systems remain limited in accurately identifying, quantifying and describing deaths and injuries associated with new consumer products such as MMS.

As well as community support for continued access, and increased safety policy and regulations, the Senate Inquiry identified data and research gaps and found that MMS registration could provide denominator data for injury rate estimates.

Pushing the boundaries

Senate Inquiries have the potential to stimulate action on consumer product safety. Moreover, the Australian Treasury Policy Unit is examining the possibility of implementing a proactive “general (product) safety provision”. Such approaches may provide pathways to enhanced consumer product safety.
Agent-based-modelling and mandatory helmet legislation: An investigation of downstream healthcare costs and benefits, Ian Teichert
University of Melbourne

Background

Although mandatory helmet legislation (MHL) has proved effective in increasing the adoption of helmet-wearing among cyclists in Melbourne, its immediate and long-term effect on cycling patronage and overall health is contested. As a form of physical activity, cycling is inversely associated with risk of chronic disease. However, due to increased exposure of riders to ambient air, cyclists may face greater risk of respiratory diseases. Similarly, while bicycle helmets may reduce the risk of head injury at the time of a crash, reductions in cyclist volume through policies that have the effect of reducing cycling uptake increase collision risk for remaining cyclists. Understanding the balance of these effects is important for exploring the total healthcare system costs or benefits associated with policies such as MHL.

Methods

This study created a synthetic population of cyclists using an agent-based model based on cyclist and driver interactions within a grid road network from Melbourne, Victoria. Extended over a forward timeframe of 10 years, the model included collision rates between drivers and cyclists, levels of physical activity and PM2.5 exposure over a range of proposed parameters, individual behaviours, and policy settings (e.g., MHL enforced or not). Differences in expected healthcare service utilisation among commuters from resulting head and facial injuries, cyclist mortality, morbidity and population incidence of cardiovascular disease, respiratory disease, and type-2 diabetes were measured between MHL policy enforcement conditions to assess total costs and benefits for population health.

Results

Results indicated that MHL law repeal which resulted in a transfer of 5% of current driving trips to bicycle trips would lead to a net population health cost of up to $15,547,660 to Melbourne’s healthcare system over ten years. This occurs despite an estimated 40% absolute reduction in chronic disease incidence in new cyclists from increased physical activity, due to substantial long-term-care costs associated with facial injury, minor and serious traumatic brain injury, of which incidence rose by 5%. There was considerable uncertainty surrounding the underlying assumption of cyclist’s risk exposure to collisions.

Significance

While results of the model are subject to assumptions, this study represents a novel means of explicitly representing and synthesising data across multiple domains in a contentious public policy space. It highlights how agent-based modelling can be used to explore important public health policy scenarios in synthetic environments prior to implementation in the ‘real world’. Future research should be focused towards measuring cycling and collision exposure in Melbourne.

Theme: Road and transport safety, Presentation Type: Oral
Risky driver behaviours at school drop-off time and active school transportation in children across Canadian urban/suburban areas, Alison Macpherson
York University

Co-authors:
Linda Rothman, Hospital for Sick Children Research Institute
Liraz Fridman, Hospital for Sick Children Research Institute
Rebecca Ling, Hospital for Sick Children Research Institute
Lambert Desrosiers-Gaudette, INRS – Urbanisation Culture Société
Tate Hubka, University of Calgary
Andrew Howard, Hospital for Sick Children Research Institute
Colin Macarthur, Hospital for Sick Children Research Institute
Pamela Fuselli, Parachute Canada
Marie-Soleil Cloutier, INRS – Urbanisation Culture Société
Meghan Winters, Simon Fraser University
Brent Hagel, University of Calgary
Alberto Nettle-Aguirre, Alberta Children’s Hospital
Mathieu Rancourt, INRS – Urbanisation Culture Société

Background
Fewer children are using active transportation, such as walking/biking to arrive to school in Canada, which is an important source of physical activity. Traffic injury is a main safety concern influencing parent’s decisions on school travel modes. Few studies have examined the relationship between risky driver behaviours and active school transportation. This study presents findings from the Canadian Child Active Transportation Safety and the Environment (CHASE) study.

Aims
To examine the association between the proportion of elementary school students traveling to school using active school transportation (AST: walking, cycling, scootering etc) and risky driver behaviours observed at school drop-off time in cities/suburban areas across Canada.

Methods
Trained observers counted how children arrived to school at public elementary schools in Toronto (n = 76), Peel Region (71), Montreal (60), Laval (12), Calgary (125) and Vancouver (67). Trained observers counted the number of students arriving to school using different travel modes. Observers completed a checklist for 9 risky driver behaviours and conducted site surveys of the school built environment. The relationship between risky driving behaviours and the proportions using AST overall and by city individually were examined using beta regression modelling.

Results
The most common behaviours observed in all areas, were drivers dropping children off at the opposite side of the road from the school (81%), drivers waiting and blocking the vision of pedestrians and other motorists (76%), u-turns (68%), and double parking (60%). The mean proportion of AST was 65% in Toronto, 62% in Vancouver, 65% in Montreal, 54% in Peel, 44% in Calgary, and 36% in Laval. Although overall dangerous driving behaviours were not
significantly associated with AST, this result differed by city with the odds of AST significantly less in Toronto with more dangerous driving behaviors (OR, 0.88, 95% CI 0.81).

Discussion and Conclusion

Risky driver behaviour around schools during drop-off times may influence the choice of school travel mode. These behaviours and were prevalent around schools during morning drop-off times in all cities/suburban areas. Risky driver behaviours were associated with less AST in Toronto. Further analysis will be conducted to evaluate the relationship between risky driving and AST while controlling for the built environment around schools.

How research pushed boundaries

This study represents a unique collaborative research effort across Canada. It is the first study to our knowledge that examines how risky driving behaviours around schools may affect AST, and the built environment features influencing this relationship.

*Theme: Road and transport safety, Presentation Type: Oral*
Using the Behaviour Change Wheel to develop a child car seat project in South Africa: A scoping project, *Kate Hunter*

*The George Institute for Global Health*

**Co-authors:**
- Megan Prinsloo, *South African Medical Research Council*
- Yolande Baker, *Childsafe South Africa*
- Sebastian van As, *ChildSafe, Red Cross Children’s Hospital*
- Richard Matzopoulos, *South African Medical Research Council and University of Cape Town*
- Madeline Dodd, *The George Institute for Global Health*
- Naomi Clarke, *New York University*
- Margie Peden, *The George Institute for Global Health and University of New South Wales*

**Background**

Globally, road traffic injuries are the leading cause of death among children and young people aged 5-29 years, with Sub-Saharan Africa accounting for over 35% of all child road traffic deaths. While child car seat programs have been shown to be effective in several countries no such programs have been developed or trialled in South Africa, despite children experiencing a high burden of transport-related injury. In recent years, the Behaviour Change Wheel has been used to develop, plan and deliver programs targeting key behaviours.

**Aims**

To understand the context of child passenger travel and to investigate the feasibility of conducting a child car seat trial in Cape Town, South Africa.

**Methods**

We conducted semi-structured interviews with representatives from government, local clinicians and academics and focus groups with parents, transport officers and service providers. Interviewees were invited to participate via email and via phone call. Focus group participants were invited to participate by the Childsafe SA personnel and focus groups were held at the Childsafe SA office in Cape Town. Interviews were conducted in English and Afrikaans and focus groups were conducted in English, Afrikaans and Xhosa. All interviews and focus groups were audiotaped, translated into English and transcribed. We conducted inductive and deductive thematic analysis underpinned by the Behaviour Change Wheel (BCW)(interviews) and the Precaution Adoption Process Model (PAPM) of behaviour change (focus groups).

**Results**

Of the 14 people invited to participate in the interviews, 13 participated. A total of 59 parents, transport officers and Childsafe staff participated in 5 focus groups. Child road safety behaviours were influenced by: capability - mixed knowledge surrounding the safety benefits of appropriate child car seat use; opportunity – children being transported in vehicles where seatbelts had been removed; the prohibitive cost of restraints; overcrowding of student transport; motivation – universal belief in wanting to keep children safe; competing priorities between other social and community issues including financial pressure to transport more children than were seatbelts in vehicles;
limited enforcement of passenger laws. Opportunities to develop a child road safety program were identified and potential program components and strategies described.

Discussions and conclusions

We identified several areas where a child car safety program could be developed based on the results of this explorative work.

How research pushes the boundaries

This highlights the benefit of applying a 3600 viewpoint to develop community-based child passenger safety programs.

*Theme: Road and transport safety, Presentation Type: Oral*
**Concurrent Session 5 – Water Safety**

**Sustainable implementation of the SwimSafe drowning prevention program in Bangladesh: Gender perspectives, impacts and influences, Medhavi Gupta**

*The George Institute for Global Health*

**Co-authors:**

*Rahman Aminur, Centre for Injury Prevention and Research*
*Kamran Ul Baset, Centre for Injury Prevention and Research*
*Jagnoor Jagnoor, The George Institute for Global Health*

**Background**

The SwimSafe program protects children aged 6-10 years old from drowning in Bangladesh by providing swim and rescue skills training in rural communities and educating the community on injury prevention. A crucial factor for community-based program sustainability and scalability in LMICs is how successfully they adapt to and equitably affect gender norms and roles.

**Aims**

This project triangulated quantitative and qualitative data to identify the impact of SwimSafe on gender perspectives and relationships within communities, in addition to identifying contextual gender-based factors that impacted the acceptability and sustainability of the program.

**Methods**

Quantitative program data was analysed to identify differences in reach and usage between genders. Additionally, qualitative in-depth interviews, focus discussion groups and observations were conducted with program participants and implementers to ascertain key issues and influences. Gender effects and outcomes were analysed upon FHI 360’s Gender Integration Framework.

**Results**

Our results found that SwimSafe provided opportunities for independence and status for female community program staff, changing community perceptions towards acceptable levels of mobility and participation for women. Secondly, contextual gender-based factors significantly impacted program delivery, particularly in relation to community engagement by female implementing staff, perceptions around safe travel and SwimSafe staff drop out.

**Discussion and conclusions**

The findings were used to recommend changes to SwimSafe implementation with the aim of improving program delivery for greater equitability and acceptability. These included: utilising community engagement to identify the need for gender-segregation during swim classes, selection of appropriate community swim instructors, and identification of mentors for new female implementing staff. The results also provided insights to implementers of other community-based prevention programs operating in rural LMIC contexts on possible gender-based considerations for sustainability and scalability.
How research pushes the boundaries

Implementation research of injury prevention programs rarely measure and adapt to gender-related contextual considerations. Additionally, they rarely seek to ascertain the effect of programs on gender equity, despite evidence of its importance to implementation success. This research is particularly essential in rural LMIC contexts where gender norms, roles and relationships are complex and dynamic and interact with other considerations such as geographic context, poverty and limited resource availability. This study provides guidance on how gender factors can be measured and catered for in community-based programs.

Theme: Water safety (including drowning), Presentation Type: Oral
Breathalysing and surveying river users in Australia: Translating research into practice, Amy Peden
Royal Life Saving Society - Australia

Co-authors:
Richard Franklin, James Cook University
Peter Leggat, James Cook University

Background

Rivers are a leading drowning location internationally, and in Australia (1). Alcohol is a significant risk factor in drowning (2) with 41% of river drowning deaths in Australia between 2002 and 2012 alcohol-related (3).

Aims

This study aims to address the dearth of data currently available on alcohol consumption and attitudes to alcohol-related drowning risk, through real-time data collection at rivers in Australia.

Methods

Adult river users were surveyed and breathalysed to determine their blood alcohol concentration (BAC) at four river recreational locations in Australia. Sites chosen were all popular recreational locations and three of the four are in the top 10 river fatal drowning blackspots in Australia. Respondents were asked time since their last alcoholic drink and were then breathalysed. A person with a BAC of ≥0.05% was defined as being at increased risk of drowning.

Results

684 people participated; 16% had a positive BAC (range 0.001%-0.334%), with 7% recording a BAC ≥0.05%. River users who self-reported engaging in risky water activities were more likely to have a BAC ≥0.05%. Respondents were less likely to support driving a motor vehicle under the influence of alcohol, than operating a powered vessel or swimming in a river.

Discussion and conclusions

The number of people with positive BAC was lower than the number of alcohol related drowning deaths, confirming that drinking alcohol increases drowning risk. Breathalysing proved to be a useful advocacy and awareness raising tool, with the majority of people unable to accurately estimate their BAC. This research identified characteristics of those consuming alcohol (and to risky levels) and therefore those at increased risk of river drowning. Community acceptance for participation in the research was high with a very low refusal rate (approximately less than 2%).

How research pushes the boundaries

This research is only the second study to utilise breathalysing with respect to drowning in Australia and is the first of its kind at a river environment, a location with a disproportionate burden of alcohol related drowning. Findings are already being translated into policy and practice through Royal Life Saving Society – Australia’s ‘Respect the River’ and ‘Don’t Let Your Mates Drink and Drown’ campaigns. There has been an 18% reduction in fatal unintentional river drowning since ‘Respect the River’ was introduced in 2015.
Acknowledgements: This research is supported by Royal Life Saving Society – Australia, which in turn, is supported by the Australian Government.

Theme: Alcohol and drugs related injury, Presentation Type: Oral
A Decade of Action on Child Drowning Prevention in Thailand, Suchada Gerdmongkolgan
Bureau of Non-communicable Diseases

Co-author:
Som Ekchaloemkiet, Bureau of Non-communicable Diseases

Background

Drowning is the number one cause of death among children under 15 years of age in Thailand. Child drowning death rate (per 100,000 child population) ranged from 5.9 to 11.1 between 2006 and 2015; the average number of annual drowning deaths was 1,092.

Aims

To formulate a policy on child drowning prevention in Thailand.

Methods

The operations of the Child Drowning Prevention Programme in Thailand during the period 2006–2014 were reviewed and then a gap analysis was conducted for use as a guide for developing the standards, or bridging the gap, for the operations of the programme. The Child Drowning Prevention Programme in Thailand has been implemented since late 2006 with the goal of reducing the child drowning death rate to 2.5 by 2022.

Results

It has been found that the MOPH is the lead agency in the implementation of the Child Drowning Prevention Programme in Thailand. In such efforts, a programme committee has been established comprising representatives from various public and private agencies; and policies on this matter have been issued for the operations in collaboration with other network members or partners. The policies such as: teaching all children (>6 years) being able to swim for survival; designating Child Drowning Prevention Campaign Day; distributing Maternal and Child Health Booklets containing the guidelines for drowning prevention; designating all health-care facilities as the sites for educating parents or child caregivers about drowning prevention; conducting drowning surveillance and investigation; passing a law to regulate the labeling of baby bathtubs; and collaborating with local governments in child drowning prevention.

After implementing, the child drowning death rate declined constantly from 11.5 in 2005 to 5.9 in 2015 (or decrease 50%). But gaps were noted at the local or community level, such as the lack of continuity, encouragement and operations of in all aspects of the programme. Thus, to bridge the gaps, in 2015 the MOPH adopts the “Merit Maker for Child Drowning Prevention” measure, emphasizing community-based multi-disciplinary approach, resource sharing.

Conclusion

Since the launch of the programme on child drowning prevention, policies and measures have been implemented, resulting in a constant reduction in child drowning fatalities. In such efforts, the MOPH has also revised several measures so that they are more effective in the country in achieving the child drowning reduction goal (rate to 2.5 in 2022). Including the reduction of deaths from drowning in the 20-year national strategic plan.

Theme: Water safety (including drowning), Presentation Type: Oral
The NSW Study of Drowning and Near Drowning examined the medical record data of children admitted and presenting at the three tertiary paediatric hospitals in NSW after a drowning event and conducted post event interviews with parents/ carers to better understand the circumstances surrounding the incident. The study was conducted over 5 years, from 2013 to 2018 and had Human Research Ethics approval through the Hunter New England HREC.

This retrospective descriptive study summarises the demographic and medical record data for non-fatal drowning incidents in the study period. A thematic examination of parent descriptions of the drowning incident was also conducted.

The findings of this study reconfirm what is already known about drowning in children: that children under 5 years are at the greatest risk of drowning; that they are most likely to experience a drown event in a home swimming pool or bath and that children who are unsupervised are more likely to experience a drowning event than children who are closely and actively supervised while in or near water.

The retrospective interviews conducted with parents/ carers of children added some insight into the circumstances surrounding drowning incidents in children aged 0 – 16 years from the perspective of the parent/carer. The qualitative data gathered as part of these interviews was examined and grouped under key themes. Under the key themes were common or frequently mentioned factors that contributed to the drowning incident.

The common/ frequently mentioned factor that stood out under the theme of lapse of supervision was the adult carer being distracted by an everyday task at the time of the drowning incident. This is something that needs to be considered when discussing supervision of children in and around water.

Disappointingly, this study was unable to gather in depth detail on the swimming pools involved from all parents/carers whose child experienced a non-fatal drowning in a swimming pool, as many could not provide the detailed information being sought.

What this study has shown is that supervision, effective pool barriers, learning swimming skills and learning resuscitation skills remain key child drowning prevention strategies, however consideration needs to be given to how best to communicate this to parents and the wider community as the absence of these factors remain the primary causes of both fatal and non-fatal drowning in children.

Theme: Water safety (including drowning), Presentation Type: Oral
The effect of rural and remote residence on drowning rates: A Review of the Literature, Danielle Taylor, Royal Life Saving Society – Australia

Co-authors:
Amy Peden, Royal Life Saving Society – Australia
Richard Franklin, James Cook University

Background
Rural populations have higher rates of drowning, positively correlated as rurality increases.(1-2) Rural drowning fatality rates have remained steady over time, with limited research exploring the epidemiology of drowning specific to rural Australians. This review examines the incidence, risk factors and determinants of fatal and non-fatal drowning in rural populations.

Methods
A scoping literature review of both peer-reviewed and grey literature was undertaken systematically using the PRISMA process, exploring rural drowning prevalence and risk factors in Australia.(3-4) Literature was limited to a publication date since 1990.

Results
Children in rural and remote locations have increased exposure, access to, and a wider range of bodies of water.(5-6) Children aged 1-4 years are 2.7 times more likely to drown than their 5-19 year old counterparts in rural inland bodies of water.(6) This information corresponds with hospital admission rates for rural inland drowning.(6) Risk factors included patterns of behaviours by both carers and young children including socioeconomic status, water awareness, water competency levels of both the child or carer, demographic (age, sex, residency, rurality), and environmental conditions.

Discussion and conclusions
Effective primary prevention strategies in metropolitan areas are not always successful or translate well to rural locations. There is evidence for supporting the implementation of strategies including the promotion of child safe play areas and targeted public awareness campaigns for rural and regional aquatic environments, noting the challenges with delivery of programs to dispersed and small populations. First aid and cardiopulmonary resuscitation skills for lay first responders also remain vital. Teaching rural adults water safety awareness and the importance of active supervision is key. Swimming lessons for rural children and parents are not only a delivery portal for drowning prevention but a major place for social interaction due to geographical isolation.

How research pushes the boundaries
Rural populations are over represented in the drowning statistics, however current approaches apply urban based strategies with their efficacy unknown. This study highlights the need for further investigation into rural drowning that takes into account the complex socioeconomic and demographics in rural Australia, as well as highlighting the challenges faced translating effective preventative actions like learn to swim programs, community education programs, or policy documents into the rural setting. There is no one strategy that will prevent all rural and remote drowning deaths, therefore a wide variety of strategies will be required in this marginalised at-risk population.
Theme: Rural and remote injury prevention, Presentation Type: Oral
Recognise and remove from play: Is the message getting across in sport and recreational-related activity for children and adolescents? **Andrew Fyffe**  
*Sydney Children’s Hospitals Network*

**Co-authors:**  
Gary Browne, *Sydney Children’s Hospitals Network*  
Rhonda Orr, *Sydney Children’s Hospitals Network*

**Background**

Recognition and immediate removal from play is recommended when a concussion is suspected, as any delay may potentially lead to further injury resulting in prolonged recovery. Although much attention on concussion awareness and the basic principles of care has been aimed at elite sport, the impact of these programs on other non-elite sport and/or recreation-related injuries remains unknown.

**Aims**

To determine if concussed athletes who present to a tertiary clinic with a diagnosed sport and/or recreation-related concussion, are managed according to recommended guidelines at the time of injury.

**Method**

A retrospective review of the medical records of all patients presenting to the Kids Concussion Service, Children’s Hospital at Westmead, Sydney, NSW, over an 18 month period from January 2018 to June 2019 was conducted. All patients had comprehensive data collected and were managed in the clinical according to current recommendations until complete recovery. Patient records were reviewed for demographics, mechanism of injury, time when injury, removal from play, and time to referral and recovery.

**Results**

During the 18 months of the study period, 196 patients (mean age 12.7, male 69.9%) presented to the clinic who were injured in non-elite activity, mostly community football. In only 89 (45.4%) cases was a concussion recognised following an impact event, and of these 35 (39.3%) continued to finish the game despite exhibiting features of a concussion. Where there was no immediate recognition, there was a delay in seeking medical attention for up to two weeks which resulted in prolonged recovery. The majority, 84%, were involved in football (AFL 29%, rugby union 32%, rugby league 23%) and almost all who played on were male (83.3%).

**Discussion and conclusion**

Concussion can go unrecognised in as many as half of all injured young athletes, with a third of these continuing to played-on despite displaying concussion symptoms and signs.

Current education programs focus on high performing athletes, with the messages of RECOGNISE, REMOVE from play and REFER not apparently trickling down to the grass-roots level of sport and/or recreational activity.
How research pushes the boundaries

We need to re-think education programs so that they are better tailored to gain the attention and reinforce the keys messages of Recognise, Remove, Refer to parents and athletes across all levels of sport and recreational activity.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
More than four decades have passed since the introduction of safety standards for impact attenuation surfaces (IAS) used in playgrounds. Moreover, falls in children’s playground are a major source of life-threatening injuries and IAS is one of the best methods of preventing severe head injuries. However, the ability of IAS in the prevention of other types of injuries, such as upper limb and long-bone fractures, is unclear. Accordingly, in this work, ten synthetic playground surfaces were tested to examine their performance beyond the collected head injury criterion (HIC) and maximum G-force (Gmax) outputs recommended by ASTM F1292. The aim of this work was to investigate any limitations with current safety criteria and proposing additional criteria to filter hazardous IAS that technically comply with the current 1000 HIC and 200 Gmax thresholds. The proposed new criterion is called the impulse force criterion (If). If combines two important injury predictor characteristics, namely: HIC duration that is time duration of the most severe impact; and the change in momentum that addresses the IAS properties associated with bounce. Additionally, the maximum jerk (Jmax), the bounce, and the IAS absorbed work are presented. HIC, Gmax, If, and Jmax followed similar trends regarding material thickness and drop height. Moreover, the bounce and work done by the IAS on the falling missile at increasing drop heights was similar for all surfaces apart from one viscoelastic foam sample. The results presented in this work demonstrate the limitations of current safety criteria and should, therefore, assist future research to reduce long-bone injuries in playgrounds.

Theme: Child health and safety, Presentation Type: Oral
Evaluation of community coalition training effects on youth hospital-admitted injury incidence in Victoria, Australia: 2001-2017, Janneke Berecki

Monash University

Co-authors:
Bosco Rowland, Deakin University
Nicola Reavley, University of Melbourne
Barbara Minuzzo, Communities That Care Ltd
John W Toumbourou, Deakin University

Background

Injuries are one of the three leading causes of morbidity and mortality for young people internationally. Although community risk factors are modifiable causes of youth injury, there has been limited evaluation of community interventions. Communities That Care (CTC) offers a coalition training process to increase evidence-based practices that reduce youth injury risk factors.

Method

Using a non-experimental design, this study made use of population-based hospital admissions data to evaluate the impact on injuries for 15 communities that implemented CTC between 2001 and 2017 in Victoria, Australia. Negative binomial regression models evaluated trends in injury admissions (all, unintentional & transport), comparing CTC and non-CTC communities across different age groups.

Results

Statistically significant relative reductions in all hospital injury admissions in 0-4-year-olds were associated with communities completing the CTC process and in 0-19-year-olds when communities began their second cycle of CTC. When analysed by subgroup, a similar pattern was observed with unintentional injuries, but not with transport injuries.

Conclusion

The findings support CTC coalition training as an intervention strategy for preventing youth hospital injury admissions. However, future studies should consider stronger research designs, confirm findings in different community contexts, use other data sources, and evaluate intervention mechanisms.

Theme: Child Health and Safety, Presentation Type: Oral
Progress on the reduction and prevention of children fatally injured on farms, Kerri-Lynn Peachey, AgHealth Australia

Co-authors:
Tony Lower, AgHealth Australia
Margaret Rolfe, University Centre for Rural Health

Background

Agriculture is one of the most dangerous industries in Australia. Most agricultural enterprises are family owned and operated, with a common intersect between work, family and recreation. This poses increased risks not only to workers, but also to children and visitors that may be in the operating farm environment. While child injury is preventable, there is a complete absence for investment in promoting child safety on farms.

Aim

The aim of this study was to determine rates of fatal injury in relation to the population exposed and to assess the scope for interventions to reduce fatal incidents involving children on Australian farms (2001-2017).

Methods

Data on farm-related incidents involving children were extracted from the National Coroners Information System (NCIS) for the study period. Estimated population numbers of children living on farms were derived from the Australian Bureau of Statistics (ABS) Census data (1986-2016).

Results

Approximately 15% (n=202) of all deaths on farms between 2001 and 2017, involved a child aged 0-14 years. Drowning (n=71), quad bikes (n=30) and farm machinery (n=25), were most commonly involved. The three-year moving average reduced from 53 cases (17.6 cases/annum) to 24 (8 cases/annum) in the period. Children residing on farm at the time of the incident, were involved in almost 70% (n=140) of cases. Children in the 0-4 years category (n=105), accounted for over half (52%) of the incidents, with males being involved in over two-thirds (n=148) of all cases. The mortality rate over time for the farm residents aged 0-4 years significantly decreased (p=0.015).

Discussion and Conclusion

The number of children fatality injured has reduced, nonetheless the leading agents of fatal injury remain a cause of concern given effective evidence-based solutions to reduce the burden already exist. The mortality rate has reduced significantly for the 0-4 years age group, even though the number of children residing on farm has reduced. Since 2007, there has been an absence of investment for child safety, from which time the annual rate has plateaued. A consolidated strategy building on evidence-based initiatives, together with investment from a range of organisations, is required.

How the research pushed the boundaries

The ability to estimate the number of children residing on farms across Australia, has been key to providing relevant and precise data on progress.

Theme: Child health and safety, Presentation Type: Oral
You know your message but how well do you know your audience? Louise Cosgrove
Kids and Traffic, NSW Early Childhood Road Safety Education Program, Macquarie University

Context

Transport related injuries remain a leading cause of death in children under 16 years of age in Australia. Kids and Traffic is part of Transport for NSW’s (TfNSW) Road Safety Education Program, an enduring, shared-governance partnership with TfNSW, Department of Education, Association of Independent Schools and Catholic Schools NSW. Kids and Traffic seeks to prevent child road trauma by partnering with early childhood organisations and other stakeholders to improve safety outcomes for children, families and communities. Ensuring Program responsivity to changing social and educational trends enables Kids and Traffic to maintain relevance and increase buy-in within communities.

Objectives

Kids and Traffic helps organisations identify local road safety issues and develop effective community-specific solutions. The Program supports collaborative grassroots action at local levels to prevent child road trauma. For over twenty-five years the Kids and Traffic Program has provided road safety professional learning workshops, resources, advice, support and advocacy around road safety to early childhood services. Maintaining currency and relevance as a respected provider of professional learning within the early childhood sector is key to the Program’s success.

Key Messages

Road safety education is integral to a Safe System. Kids and Traffic promotes TfNSW endorsed Key Road Safety Messages: hold children’s hands to protect them as pedestrians, use age-appropriate child car seats correctly in vehicles and ensure children wear correctly fitted helmets when riding. Adult responsibility is emphasised. Consistent use of these messages with children engages them in road safety learning without making them responsible for their own safety.

Discussion and conclusions

Kids and Traffic workshops promote cross-curriculum road safety education framed by the Australian Government’s Early Years Learning Framework. The Program is informed through ongoing communication and joint-collaboration with early childhood educators, the Program’s target audience. Consistent, active engagement with the early childhood sector allows Kids and Traffic to leverage off current educational trends and develop innovative approaches to road safety education. Listening and responding to emerging needs of the sector is crucial to maintaining relevance and a position as a valued, trusted provider of ongoing professional learning and resources.

How policy/practice pushes the boundaries

Kids and Traffic, like many other child safety programs, consults with stakeholders to determine program content and materials which address key safety messages. Crucially, in addition to this, Kids and Traffic maintains relevance and uptake in local communities by consistently engaging with target audiences. These interactions guide Program evolution and growth in line with educational and social trends.

Theme: Child health and safety, Presentation Type: Oral
Severe and Fatal Paediatric Trauma in Queensland – Who is our most vulnerable population? Bronwyn Griffin
Queensland University of Technology

Co-authors:
Ioni Lewis, Queensland University of Technology
Mark Ryan, Queensland University of Technology
Kerianne Watt, James Cook University
Susan Teerds, Kidsafe Queensland

Background
Despite best efforts by injury prevention specialists, injuries are the leading cause of death and disability for children in Australia. For each fatally injured child it has been estimated that 10 survive with major disability following serious injury.

Aims
This project aims to identify associations between demographic, event and injury characteristics with the severely and fatally injured paediatric population of Queensland, utilising trend data to inform a targeted and prioritised injury prevention campaign.

Methods
Data were extracted from the Queensland Paediatric Trauma Registry and the Queensland Family and Child Commission Child Death Review. Descriptive analyses focused on fatal and severe paediatric trauma (Injury Severity Score >12) incidents from 1 November 2014 to 31 December 2017 involving children aged 0-16 years to define demographic, event and injury characteristics. Analysis was done in phases with creative collaborators to optimise the populations to target injury prevention interventions.

Results
Overall, 2706 children were hospitalised (ISS was >12 in 14.6%, n=396), and 5.8% were fatally injured as a consequence of trauma (n=158). Mean age was 7.3 years (SD=± 4.71 years), and the majority were males (n=1759, 65%). There was no significant association between gender and injury severity (ISS≤12 vs ISS>12) but severity differed significantly by age group (p<0.05). Children living in outer regional areas accounted for the highest proportion of patients with an ISS>12 (n=72, 27.9%). Falls were the most common mechanism (n=1103, 41.1%) across all age groups, however this varied by remoteness; outside of the metropolitan areas motor vehicle crashes were most frequent(26%), whereas falls were the most common mechanism in metropolitan areas(n=57, 26%) . Mechanism also varied by socioeconomic status (measured by SEIFA) injuries among severely injured children living in areas of lowest socioeconomic advantage were most commonly the result of drowning (0-30th percentile: n=34, 22%) with falls most frequently occurring in areas of highest advantage (n=36, 32%). Nearly 40% of all severe injuries occurred in the lowest advantaged, (n=156).

Discussion
Prevention of falls, drowning, education of parents around home safety and supervision, and the direction of resources towards remote and socioeconomically disadvantaged communities are methods by which Queensland’s paediatric trauma trends can be improved.

Pushing boundaries

The concerning relationship between rural locations, poor socioeconomic environments and mortality/serious injury, highlight the need to address the disadvantages faced by those most vulnerable in our population. This problem requires a holistic solution to marginalisation in Queensland.

Theme: Child health and safety, Presentation Type: Oral
Concurrent Session 7 – Falls Prevention and Rehabilitation

Reductions in the incidence of falls after first and second eye cataract surgery, Lisa Keay
UNSW Sydney

Co-authors:
Kim Chun (Terry) Ho, The George Institute for Global Health, UNSW
Kris Rogers, UNSW
Peter McCluskey, Save Sight Institute, University of Sydney
Andrew White, Westmead Hospital and University of Sydney
Nigel Morlet, University of Western Australia
Jonathon Ng, University of Western Australia
Ecosse Lamoureux, University of Melbourne and Singapore Eye Research Institute
Konrad Pesudovs, UNSW
Fiona Stapleton, UNSW
Rebecca Ivers, UNSW
Anna Palaygi, The George Institute for Global Health, UNSW

Background

Cataract is a leading cause of vision impairment in Australia. Cataract surgery can restore vision and over 200,000 cataract surgeries are performed each year, however Australian patients relying on public hospital services can have long delays before accessing surgery.

Aims

To investigate the impact of first and second eye cataract surgery on the incidence of falls.

Methods

Patients aged 65 years and older on Australian cataract surgery waiting lists were invited to participate in a longitudinal study evaluating falls risk. Falls were reported prospectively over 24 months using monthly calendars with active follow-up, the dates of cataract surgery were extracted from medical records and habitual binocular visual acuity (VA) measured with an EDTRS chart (letter scored) at baseline and 3 months after surgery. The number of falls were modelled using an age and sex-adjusted negative binomial regression model with log of the years of observation as the offset, to estimate the impact of first and second eye cataract surgery on the incidence of falls.

Results

The 416 participants were 75±5 years old (mean ± standard deviation [SD]) and 220 (57%) were female. Pre-operative VA was 0.27 logMAR (95% confidence interval [CI] 0.25-0.29; 6/12-2 Snellen equivalent), 0.14 logMAR (95% CI, 0.11-0.17; 6/7.5-2) after first eye surgery and 0.06 (95% CI 0.03-0.09; 6/6-3) after second eye surgery. Falls data were available for 398 participants pre-surgery for 249±220 (mean±SD) days, 336 participants between first and second eye surgery for 313±218 days and 192 participants post second eye surgery for 203±66 days. The age and sex-adjusted annual incidence of falls was 1.17 (95% CI 0.95-1.43) pre-surgery, 0.81 (95% CI 0.63-1.04) between first
and second eye surgery, and 0.41 (95% CI 0.29-0.57) post-surgery. There was a reduction in annual falls incidence following first eye surgery (Incidence Rate Ratio [IRR] 0.69, 95% CI 0.54-0.89 referent ‘pre-surgery’) and second eye surgery (IRR 0.35 (95%CI 0.24, 0.51 referent ‘pre-surgery’).

Discussion and conclusions

This study shows that while vision is substantially improved after first eye cataract surgery, the incidence of falls is lowest after second eye surgery (approximately 35% of the pre-surgery falls rate) when full binocular vision is restored. These findings contribute evidence for planning surgical services to minimize the negative impacts of cataract in older people.

How research pushes the boundaries

This research challenges current practice of prioritising first eye surgery and demonstrates that falls risk is further reduced by approximately one-third after both eyes operated.

*Theme: Falls prevention and rehabilitation, Presentation Type: Oral*
Ehealth Management and Personalised health systems to support Orthogeriatric services and promote patient Well-being, Engagement and Rehabilitation (EMPOWER): A mixed methods study protocol, Lalit Yadav

The University of Adelaide

Co-authors:
Tiffany Gill, The University of Adelaide
Renuka Visvanathan, The University of Adelaide and The Queen Elizabeth Hospital
Anita Taylor, The Royal Adelaide Hospital
Mellick Chehade, The University of Adelaide and Royal Adelaide Hospital

Introduction

Older people with hip fractures often require long term care, post-hospital discharge. One of the crucial aspects is provision of quality health information to patients and their carers to support the continuity of care. If the patients are well informed about their health condition and caring needs, particularly post-hospital discharge into their community setting, this could help them to exercise healthy choices and in return foster recovery to improve quality of life. Further, as internet and mobile access reach to every household, it is possible to utilise this technology and build an educational platform where both patients and their providers of care can establish a credible information exchange process.

Methods

This study aims to engage patients, their carers and healthcare providers through mixed methods approach. Quantitative method will explore health literacy and ehealth literacy among older people with hip fractures admitted to the two tertiary care hospitals in Adelaide. Whereas, qualitative method will enable to understand the aspect of content and context required for the ehealth platform to be developed for delivery of quality health information. This study will be using theoretical frameworks to guide the process of design, development and conduct of the study in real-world setting. These are the National Institute for Health and Care Excellence (NICE) guideline on hip fracture management; World Health Organization’s guideline on community-level interventions to manage declines in intrinsic capacity through an integrated care approach for older people (WHO-ICOPE); Health Behaviour Change Support Systems (HBCSS); and integrated- Promoting Action on Research Implementation in Health Services (iPARIHS).

Results

Approximately, 100 participants will be recruited in the study, 50 from each site, and the data will be collected over a period of 6 months. A structured survey questionnaire has been developed using validated 14-item health literacy scale and electronic health literacy scale. Frailty status of the participants will be assessed through a validated Modified Fried Frailty Phenotype. The last section of the questionnaire consists of information collected as minimum dataset around hospital hip fracture care and management. The qualitative component of this phase of the study will consists of In-depth interviews and Focus group discussions conducted with healthcare providers from different disciplines, patients, their carers, and aged care providers.

Conclusion
As the global penetration of mobile devices achieves universal access, it is timely to upgrade and optimize supporting health system technologies and pathways of information provision.

How research pushes the boundaries

There is scope for improvement and health systems are beginning to focus their technological development around patient-centered approaches

*Theme: Falls prevention and rehabilitation, Presentation Type: Oral*
‘It’s just a matter of adapting them accordingly’: Stakeholder perspectives of falls prevention for adults aged 50 years and above with vision impairment, Lisa Dillon

The George Institute for Global Health

Co-authors:
Lindy Clemson, Sydney University
Lisa Keay, University of New South Wales

Background

Despite being at a higher risk of falls, older adults with vision impairment can have difficulty participating in community-based falls prevention programs. This could be due to issues with traveling to venues or engaging with program content when the delivery relies heavily on vision.

Aims

To investigate stakeholders’ perspectives of falls prevention programs for older people with vision impairment and to understand how falls prevention could be incorporated into existing services.

Methods

Semi-structured interviews with 22 professionals who have expertise in falls prevention or vision impairment, work for an organisation that provides falls prevention services in the community, or provide general services to people with vision impairment. Professionals included: Ophthalmologists, Occupational Therapists, Stepping On Coordinators and Orientation and Mobility Specialists, as well as an Optometrist, Orthoptist, Physiotherapist and President of a vision impairment organisation. The Behaviour Change Wheel, which emphasises interactions between policy and intervention to support successful intervention delivery, was used as a framework to analyse the interview transcripts.

Results

Five key themes related to four of the policy categories of the Behaviour Change Wheel were identified: 1) guidelines: ‘Insufficient guidelines’, 2) fiscal measures: ‘ongoing funding is critical to service delivery and innovation’, 3) communication: ‘language: honouring consumer’s perceptions of themselves’, and 4) & 5) service provision: ‘adaptations for program delivery’ and ‘Incorporation into existing services’. There was strong consensus supporting the Behaviour Change Wheel intervention function of enablement. Specifically reducing barriers and increasing means for those delivering a program, and those receiving the program, can enable the inclusion of people with vision impairment.

Discussion and conclusions

This stakeholder consultation revealed a consensus view that falls prevention programs for people with vision impairment could fit within existing services, but required efforts to enable access. There was a need identified for clear guidelines for program delivery and referral for programs, and ongoing funding of falls prevention programs. Practical suggestions were provided for service delivery and engagement of older people with vision impairment to falls prevention programs.

How research pushes the boundaries
Gaining the perspectives of professionals on falls prevention programs for people with vision impairment is essential to inform scale-up of successful programs. With an increasing number of people with vision impairment due to an ageing population, and a higher risk of falls in this group, this investigation offers a critical first step in determining how we can deliver falls prevention services to people with vision impairment.

*Theme: Falls prevention and rehabilitation, Presentation Type: Oral*
Comparing hospitalised trends, treatment cost and health outcomes of fall-related hip fractures in residential aged care and the community, Rebecca Mitchell

Macquarie University

Co-authors:
Brian Draper, UNSW
Lara Harvey, Neuroscience Research Australia
Henry Brodaty, UNSW
Jacqui Close, Neuroscience Research Australia

Background

Hip fractures are one of the most serious injuries sustained by people aged ≥65 years. The risk of a hip fracture is higher for older people living in residential aged care facilities (RACF) and their health outcomes worse compared to older people living in the community. Pre-hip fracture residential status is not well recorded within hospitalisation records, thus linkage to aged care data is required to better ascertain residential location pre-hip fracture.

Aim

To compare hospitalisation trends, characteristics and health outcomes following a fall-related hip fracture of people aged ≥65 years living in RACFs to those living in the community.

Method

A retrospective analysis of fall-related hip fracture hospitalisations of people aged ≥65 years during 1 July 2008 and 30 June 2013 in New South Wales. Linked hospitalisation, RACF and Aged Care Assessment Appraisal data collections were examined. Negative binomial regression examined the significance of hospitalisation temporal trends.

Results

There were 28,897 hip fracture hospitalisations. One-third were of older people living in RACFs. The hospitalisation rate was 2,180 per 100,000 (95%CI: 2,097.0-2,263.7) for RACF residents and 390 per 100,000 (95%CI 384.8-395.8) for older people living in the community. Over five years, the hospitalisation rate for RACF residents declined by 2.9% annually (95%CI: -4.3 to -1.5). Hospital treatment cost for hip fractures was $958.5 million. Compared to older people living in the community, a higher proportion of RACF residents were aged ≥90 years (36.1% vs 17.2%), were female (75.3% vs 71.8%), had >1 Charlson comorbidity (37.6% vs 35.6%), and had dementia (58.2% vs 14.4%). RACF residents had fewer in-hospital rehabilitation episodes (18.7% vs 60.9%) and a higher proportion of unplanned readmissions (10.6% vs 9.1%) and in-hospital mortality (5.9% vs 3.3%) compared to older people living in the community.

Discussion and conclusions

RACF residents are a vulnerable cohort of older people who experience worse health outcomes and survival post-hip fracture than older people living in the community. Whether access to individualised hip fracture rehabilitation for RACF residents could improve their health outcomes should be examined.

How research pushes the boundaries
This research was population-based involving the whole jurisdiction and the study used linked hospital, RACF and aged care assessment data collections which allowed for the identification of the individuals who were truly residing in a RACF at the time of their hip fracture. Without using linked data, this study would have under-enumerated fall-related hip fractures in RACFs by 10.7%.

*Theme: Falls prevention and rehabilitation, Presentation Type: Oral*
Western Australian Falls Report: The incidence of fall-related injuries in 2017, Rachel Meade
Injury Matters

Co-authors:
Roisin Sweeney, Injury Matters
Rachel Meade, Injury Matters
Catrina Wold, Injury Matters

Context
In Western Australia (WA) falls are a significant public health issue, ranking as the leading cause of injury fatality and hospitalisation. Consequences of falls, including fractures, traumatic brain injuries, and fear of falling, can place burden on the individual who experienced the fall, their carers, and the healthcare system. Gaining an insight into the incidence of falls in WA is vital to reducing the impact of falls on the community and health system. However to date, there is no one report that consistently monitors the current incidence of falls in WA.

Objectives
The WA Falls Report 2019, aimed to provide one report, which outlines the incidence of falls-related injuries in WA and an opportunity to monitor future trends.

Key messages
To best depict the number and rate of falls incidents in WA, data relating to falls-related fatalities, hospitalisations and emergency department admissions were collated from several sources. All incidents with a primary diagnosis of falls (W00-W19) under the International Classification of Diseases Tenth Revision (ICD-10) were included within the report.

Overall incidence, age groups, regions and causality were highlighted as trends to monitor. In 2017, there were 26,338 falls-related hospitalisations and 17,076 falls-related emergency department attendances. Individuals aged 65 years and older recorded the highest rates of fatalities and hospitalisations, and the longest average length of stay (7.75 days). The Kimberley (133% higher than the State rate) and Midwest (21.7% higher than the State rate) regions had the highest rates of hospitalisations. The leading causes of falls-related hospitalisations were due to slipping, tripping or stumbling on the same level (25.38%) and falls from, off or into an object on the same level (24.24%).

Discussion and conclusions
The WA Falls Report 2019 also includes case studies regarding falls prevention initiatives targeting older adults, children, Aboriginal peoples and regional residents, which highlight prevention strategies. Gaining an insight into priority issues and trends will assist advocacy efforts to support initiatives that aim to reduce the incidence of falls-related injuries.

How policy/practice pushes the boundaries
The WA Falls Report 2019 provides key WA falls-related injury data in one report to monitor trends and support the development of falls prevention advocacy, policy and targeted initiatives. The development of subsequent editions of the WA Falls Report will assist the monitoring of these at-risk populations and the overall incidence of falls-related injuries in WA.
Theme: Injury surveillance methods, Presentation Type: Oral
Concurrent Session 8 – Road and Transport Safety

Population-level use of comfort accessories by older vehicle occupants and effect on crashworthiness,

Tom Whyte
Neuroscience Research Australia

Co-authors:
Raman Sran, Neuroscience Research Australia
Kristy Coxon, Western Sydney University
Nicholas Kent, Neuroscience Research Australia
James McAuley, Neuroscience Research Australia
Lisa Keay, University of New South Wales
Julie Brown, Neuroscience Research Australia

Background

There is a growing proportion of motor vehicle occupants aged 65 years and older. In a convenience sample of older drivers within a limited geographical region, we observed 30% using comfort accessories (e.g. seat cushions, seat belt padding) while driving. These types of device may negatively affect crash protection in this high-risk population. It is important to understand population-level use, factors leading to use and effect on injury risk.

Aims

1) Estimate population-level use of comfort and orthopedic accessories among older people.
2) Examine factors associated with their use.
3) Investigate the effect of these accessories on crash protection.

Methods

A population-representative telephone survey of 301 NSW residents aged 65+ years collected (i) demographics, (ii) relevant health issues and, (iii) travelling behaviors including comfort accessory use. Multivariate logistic regression was used to examine associations between comfort aid use and demographic, health and travel behaviour factors.

Frontal sled tests were performed (43 km/h, 32 g) using eight identical front seats from a common passenger car. A 5th percentile Hybrid III dummy (instrumented with head and chest accelerometers, an upper neck transducer and sternal potentiometer) was tested with seven comfort accessories compared to a baseline test. High-speed video recorded dummy kinematics.

Results

27.2% (95% CI 22.2- 32.3) of NSW residents aged 65+ years reported using a comfort accessory during car travel, (seat cushions 14.6% 95% CI 10.6- 18.6; seat belt padding 12.3% 95% CI 8.6- 16.0; back/neck supports 6% 95% CI 3.3- 8.7). Increasing age (OR 1.08, 95% CI 1.03- 1.14) and female sex (OR 4.02, 95% CI 1.75- 9.23) were associated with increased odds of seat cushion use. Pain was associated with increased odds of back/neck support (Back/Neck/Multiple areas, OR 3.99, 95% CI 1.49- 10.65) and seat belt padding (Upper limb/shoulder pain, OR 3.1, 95% CI 1.08- 8.93) use.
Sled tests revealed cushion accessories were associated with potential increased risk of chest injury as measured through sternal deflection. Some lumbar support accessories were associated with potential increased risk of abdominal and lower rib injury due to submarining.

Discussion and conclusions

Sled testing indicates that over a quarter of older occupants may be at increased risk of injury in moderately severe frontal crashes due to comfort accessory usage. Strategies for improving comfort and reducing pain for older occupants are needed.

How research pushes the boundaries

This novel combination of epidemiological and engineering research identifies new targets for reducing injury in a vulnerable population.

Theme: Road and transport safety, Presentation Type: Oral
A longitudinal study of socioeconomic status during youth and risk of car crash during adulthood, Holger Moeller
The George Institute for Global Health

Co-authors:
Rebecca Ivers, UNSW
Teresa Senserrick, Centre for Accident Research and Road Safety CARRS-Q
Kris Rogers, University of Technology Sydney and The George Institute for Global Health

Background
Drivers from low socioeconomic backgrounds have a higher risk of traffic injury compared to their more affluent counterparts. However, little is known about the life course effect of growing up in disadvantaged areas and the risk of motor vehicle crash and serious injury from crash as an adult. In this study we investigated crash risk in a cohort of young drivers up to 13 years after they first obtained their drivers licence.

Aims
To investigate socioeconomic differences in motor vehicle crash and serious injury from crash.

Methods
We used data from a 2003/04 New South Wales study of over 20,000 provisional young drivers of whom over 90% lived with their parents at the time of the recruitment. The baseline survey included measures of drivers’ demographics, driving experience, behaviour, exposure, training and mental health and drug and alcohol use. Participant data were linked to police crash and hospital data up to 2016. We used Poisson regression models adjusted for confounders to estimate the association between area level socio-economic status with police reported crash and hospitalisation.

Results
After adjusting for confounding, drivers who lived in the most disadvantaged areas during young adulthood had a 1.34 (95% CI 1.23-1.45) and 1.84 (95% CI 1.39-2.44) times higher risk of police reported crash and crash related hospitalisation, respectively, compared with drivers from the most affluent areas. Differences in risk of police reported crash between drivers from most and least disadvantaged areas were highest during the last three years of follow up (RR 1.63, 95% CI 1.31-2.03).

Discussion and conclusion
Drivers who lived in disadvantaged areas as young adults had a higher risk of crash and injury from crash during adulthood compared with those who lived in more affluent areas. This difference between socioeconomic groups widened with increasing age. Applying a life course approach to injury prevention, our findings suggest that in addition to traditional measures to reduce transport crashes, road transport injury prevention needs to consider the wider social determinants of health. Further studies are needed to explore the underlying mechanisms for the inequalities observed in this study.

How research pushes the boundaries
To our knowledge this is the first study to investigate the life course effect of growing up in a socioeconomic disadvantaged area and the risk of car crash in later life, thereby highlighting the importance to consider the wider social determinants of health in road transport injury prevention.
Theme: Road and transport safety, Presentation Type: Oral
Crashes at signalised intersections caused by motorists disobeying red light signals carry elevated risks of serious injury or fatalities. In an Australian first, the Department of Transport and Main Roads and the Queensland Police Service are conducting a trial of innovative crash-avoidance radar-based technology at several intersections across Queensland which monitors vehicle speeds approaching an intersection, predicts when a vehicle will run a red light and then extends the opposing red lights to prevent vehicles and pedestrians from entering the intersection, lowering the chance of a crash while still issuing infringement notices to the offender.

Background

In Queensland, there are approximately 1,700 signalised intersections. Crashes at signalised intersections caused by motorists disobeying red light signals are especially dangerous as they frequently lead to adjacent direction or T-bone crashes at high speeds with high severity outcomes. From 1 January 2013 to 31 December 2017, crashes at intersections with operating traffic lights were responsible for 11.5% of all serious casualties in Queensland (n=3,887). These casualties were estimated to have cost Queensland approximately $2.35 billion over the five-year period.

The majority of red-light running occurs in the first few seconds after the light has switched to red as drivers are either inattentive or erroneously believe they have enough time to cross before the red. To allow for late entrants to clear the intersection, signalised intersections are programmed with an ‘all-red’ phase during which all the lights are red, which typically lasts for 2-3 seconds.

Theme: Road and Transport Safety, Presentation Type: Oral
Exploring policy and support strategies to improve experiences of the VicRoads medical review process,
Yeewah Yam
Royal Automobile Club of Victoria (RACV)

Background

To ensure drivers are medically fit to drive, Victorian drivers have a legal obligation to advise VicRoads of any serious, permanent or long-term medical conditions/disabilities that may impair driving ability. However, the idea of a medical review can be deeply personal and difficult for drivers.

Aims

This research investigates perceptions and experiences of drivers and their supporters. It explores potential support strategies to ensure drivers are willing and able to manage their fitness to drive.

Methods

An online survey was conducted with 253 Victorian participants (150 drivers who had undergone, are undergoing or considering undergoing review; 103 supporters of a driver through review).

The quantitative findings informed depth interviews with 20 drivers, supporters and relevant experts which provided richer insights into personal review experiences and opinions.

Results

83% of survey participants knew of drivers’ obligation to report conditions that may impair driving ability, but approximately one-third of drivers inaccurately thought the review always results in license cancellation. This assumption was exacerbated by fears of losing their independence, livelihood and identity.

With such perceptions and supporters’ fears of straining relationships, driver-supporter conversations about undergoing review are often challenging. Therefore, as authority figures, support and advice from medical professionals is appreciated (and expected).

While drivers (69%) and supporters (60%) often retrospectively rated their experience positively, they were frequently nervous and frustrated during review. Drivers often felt little information is available, with about 20% not knowing where to seek advice. Functional barriers (E.g. process being too lengthy and unclear) also hindered satisfaction with and willingness to undergo review.

Discussion and Conclusions

To prevent misconceptions and improve acceptance of the review, its aim of risk prevention – not just regulation – must be more entrenched in public conversation. Compassion and empathy for drivers with medical conditions is also pertinent to improve the review experience and procedure.

Increased education and clearer information about fitness to drive will alleviate apprehensions about undergoing review. Financial subsidies and better access to alternative transport are also key potential forms of support. Overall, an integrated approach between VicRoads, health organisations and leading community organisations is required to implement improvements to better support the system, drivers and supporters.
How Research Pushes Boundaries

This study is the first to take a dual methodology to investigate views of both drivers and supporters about a fitness-to-drive review, and how these can inform changes in review procedure and communication from that of regulation to prevention.

Theme: Road and transport safety, Presentation Type: Oral
Safe transportation of our community’s most vulnerable children, *Jason Chambers*

*Kidsafe Victoria*

Co-author:

*Melanie Courtney, Kidsafe Victoria*

Background

Community organisations work with some of the most vulnerable families in society, however they are often under resourced financially and in terms of capacity. Anecdotal evidence suggests that this can lead to important areas - such as child car restraint safety - being managed on an ad hoc basis, instead of with an effective strategy.

Aims

*To understand the current child car restraint practices and policies that community organisations who transport children of vulnerable families have in place, including those around the purchase, usage, storage, maintenance and replacement of child car restraints.*

*To improve the current child car restraint practices and policies that community organisations who transport children of vulnerable families have in place.*

*To assist in ensuring that staff of community organisations are transporting children as safely as possible on every trip.*

Method

For the first phase of this project, eight in depth interviews will be conducted with community organisations who regularly transport children, to assess their current child car restraint practices and policies. The in depth interviews will also examine knowledge of best practice and any barriers which exist that prevent community organisations from complying with best practice recommendations. This second phase of this project will involve utilising the findings from phase one to assess and review the adequacy of existing resources, policies and training needs of community organisations to ensure they are able to transport children safely every trip.

Results

The results of this research will be discussed, including findings on the current practices and policies, recommendations and conclusions.

This research pushes the boundaries by exploring new strategies for partnerships across the not for profit and community organisation sectors to ensure that children are transported as safely as possible on every trip.

*Theme: Road and transport safety, Presentation Type: Oral*
“My ideas are important too!”: Student perceptions of a transport safety education experience based on a critical pedagogical approach to learning, Janine Ferris
TrackSAFE Foundation

Background

Students learn most effectively through producing their own knowledge; and when students are respected and empowered, they are better positioned to use their expertise for change (Kincheloe, 2004). These two aspects of critical pedagogy can lead to positive outcomes in transport safety education programs (Assailly, 2015; Dragutinovic & Twisk, 2006; Ferris, 2017; Government of Western Australia, 2009 & 2009-a; Harris, n.d.; Twisk, Vlakveld, Commandeur, Shope, & Kok, 2014).

Aims

When transport safety education programs are designed, multiple stakeholders including industry and education authorities are consulted, but students themselves are not always considered as a key stakeholder and given input into the content and pedagogy of a program. What can be learned from asking the very people these programs seek to educate? This study aimed to find out how eleven students in rural Australia viewed and responded to what and how they learned during a transport safety education experience using a critical pedagogical approach to learning.

Methods

A qualitative mixed research method was used. A participant research method was adopted and the researcher became the teacher, using three transport safety lessons adapted from the TrackSAFE Education curriculum resources (TrackSAFE Foundation, n.d.). The students participated in focus groups and their teacher was interviewed for her perspective on the students’ perceptions of the lessons.

The lessons, focus groups and interview were audio recorded, and students were photographed while participating in the lessons and focus groups. The data was analysed and a thematic analysis of students’ responses in the lessons and focus groups was conducted.

Results

Ten themes highlighting the students’ values emerged: ‘fun’; ‘using our own ideas’; ‘being ME’; ‘solving problems on my own or with my class’; ‘actively participating’; ‘experiencing’; ‘being heard’; ‘being respected’; ‘opening our minds to new information’; and ‘understanding the task and why it is important’.

Discussion and conclusions

The eleven students in this study had clear ideas about how they like to learn and how they want to be treated when learning. The ten themes identified indicate these students’ preferences for learning align with a critical pedagogical approach.

How this research pushes the boundaries

Listening to school students’ perspectives and opinions, and gaining their input when making decisions on what and how they learn about transport safety is not often considered by policy makers, and may lead to improved educational outcomes for students.
Theme: Road and transport safety, Presentation Type: Oral
Spatial and temporal variation in fatal and non-fatal drowning events across Victoria, Australia (2007 – 2016), Bernadette Matthews
Life Saving Victoria

Co-authors:
Robert Andronaco, Life Saving Victoria
Emily Andrew, Ambulance Victoria
Karen Smith, Ambulance Victoria

Background
Drowning has a major impact on public health, and as such is investigated using various analytical and/or environment specific approaches. Whilst the epidemiology of fatal and non-fatal drowning is expanding, there is a paucity of research into spatial and temporal variation of drowning and potential elements of risk. This study utilised common geographical epidemiological approaches, to explore the distribution of fatal versus non-fatal drowning events attended by paramedics in Victoria, Australia.

Aim
To examine spatial and temporal variations between fatal and non-fatal drowning events attended by Ambulance Victoria (AV) paramedics over 10 years (2007 – 2016).

Method
A retrospective review was conducted on data from fatal and non-fatal drowning cases attended by AV paramedics (n = 847). Using attached location case coordinates, spatial point pattern techniques were used in addition to data aggregation methods within a range of Australian Statistical Geography Standard (ASGS) areal units. Areal unit aggregation methods were facilitated with the use of spatial joins.

Results
Across the 10-year study-period, the overall non-fatal (n = 546) to fatal (n = 301) event ratio was 1.81. Using event aggregation and spatial point pattern techniques several locations where fatal events exceeded non-fatal events were found. Using tourism regions, 3 of the 21 (14.29%) regions showed higher fatal to non-fatal event counts. When considering areas classed by level of remoteness, the non-fatal to fatal ratio was higher for major city areas (2.04) compared to inner regional (1.50) and outer regional areas (1.72). There were no non-fatal events recorded in remote areas.

Discussion & Conclusion
Non-fatal events tend to exceed fatal drowning based on geographical position. Although counts are subject to variation-based on areal unit number and shape, it was found that fatal events tended to exceed non-fatal events in more regional areas of Victoria. Greater understanding of geographic variation between of fatal and non-fatal drowning events may assist with devising more targeted treatment and modification of existing controls. This
enables drowning prevention experts to focus attention on understanding significant geographical variation of rates and possible etiological factors. However, caution must be exercised in utilising the most appropriate method with benefits and limitations of the different outputs.

How research pushes the boundaries:

This research utilises spatial analysis which provides a unique set of techniques and methods for analysing drowning events in geographical space. Visualising the relative risk of drowning is an insightful preliminary step in articulating the geographical distribution of drowning events.

*Theme: Injury surveillance methods, Presentation Type: Oral*
Which injured pedal cyclists are in crash data, and why? Angela Watson  
*Centre for Accident Research and Road Safety - Queensland (CARRS-Q)*

Co-authors:  
*James Harrison, Flinders University*  
*Joanne Flavel, Flinders University*  
*Kirsten Vallmuur, Queensland University of Technology*

Background  
Case counts and rates of serious road injury have risen more for pedal cyclists than for other road users yet are poorly covered by the crash data collections on which road safety programs largely rely. In Stage 1 of a record linkage project to improve information on serious non-fatal road injury, we found below 30% of hospitalised pedal cyclist injury cases in were also recorded in crash data, compared with over 80% of motor vehicle drivers. Effects of and reasons for the poor ascertainment of pedal cyclists have been little studied.

Aims  
To describe the under-ascertainment of pedal cyclist cases in crash data focusing on its effects on information for road safety.

Methods  
We use the linked data developed in Stage 1 of the Austroads-funded project to compare pedal cyclist cases found in both hospital and crash data with those found only in hospital data. Analysis considers characteristics of cyclists, crashes and outcomes.

Results  
The 4,324 hospitalised pedal cyclist road injury cases in 2014 in NSW, Victoria, Queensland and South Australia resulted in 14,239 bed-days to 30 days after onset and 16,631 to 1 year. 1,262/4,324 (29.2%) were found in both crash and hospital data (C-H), the rest being found only in hospital data (H-only). Time in hospital (days attributable to the crash, to 1 year) tended to be shorter for C-H cases than for H-only cases, largely reflecting the much higher proportion of C-H crashes that involved motor vehicles. Further findings will be presented.

Discussion and conclusions  
Indicators specified in Australia’s National Road Safety Strategy can be reported using data available in crash data, but only some indicators can be reported on the basis of hospital data. The low proportion of hospitalised pedal cyclist cases found in crash data, and their differences from H-only cases, thus present a problem for measuring and monitoring this growing type of road injury.

How research pushes the boundaries  
Pedal cyclists have become a substantial part of the problem of serious road injury but are not as well described as other road users in the data used to guide prevention and monitor change. The research is providing insights into the causes and consequences of this, as a basis for providing advice on how to resolve the problem.

*Theme: Workplace injury and safety, Presentation Type: Oral*
Media as a tool for injury prevention advocacy: A drowning prevention case study from the Australian summer, Amy Peden
Royal Life Saving Society – Australia

Co-authors:
Richard Franklin, James Cook University
Stacey Willcox-Pidgeon, Royal Life Saving Society – Australia

Background

Good data is essential for effective injury prevention and underpins the World Health Organization (WHO) drowning prevention strategy (1). In Australia, media provides a useful means of tracking injury events throughout the year, deriving interim tolls for advocacy purposes such as drowning (2) and road tolls (3), and as part of a data triangulation method. Media advocacy over summer is particularly important, when approximately 42% of Australia’s annual unintentional drowning deaths occur (4).

Aims

This study aims to explore the completeness of drowning data reported by the media, compared to coronial cases of drowning, during the Australian 2017/18 summer (December-February).

Methods

Monitoring of print, broadcast (radio and television) and online media (including social media) allows for relevant cases to be compiled in an Access database. This list was compared to cases identified through keyword searches on the National Coronial Information System (NCIS) for the same period, to identify proportion and type of cases reported in the media, compared to the NCIS.

Results

Media monitoring identified 84 cases, of which 9 (10.7%), were water-related deaths but not drowning. There were 104 NCIS deaths during this time of which 75 were reported in the media (72% capture). Media captured 100% of drowning incidents involving people 0-24 years and in ocean/harbour locations. Drowning incidents among older people (75+ years; 36.4% capture), in bathtubs (0.0% capture), swimming pools (33.3% capture) and with an unknown activity (27.3% capture) were poorly reported.

Discussion and conclusions

When aware of its limitations, media can be a useful tool for injury data collection, preferably used in a data triangulation methodology with more official sources, such as coronial data. Using the media to report in real-time on injury incidents has value in improving safety and prevention messaging. Anecdotally, the experience in Australia has been that the more discussion about drowning in the media, the larger the coverage of drowning, in particular during summer with the interim summer drowning toll (2).
This study highlights the strengths and weaknesses of using media to enhance advocacy and is a vital component of data triangulation for drowning. While media may not collect 100% of deaths, could be used to enhance the timeliness and quality of death registry and therefore enhance research and prevention efforts.

Acknowledgements: This research is supported by Royal Life Saving Society – Australia, which in turn, is supported by the Australian Government.

Theme: Injury surveillance methods, Presentation Type: Oral
The effect of pre-crash health on post-crash recovery and claim outcomes after transport injury, Janneke Berecki
Monash University

Co-author:
Trevor Allen, Monash University

Background
Survivable injury outcomes after a transport crash range from rapid and complete recovery to long-term disability and pain. Injury type and severity alone are not accurate predictors of recovery outcomes. Long-term pain and mental health issues secondary to injury are particularly difficult to predict. A better understanding of the determinants of post-crash injury outcomes can help insurers and health service providers achieve better recovery outcomes by providing those who are at elevated risk with additional services.

Aims
The purpose of this research was to better understand how pre-crash health can affect post-crash recovery and claim outcomes, using data from transport injury claims linked with hospital admission records.

Methods
The sample consisted of 88,662 adults who had a non-fatal injury claim with the Transport Accident Commission (Victoria) between 2010 and 2015. Claims data was linked with hospital admission records from the Victorian Admitted Episodes Dataset (VAED) from 2005-2017. Pre-injury records were used to determine pre-injury conditions or lifestyle factors. Claims data injury outcomes were: claim cost, claim duration, and time to return to work. Cox proportional hazards models, linear models and logistic regression models were used to model the various claim outcomes; models were adjusted for age, sex, socio-economic conditions, length of hospital stay and injury type.

Results
Half of those with a transport injury claim (50%) had at least one linked hospital admission record within five years preceding the crash. The most prevalent chronic diseases identified were chronic pain-related conditions, cancer, hypertension, diabetes, chronic kidney disease, and depression. Pre-crash diagnosis of chronic pain was associated with higher claim costs, longer claim duration and longer return to work time. Pre-crash depression was associated with higher claim costs. Pre-crash cancer was (mildly) associated with shorter claim duration and lower claim cost, and shorter return to work time.

Tobacco use, alcohol misuse and drug abuse were the most prevalent hospital-recorded ‘lifestyle’ factors. Each of these pre-crash factors was associated with higher claim costs and longer return to work time.

Discussion and conclusions
Pre-injury chronic pain, alcohol misuse, drug abuse and tobacco use were relatively common and each associated with aspects of poorer recovery. Further research is needed to explore how to use this information to flag those at risk for poor recovery, and how to best provide additional services to improve their longer-term outcomes.

Acknowledgements
Project funded by the TAC (Victoria) through ISCRR (Institute for Safety, Compensation and Recovery Research). Data linkage carried out by the Centre for Victorian Data Linkage.

Theme: Injury surveillance methods, Presentation Type: Oral
A systematic review and meta-analysis of impact speed and probability of pedestrian fatality or injury,

Jake Olivier

University of New South Wales

Co-authors:

Qinaat Hussain, Qatar University and Transportation Research Institute (IMOB)

Hanqin Feng, UNSW

Raphael Grzebieta, UNSW

Tom Brijs, Transportation Research Institute (IMOB)

Background

Pedestrians struck in motorised vehicle crashes constitute the largest group of traffic fatalities worldwide. Excessive speed is the primary contributory factor in such crashes.

Aims

To systematically review studies that estimate the relationship between impact speed and the risk of a pedestrian fatality and summarise the results in a meta-analysis.

Methods

Four electronic databases (MEDLINE, EMBASE, COMPENDEX, SCOPUS) were searched to identify relevant studies. Records were assessed, and data retrieved independently by two authors in adherence with the PRISMA statement. The included studies reported data on pedestrian fatalities from motorised vehicle crashes with known impact speed. Summary odds ratios (OR) were obtained using meta-regression models. Time trends and publication bias were assessed.

Results

Sixty-four studies were identified for a full-text assessment, 27 met inclusion criteria, and 20 were included in a meta-analysis. The analyses found that when the impact speed increases by 1km/h, the odds of a pedestrian fatality increases on average by 11% (OR=1.11, 95%CI: 1.10-1.12). The estimated risk of a fatality reaches 5% at an impact speed of 30km/h, 10% at 37km/h, 50% at 59km/h, 75% at 69km/h and 90% at 80km/h. Evidence of publication bias and time trend bias among included studies were found.

Discussion and conclusions

The results of the meta-analysis support setting speed limits of 30 to 40 km/h for high pedestrian active areas. These speed limits are commonly used by best practice countries that have the lowest road fatality rates and that practice a Safe System Approach to road safety.

How research pushes the boundaries

To the best of our knowledge, this is the world’s first systematic review and meta-analysis on this topic.

Theme: Road and transport safety, Presentation Type: Oral
A whole school approach to student safety, health and well-being in Western Australian schools, Allison Hass

Road Safety and Drug Education Branch

Co-authors:

Deb Zines, Road Safety and Drug Education Branch
Des Duguid, Department of Education WA

Changing Health Acting Together (CHAT) is an initiative of the Western Australia (WA) Department of Education and is implemented in WA schools as a holistic approach to road safety, drug and resilience education. It was initially developed and rolled out in 2010 by the School Drug Education and Road Aware (SDERA) program. Since January 2019 the SDERA program has been administered by the Department of Education in collaboration with Catholic Education WA (CEWA) and the Association of Independent Schools of WA (AISWA).

To date, 145 primary and secondary, metropolitan and regional schools are involved in CHAT.

It is based on the health promoting school framework that includes in-school support to: (a) help schools develop a best practice, whole-school approach to road safety, drug and resilience education; (b) holistically examine and implement consistent messages about student safety and well-being through the curriculum, school ethos (school policy), and with parents and community. Research clearly indicates that a whole-school approach to any safety and health issue can produce the best health outcomes for children and young people, when schools, parents and communities work together.

Benefits of the CHAT initiative include: (a) development of policy and school guidelines for road safety, drug and resilience education; (b) positive changes in school culture; (c) improved student participation and partnerships with parents; (d) a method for formalising processes and increasing collaboration with other schools and services; (e) opportunities for, and increased participation in, professional learning for teachers; (f) management principles that build human, organisational and social capital within the schools; and (g) improvements to the social environment that can have a positive impact on students’ safety and well being including their mental health, smoking and alcohol intake, and road safety practices.

In 2013 Edith Cowan University was commissioned by the SDERA program to conduct a process evaluation of the CHAT initiative. The purpose of the evaluation was to describe observable changes to whole-school policies, practices and environments in the schools that participated in the CHAT initiative. Changes were observed and recorded by SDERA staff, school staff, parents and students. This presentation will describe the CHAT approach to whole school engagement; and explore how the findings of the 2013 evaluation have helped to formulate plans for developing a more sustainable model of a whole school approach to student health.

Theme: Child health and safety, Presentation Type: Oral
When environmental solutions take too long: The vital role of education and enterprise in child injury prevention, **McKeely Denholm**

**Kidsafe SA**

**Context**

Children are dying and getting seriously injured because of the dangerous nature or misuse of products. Banning these products is often the goal, however this usually takes a long time to achieve. Kidsafe SA demonstrate what can be done while we wait.

**Objectives**

To explore how recent Kidsafe SA campaigns demonstrate the need to take action whilst waiting for an environmental solution.

Encourage public health practitioners to engage in education or enterprise methods to elicit significant change.

**Key messages**

- Policy change or environmental solutions can take a long time to come into effect.
- As experts in the field, we have a duty of care to ensure families are warned about the risks associated with products on the market.
- There are effective ways to help prevent injury while the process of environmental solution continues.

**Discussion and conclusions**

It continues to be the popular opinion of injury prevention professionals and researchers that an environmental solution (legislative and standards change, and better design) is the preferred option when attempting to make significant change. Road safety laws and improvements in vehicle design is an example of this, where seatbelt manufacture and legislation is considered the single most effective method of protecting people from injury in a crash.

People in this field are also aware that such legislative changes can take years to implement and for the community to see results. Seatbelts were first introduced to the market in 1959, however the earliest seatbelt legislation in Australia was not until 1970 in Victoria.

So, what can be done while we wait for significant change or an environmental solution?

In recent years, Kidsafe SA have delivered a number of timely education and awareness campaigns that have had a significant and measurable reach in the wait for an environmental solution. For some injury issues, there is no obvious environmental solution.

Two key examples of this work include a button battery awareness campaign, a result of Coronial recommendations made after the death of a 5-year-old girl; and a collaborative campaign on the dangers of the misuse of baby slings following 3 deaths in 7 years.

Our experiences provide further support for educational and awareness programs as part of a broader multifaceted approach.

**How policy/practice pushes the boundaries**

By implementing education or enterprise solutions Kidsafe SA is pushing the boundary on the belief that an environmental solution such as policy change is the only way to reduce injury.
Swings and roundabouts - The making of child injury prevention policy in Aotearoa New Zealand: An exploration, Julie Chambers
Chambers NZ

Co-authors:
Muthia Cenderadewi, James Cook University
Amy Peden, Royal Life Saving Society – Australia
Sue Devine, James Cook University

Background

Unintentional injuries (accidents) are a global child health problem. Many child injury prevention measures are proven to be effective, yet government and community focus on prevention waxes and wanes through time and across locations. Within New Zealand some measures, such as child car seats, are mandated and enforced while the provision of other equally effective strategies, such as the enforcement of swimming pool fencing regulation, appears inconsistent.

Aims

This research set out to describe what influences the New Zealand government’s adoption of child injury prevention policies.

Methods

Interview data were thematically analysed, and the results accompanied by a case study. Methodological approaches included grounded and critical theory while Foucault’s concepts of governmentality and discourse provided theoretical context.

Discussion and Conclusion

Factors that contribute to the adoption of child safety policy were identified. These included collaboration, advocacy and lobbying, power, funding and perceptions of safety. The findings also demonstrate support for improving child safety from government employees at various levels of responsibility across many agencies. Such support was provided with and without endorsement by political decision makers. This research draws attention to the importance of achieving widespread acceptance of issues and confirms the observation that the broader the base of people involved in the development and sharing of evidence and desired hegemony, the more likely measures will be adopted by government insiders and decision makers.

How this research pushes the boundaries

Positivist, quantitative research is the foundation of injury prevention science, but at times was found to have perverse effects, especially if work to reduce the number of injury events by quantifying and reporting them, is construed as an effort to displace valued childhood experiences. Collaboration is also promoted as essential best practice but can also have perverse effects when cohesive groups become inwardly focussed and marginalised.

Advocacy and lobbying for child injury prevention were acknowledged as essential activities by those active in injury prevention but are not well explored or researched within New Zealand’s injury prevention community. Gains in
child safety might be lost if well established, proven methods to prevent child injury are ignored or reversed. The presentation concludes with recommendations for injury prevention practitioners and researchers.

Theme: Child health and safety, Presentation Type: Oral
Hazardous child products on the Australian and USA market 2011-2017: An empirical analysis of child-related product safety recalls, Catherine Niven
Queensland University of Technology

Co-authors:
Ben Matheus, Queensland University of Technology
James Harrison, Flinders University of South Australia
Kirsten Vallmuur, Queensland University of Technology

Background
While there is evidence that unsafe children’s products are entering the Australian market, with increasing product safety recalls, no research has examined the nature of recalls, or their trends over time. This gap in knowledge impacts on the development of evidence-based prevention approaches and reform priorities.

Aims
This research analyses Australian and USA child-related product safety recall data to better understand the frequency and nature of unsafe children’s products, emerging hazard trends, and cross-jurisdictional similarities and differences. Results can inform improved childhood injury prevention policy and regulation strategies in Australia.

Method

Results
Cross-jurisdictional comparison revealed similarities in Australia and the USA, with over 80% of recalled products occurring in four industry segments (Toys/games, Household Furniture/furnishings, Clothing and Sports Equipment) and a common leading hazard of choking. Disparate trends included a 21% decrease in USA child-related recalls over the study period, with most recalled products still complying with mandated safety requirements. In contrast, Australian child-related recalls increased by 88% over the study period, with the majority of recalled products failing to comply with mandated safety requirements. Based on USA child-related recall data, the leading cause of injuries was the child falling, the most severe injuries related to furniture/furnishings, and the most frequent injuries related to sports equipment.

Discussion and conclusions
Analysing recall data provides new insights into hazardous child products. Cross-jurisdictional comparison of data on recalls highlights disparities and indicates a need for reforms to improve regulation of children’s products in Australia.

How this research pushes the boundaries
This cross-disciplinary research applies an empirical lens to regulatory data, and utilises a novel method to conduct cross-jurisdictional data comparison, to identify clear recall trends, prevention priorities and the need for regulatory reform. The results have been feed directly into government to inform the current Australian product safety
regulatory reform proposals. This knowledge translation enhances childhood injury prevention policy and regulation strategies in Australia.

Theme: Consumer product safety, Presentation Type: Oral
Milestones in Childhood Safety Legislation, John Hemsley Pearn

Faculty of Medicine, University of Queensland; and Burns Unit, Department of Surgery, Queensland Children's Hospital

Safety legislation, with its consequential regulations, is the most powerful of the three domains of primary safety promotion—education; better physical design for a safe environment; and the imposed regulations which follow legislation. Secondary approaches to injury prevention include improved bystander first aid, ambulance services and medical management. Such do not prevent trauma, but save lives, promote convalescence and reduce the long-term consequences of injury. Road trauma (pedestrian run-downs; trauma following inter-vehicle crashes; and bicycle trauma), drowning, thermal injury, medication overdose and fireworks injuries are examples where legislation has dramatically reduced both mortality and morbidity. In addition to its primary role in injury prevention, safety legislation acts also in each of the other domains of primary injury prevention—that of public education and ergonomic design of the manufactured and physical environment.

Legislation is also a powerful determinant of effectiveness in the domain of secondary prevention where regulations ensure standards of care in such fields as salaried ambulance response in the domain of pre-hospital healthcare. Early legislation which had the consequential and secondary effect of reducing trauma in childhood was the passing of such humanitarian acts as the UK. Act for the Better Regulation of Chimney Sweepers and their Apprentices (1788), the Health and Morals of Apprentices Act (1802), and the Mines Protection Act (1882), this latter which prohibited the employment of females of all ages in dangerous, underground mines. Since that time, safety legislation has become more focused on the prevention of specific hazards. National safety legislation has been a feature of both Australian and New Zealand legislative history. Examples are the Australian Child Care Act; Designs Act; Explosives Act; and the Trade Practices Act. In New Zealand, the Regulations (58E and 60) under the Health and Safety at Work Act (2015) prohibit children under 12 years of age from operating or riding on farm machinery. Such are examples of milestone legislation which has dramatically reduced death and chronic morbidity in childhood. This paper presents a chronology of parliamentary acts which underpin the evolution towards a safer society.

Theme: Child health and safety, Presentation Type: Oral
Right patient, right place? Where do seriously injured children receive care in Canada? Alison Macpherson
York University

Co-authors:
Sarah Richmond, Public Health Ontario
Natalie Yanchar, Alberta Children’s Hospital
Ian Pike, BC Injury Research and Prevention Unit

Background

Organized trauma systems are associated with significant reductions in morbidity and mortality. Many of Canada’s provinces have organized pediatric trauma systems in place. However, the effectiveness of these systems in getting the right patient to the right place has yet to be demonstrated. Previous work has defined a set of ICD-10 codes identified as serious, and suggested that children with these diagnoses be treated at pediatric trauma centres.

Aims

To determine the percentage of children with a serious injury diagnosis treated at pediatric trauma centres, and to examine the variation in the percentages by province. A secondary aim is to validate a previously developed indicator of serious pediatric injury.

Methods

Data on children hospitalized for trauma and poisonings across Canada were obtained from the Canadian Institute for Health Information. Injuries were identified as serious if the primary diagnosis was one of the serious injuries. Cross tabulation identified the percent of children with these diagnoses seen at pediatric trauma centres, and logistic regression identified the odds of a child with a serious injury going to a pediatric trauma centre. The analysis will used the previously established indicator, and one that has been expanded to include drownings and poisonings not routinely captured in trauma databases.

Results

Of the 121,741 children hospitalized between 2008 and 2015, 4,123 were identified as serious. Of these, 2,559 (62%) were seen at pediatric trauma centres. There was considerable variability among provinces, with the percent of serious injuries treated at pediatric trauma centres ranging from 0 to 78. Logistic regression found the odds of being treated at a pediatric trauma centre was 2.1 (95%CI 1.9-2.2)

Discussion

Although children with serious injuries are more likely to be treated at pediatric trauma centres, many seriously injured children are not receiving care at the right place. This is particularly true in provinces and territories without a pediatric trauma centre. Efforts to improve pathways for injured children may improve these percentages.

How research pushes the boundaries

Some Canadian provinces have formal pediatric trauma systems that include pre-hospital and hospital components, but others do not. This research will help push the boundaries of what is considered acceptable trauma care for
seriously injured children. It also validates an indicator of serious pediatric injury that can be applied in other settings.

*Theme: Trauma care across health care continuum (emergency response to rehabilitation), Presentation Type: Oral*
Responsive surveillance for prevention policy: A case study of the lime scooter trial in Brisbane, Kirsten Vallmuur
Queensland University of Technology and Jamieson Trauma Institute

Context

Recently a shareable e-scooter trial was implemented in Brisbane CBD with ostensibly minimal consultation with key stakeholders responsible for monitoring or responding to issues that arise due to the use of these vehicles. Trials of these disruptive vehicles have occurred across the world with mixed success and recurring controversy surrounds the safety of these vehicles for riders and other pedestrians. These vehicles present a challenge for public health surveillance systems because they are not captured in existing coding systems and are often implemented rapidly, limiting opportunities to instigate prospective data collections. Furthermore, policy makers and regulators often seek rapid access to injury data during such trial periods, and a lack of data can significantly hamper the thoroughness of risk assessment decisions.

Objectives

This presentation describes a responsive surveillance initiative to monitor shareable e-scooter-related injuries undertaken by the RACS Queensland Trauma Committee and the Jamieson Trauma Institute (JTI). Upon notification of the shareable e-scooter trial in Brisbane, RACS/JTI rapidly assessed the feasibility of data collection utilising existing prehospital and emergency data collection systems and communicated through local networks to request core data regarding e-scooter presentations be captured for compilation throughout the trial. Concurrently, representatives of RACS/JTI utilised existing local partnerships with the transport authority, product safety regulator, city council, third-party compensation regulator, and emergency and trauma clinical networks to regularly communicate the progress and findings to ensure a transparent feedback loop was established with key stakeholders. Whilst ongoing challenges remain regarding the comprehensiveness of data for risk assessment of disruptive vehicles, the value of having basic responsive surveillance data and stakeholder buy-in is critical to rapid prevention responses.

Key messages

• There is a need for rapidly responsive surveillance to be implemented when new disruptive vehicles/products are introduced to the community;
• Establishing pre-existing strong local interdepartmental injury prevention networks is essential for a rapid response to emerging disruptive vehicles/products;
• Capturing the impact of data and advocacy on regulatory and policy decisions is challenging;
• The importance of using local learnings to inform national discussions cannot be underestimated.

Discussion

This presentation demonstrates how responsive surveillance at a local level can inform national policy decision making and will highlight the significant challenges and opportunities for public health surveillance and injury prevention in the era of disruptive vehicles/technologies/products.

Pushing the boundaries

This initiative pushed the boundaries by enabling rapid responsive surveillance and open communication between clinical, government and academic stakeholders to enable agile decision making.
Theme: Translating research into practice and policy, Presentation Type: Oral
Pushing boundaries: Looking back, leaping forward for injury prevention health promotion programs,

Russ Milner  
Department of Health WA  

Co-author:  
Erica Davison, Department of Health WA

Context

The Western Australian Department of Health (DoH) employs a small team to oversee Injury Prevention policy within the Chronic Disease Prevention Directorate. The Injury Prevention team (the Team) lead the strategic direction and purchasing of programs for injury prevention.

The Team partners with non-government organisations (NGOs) in Western Australia to deliver comprehensive community-based injury prevention health promotion programs (Programs). Four Programs were awarded, following an open-tender process in 2013, and ran 1 July 2014 – 30 June 2019. With the conclusion of the five-year contracts, the Team completed a systematic review of priorities, strengths, and opportunities in preparation for a new round of purchasing. This review – both internally and in consultation with the NGOs – has sharpened the focus of the programs to meet the needs of the WA community.

Objectives

DoH invests in four programs: Falls Prevention; Water Safety; Child Safety; and Partnership and Sector Development. These were delivered successfully from 2014-2019. A new round of purchasing provided an opportunity to review priorities and investment values, and refine the scope of each program.

DoH used a suite of information to achieve this, including:

- Key reports, strategic frameworks, and available research
- Service reviews
- Consultations with NGOs
- Practical knowledge and experience

Key messages

Following a preferred service provider process, DoH awarded four new service agreements, successfully ‘pushing the boundaries’ into new and emerging priority areas. Key changes to each of the four programs will be presented and explained. A summary of the ‘building blocks’ to successful partnerships between research, policy and practice will also be suggested.

Discussion and conclusions

DoH policymakers seek to understand, support, and partner with researchers and practitioners to reduce the burden of injury. Co-dependence on research and evaluation unpins and justifies further investment, which allows practitioners to deliver effective programs in innovative ways. Effective program delivery supports policymakers to lobby for, and guide, the portfolio. The shared goals and successes of the three groups are mutually beneficial and allow for greater community outcomes.

How policy/practice pushes the boundaries
The DoH leads Australia in having an Injury Prevention team and investing in specific injury prevention health promotion programs. The successful partnerships are the product of years of collaboration and targeted statistical research. This presentation will share how DoH leads the way in injury prevention, and ‘pushes the boundaries’ to ensure the translation of research into policy and practice.

Theme: Translating research into practice and policy, Presentation Type: Oral
Engaging with local governments for injury prevention, Emily Anderson
Injury Matters

Co-authors:
Sandy Lukjanowski, Injury Matters
Rachel Meade, Injury Matters
Samantha Dowling, Injury Matters
Gemma Davis, Injury Matters
Catrina Wold, Injury Matters

Context

Injury Matters (IM) works to influence policy makers about the impact of injury and promotes prevention as a priority. Local Governments (LG) have an increasing responsibility for community health and wellbeing, providing opportunity to engage in injury prevention and safety promotion activities. IM has collaborated with health services and LGs to raise awareness of key injury issues in their area and support the delivery of solution-focussed injury prevention initiatives.

Objectives

This presentation will discuss the process IM undertook to engage with a LG to influence local injury prevention and safety promotion initiatives.

Key messages

It is important to align injury prevention and safety promotion priorities with local government plans.

Access to current epidemiological data is a useful engagement tool with LGs to demonstrate the burden of injury for local residents.

Access to current evidence-based interventions and resources builds LG capacity to implement injury prevention activities.

Partnerships are critical for the sustainability of injury prevention initiatives.

Discussion and conclusions

IM began by developing stakeholder relationships with the Population Health Unit from the governing area health service and an identified LG. Local injury epidemiological data was used as a tool for engagement to increase awareness, understanding and priority of injury. Falls injuries were identified through the data as a leading issue within the LG. A review of the LG strategies and plans, including the Draft Public Health Plan, highlighted injury prevention synergies with the LG and IM for future collaborations. IM was able to provide in-kind support for falls prevention activities through the Stay On Your Feet® program. This included resources, campaign toolkits, education sessions for older adults, health worker training, and attendance at local community events. For LG residents that were identified as high-risk for a fall, IM collaboratively offered the Stepping On program to build resident falls prevention capacity. Following the engagement, the LG has embedded injury prevention priority areas within their Public Health Plan, including falls, road safety, drownings, interpersonal violence and dog bites.
How policy/practice pushes the boundaries

Traditionally LGs have not identified with injury prevention. Identifying how injury prevention and safety promotion aligns with existing strategies and plans is important to influence local policy and injury prevention initiatives. To support LGs to implement injury prevention initiative’s, IM has developed a LG Engagement Strategy, which sets out the communication, partnerships and training activities IM will undertake with LGs in WA.

*Theme: Translating research into practice and policy, Presentation Type: Oral*
True collaboration does make a difference, *Susan Teerds*
*Kidsafe Qld Inc*

The Consumer Product Injury Research Advisory Group (CPIRAG) was initially established in Queensland 2010 as an advisory group for a Centre for Accident Research and Road Safety Queensland (CARRS-Q) research project funded by a Queensland Injury Prevention Council grant to assess the feasibility of using injury data for product safety surveillance. The group is comprised of representatives from the following categories; regulators (Office of Fair Trading, ACCC, Electrical Safety, Worksafe), researchers, clinicians, advocacy groups and industry. Since Oct 2011, the group has met monthly and more recently bimonthly to share injury experience, expertise and research to both inform from the frontline up (into regulatory action) and from regulators down (into public health/ awareness campaigns/ recalls). The group provides an expertise hub that can be drawn on at short notice to flag, discuss and advise on emerging hazards. CPIRAG was instrumental in providing the evidence needed for the introduction of a permanent ban on small high powered magnets, and have undertaken two widespread campaigns to raise awareness about the risks of button batteries and unsafe use of baby slings. The group continues to work on a wide range of activities, both emerging product safety hazards as well as products of ongoing concern. The hallmark of this group is information sharing, with regular email conversations between meetings, keeping the group informed and nimble, to respond to issues at short notice.

The CPIRAG model has been emulated in Western Australia and could be replicated in other states to inform and coordinate injury prevention strategies.

*Theme: Translating research into practice and policy, Presentation Type: Oral*
How do you know your products safe? Ruth Barker  
Queensland Injury Surveillance Unit

The proposed introduction of a General Safety Provision in Australia will require suppliers to have evidence to substantiate a product's safety prior to market exposure. Currently, tools for assessing a product's safety are largely limited to a small number of Standards and guides that do not address all of the known safety risks. Moreover, it is not just the product itself that may be hazardous, but the manner in which it is advertised, imaged, sold or shipped. This presentation was developed at the request of the National retailers association and presented at their recent meeting. The presentation generated new conversations around how consumers interpret safety information, how they understand standards compliance and risk and how consumers have product safety feedback for industry that is currently not being heard.

Theme: Translating research into practice and policy, Presentation Type: Oral
Concurrent Session 12 – Road and Transport Safety

What’s needed to improve the drug driving issue in Victoria? Yeewah Yam
Royal Automobile Club of Victoria (RACV)

Background

Drug driving is a growing road safety issue in Victoria. In the last five years, approximately 41% of motorists killed who were tested had drugs in their system, and one in four Victorians who use drugs admit to driving under the influence of recreational drugs (TAC, 2018). The Victorian government has invested $17.9 million to introduce more purpose-built booze-and-drug buses and perform more roadside drug testing (RDT; TAC, 2018). With increasing resources allocated to combat drug driving, the effectiveness of current enforcement, policies, interventions and deterrence strategies should be examined.

Aims

This project aimed to:

- investigate current policies and enforcement practices,
- identify opportunities for improvement within current Victorian drug driving policies and enforcement practices, and
- shape RACV’s policies to improve the drug driving problem in Victoria.

Method

Seven small group and individual interviews of approximately one hour each were conducted with representatives from various governmental organisations, academic institutions and research centers.

Results

Interviewees agreed the current management of drug driving enforcement in Victoria is working as well as possible, given resources and current technological capabilities. There was clear understanding of the research required to refine RDT technologies, understand effects of individual drugs on driving performance, and monitor evolving drug trends. There was also consensus that current penalties are sufficiently severe and harsher penalties are unlikely to reduce drug driving.

More importantly, interviewees emphasised that focus should be shifted from regulatory approaches to education and therapeutic interventions. Public education would encourage self-regulation and increase knowledge of drug driving, including about the lesser-known effects of prescription medication on driving performance.

Nevertheless, a subset of drug drivers will remain undeterred by penalties or self-regulation due to drug addiction and dependency. Thus, a holistic therapeutic approach that acknowledges drug driving as part of a wider public health problem would be more effective to reduce drug driving.

Discussion and Conclusions
This research pushes boundaries by highlighting that drug driving should be tackled not in isolation as a road safety issue, but within the broader context of the (mis)use of illicit drugs and prescribed medication.

As a highly reputable non-government organization with focus on road safety, RACV will strive to further support government policies through public communication of key messages and support for research around drug driving. Overall, a collaborative effort between non-government organisations, public health agencies, research institutions, and government is integral to alleviate Victoria's drug driving problem.

Theme: Road and transport safety, Presentation Type: Oral
Adding trains and trams to Safety Town: A government and not-for-profit road/rail education partnership pushing the boundaries in NSW, Janine Ferris

TrackSAFE Foundation

Context

One third of pedestrians hospitalised due to serious injuries at level crossings each year in Australia are young people (Henley & Harrison, 2017), and heavy and light rail infrastructure is increasing across NSW. The TrackSAFE Foundation (TrackSAFE) identified opportunities to integrate rail safety education content into the existing evidence-informed road safety education resource ‘Safety Town’, funded by Transport for NSW (TfNSW) and widely used by schools across NSW. Safety Town is a resource for teachers, students and families, and includes a variety of learning activities for students from Kindergarten to Year Six (TfNSW, n.d.). TrackSAFE identified an opportunity to strengthen the existing resources, approached the NSW Joint Planning Committee, Road Safety Education, and gained approval to develop rail safety education content.

Objectives

Road safety is taught in NSW schools as a compulsory part of the Personal Development, Health and Physical Education (PDHPE) syllabus from Kindergarten to Year 10 (Neagle & Fegan, 2017). As such integrating rail safety content into a program teachers already widely use has the potential to increase NSW students’ knowledge about safety near trains, trams and tracks.

Key messages

All of the Safety Town resources were meticulously reviewed, and TrackSAFE suggested additions to existing content including pedestrian safety near trams, trains, tracks, on platforms and at level crossings; and passenger safety on trains and trams. All content aligned with the underpinning values of the program as well as the K-6 Syllabus outcomes for PDHPE (NSW Government, 2014).

Discussion and conclusions

The changes to the Safety Town resources have the potential to increase NSW primary students’ knowledge in how to stay safe as a pedestrian or passenger around trains, trams and tracks.

How this practice pushes the boundaries

A collaborative partnership between TrackSAFE and TfNSW’s Centre for Rod Safety has not been attempted before. If successful, this model has the potential to be adopted in other states and territories.

Theme: Road and transport safety, Presentation Type: Oral
Keeping Kid’s Safe on the Roads – Comprehensive Road Safety Sessions for Culturally and Linguistically Diverse (CALD) and Aboriginal Community Groups, Stacie Powell

Kidsafe NSW

Co-author:
Vicki Milne, Kidsafe NSW

Context

In NSW, a significant burden of injury and death of children is road related, including children as passengers in vehicles. Parents and carers of young children, especially those with language backgrounds other than English, and who may not be literate in their first language, report that they are unfamiliar with driving and road safety protocols relating to children in cars (Hall et al., 2018). Both injury and death from road related events for Aboriginal children is twice that of their non-Aboriginal counterparts (Moller et al., 2017).

Objectives

The project, funded by Transport for NSW, sought to collaborate directly with CALD and Aboriginal community groups to create, deliver, and individually tailor a comprehensive road safety program. Evidence based sessions focused on vulnerable young road users on wheeled toys, as pedestrians, and as passengers. Flexible session delivery accommodated the unique needs of each group. These varied from a sit down presentation to more of a casual walk around and chat, depending on the setting and preference of the organisation.

Key messages

Key messages detailed issues of travelling with children, laws and regulations relevant to child safety, child car seat safety, parent pedestrian modelling, driveway safety, and wheeled toy safety all aimed at increasing confidence to participate in road safety practices.

Discussion and conclusions

Evaluation was tailored to meet the delivery style. For the CALD groups, pre and post evaluation was conducted. The quantitative data showed that this program is effective in increasing knowledge about specific road safety issues, especially those concerning children under the age of five. Additionally, the participants indicated a strengthening of self-efficacy.

For the Aboriginal community groups, a post-session survey was sent to the liaison officer. Program evaluation found it to be delivered by respectful and knowledgeable people, highly recommended to others, information as new and useful and included thoughtful suggestions to improve future programs.

For both community groups, the project officer collected qualitative data. This data helped to better illustrate gaps in knowledge, which was then immediately addressed in the sessions.

How policy/practice pushes the boundaries
The flexibility of the program content and delivery was one highlight. It allowed the expressed needs of each community group to be met in a unique way, as informed by the group, to meet best practice (Adams et al., 2017). Working directly with the community groups to create the sessions.

*Theme: Road and transport safety, Presentation Type: Oral*
Evaluation of Keys4Life Pre-driver Education in Western Australian secondary schools, Allison Hass
Road Safety and Drug Education Branch

Co-author:
Deb Zines, Road Safety and Drug Education Branch

Keys for Life is a pre-driver education program for Year 10 students in Western Australia. It is the only one of its kind in Australia offering a best-practice approach to road safety education and the opportunity for students to work towards their Learner’s Permit Theory Test.

Around 13,000 students in 200 schools take part in the ten-lesson program annually. It is also implemented in over 40 non-mainstream education and training services reaching Indigenous, disengaged and unlicensed young adults across the state, helping them overcome literacy, licensing and employment barriers.

The aim of Keys for Life is for young people to develop accurate road safety knowledge, positive road user attitudes and resilient capabilities to become safer and responsible drivers. Students completing all program requirements are given the opportunity to gain licensing credits for their Learner’s Permit. Keys for Life is research based, aligned to curriculum and learning frameworks and underpinned by legislation and government strategies. It is also modeled on the Health Promoting School Framework and the Principles for School Road Safety Education.

The program is evaluated every five years. Data from the 2008 and 2015 Keys for Life evaluations revealed a trending increase in school and student participation rates in both metropolitan and regional areas and across the three education systems. The evaluation results also demonstrated that teachers, parents, students and stakeholders responded positively on a range of measures such as program efficacy, road safety content and completing more than the legislated number of supervised learner driving hours. The Keys for Life program provides a best practice model by including, evidence-based curriculum, compulsory professional learning, compulsory student assessment tasks, parent initiatives and connections to state government policy.

The program is an initiative of the Western Australia Department of Education and was first developed and implemented in WA schools in 2004 by the (then) School Drug Education and Road Aware (SDERA) program, in collaboration with Catholic Education WA (CEWA) and the Association of Independent Schools of WA (AISWA).

Keys for Life is approved and recommended by the WA Department of Transport and recognised as a (non-mandatory) prerequisite for the WA licensing system. It is funded by the Road Safety Commission, endorsed by the School Curriculum and Standards Authority for school graduation points, and supported by the three education systems (public, Catholic and Independent schools).

This presentation will describe the compulsory stepped implementation process and how the evaluation results have been used

Theme: Child health and safety, Presentation Type: Oral
Understanding the challenges of large agricultural vehicles use on roads: Pushing the boundaries towards improved road safety, Richard Franklin
James Cook University

Co-authors:
Jemma King, James Cook University
Lauren Miller, James Cook University
Kristin McBain-Rigg, James Cook University

Background

Large agricultural vehicles (LAVs) includes machinery and implements primarily used for agriculture work (i.e. seeding, harvesting and spraying), and travel on roads. Due to the cost of LAVs and seasonal nature of farming the vehicles are moved between enterprises as part of normal business. LAVs, when driven or towed, are often slow moving and oversized in terms of width, length and height. Movement of LAVs on roads is highly and somewhat contentiously controlled across Australia, with minor variation between jurisdictions based on limited evidence.

Aims

This research explored on-road interactions between LAV and other road users and the road safety implication of LAV presence on public roads.

Methods

A triangulation approach was undertaken to assess issue convergence across data sources including literature, focus groups and surveys. The topics under consideration were: road safety, experiential issues in LAV operation, LAV interaction experiences and incident outcomes from both the public and operators’ perspective.

Results

While interactions on rural roads occur frequently, negative outcomes are rare with most operators employing avoidance behaviours. Crash incidents numbers and near misses are low. Road conditions are a barrier to safety due to impingements on or near the roads, and shoulder sizes limiting LAVs being able to make allowances for other vehicles. Improving the public’s awareness of LAVs presence on roads, and how to safely interact, was considered a priority by operators. Guide vehicles and UHF radios are active safety measures that enable direct communication about LAV presence in real time. Vehicle visual cues were considered a passive but effective measure for communicating LAV presence on roads.

Discussion and Conclusion

The driving public require more contextual awareness to make informed decisions when driving in agricultural areas alongside LAVs. Location specific reminders of LAV presence in known agricultural areas represents an opportunity. The uptake of active safety measures to improve driving environments with these vehicles in mind is imperative. The capacity of these vehicles to move on roads should not be impinged; environments which enable safe road user interactions for these larger slow moving vehicles is the key.

How Research pushes the boundaries
Collecting data on interactions and concerns from multiple parties promotes a consolidated and nuanced understanding of the issue beyond just considering crashes. Other non-regulatory approaches to promoting safe road interactions should be prioritized over further regulation on a hazard-imbued industry, one where on-road use is situationally constrained by time-sensitive work.

*Theme: Road and transport safety, Presentation Type: Oral*
Getting serious about on-road bicycle use and safety, George Rechnitzer
Victorian Institute of Forensic Medicine

Co-authors:
Raphael Grzebieta, UNSW
Tia Gaffney, Hindsight Forensic Engineering

Context
Bicycle riding is being heavily promoted by various advocacy groups, government agencies, local councils and environmental NGOs for all sorts of reasons, i.e. for recreation and health, as an alternate healthier means of commuting and for environmental benefits, e.g. reduction of vehicle emissions. This is of course not without a major health disbenefit in terms of rider fatalities and serious injuries as highlighted for example in a recent report by Beck et al, 2017; “With more cyclists suffering serious injuries on the road, what can we do to ensure their safety?”. However, this significant burden of injury arising from collisions between motorised vehicles and cyclists on public roads needs to be addressed without shifting the burden of injury from cyclists to pedestrians on shared paths.

Current ‘good intentions’ by cycling advocates are far from enough. From an apolitical safety perspective such current promotion without addressing this burden should be viewed as irresponsible, unless there is a strong coupling with applying the fundamental Safe System Approach to on-road bicycle riders.

Objective
To reduce the burden of deaths and serious injuries to cyclists and pedestrians by ensuring they are competent and capable of safe riding in the road environment. This will be achieved by the introduction of (i) formalised rider training; (ii) licensing, (iii) registration and (iv) insurance.

Key messages
Just as a Safe System requires ‘Safe Drivers’, we also clearly need “Safe bicycle riders”. Thus the notion that bicycle riders can be admitted to the road transport system without having to fulfil and comply with known transport safety principles, is both illogical and negligent.

As per Vision Zero, arguments for increased bicycle riding (on-road) should not be allowed to trade personal serious injury against claimed overall improved societal ‘health’. There can be no trade-off of the health of the many for the lives of some riders.

Discussion and Conclusions
The impact of safety benefits of these proposed changes will need to be evaluated through a pilot program.

Whilst there are many pros and cons for training, licencing, registration and insurance, and some of these processes have been applied to other countries, under a Vision Zero and Safe System Approach system to road safety this proposal should be considered for Australia.

How policy/practice pushes the boundaries
It is advocated that motorcycling rider safety in traffic requires training, licencing, registration and insurance, so why wouldn’t this also apply to bicyclists participating in the road traffic system.

Theme: Road and transport safety, Presentation Type: Oral
Tuesday 26th November 2019

Plenary Session Two

Keynote Speaker

Social marketing for injury prevention: Shift attitudes, transform behaviours, reduce injuries

Dr. Ian Pike, PhD. Professor, Department of Pediatrics, University of British Columbia, Canada. Director, BC Injury Research and Prevention Unit, Canada. Co-Executive Director, The Community Against Preventable Injuries, Canada.

Ms. Jennifer Smith, BFA, Research Coordinator, BC Injury Research and Prevention Unit, Canada. Senior Program Manager, The Community Against Preventable Injuries, Canada.

On average, 2,000 British Columbians die and 68,000 are hospitalized because of injury every year. A two-year formative evaluation revealed 76% of BC residents considered injuries to be a serious problem; 72% considered injuries inevitable, but would not happen to them personally. They indicated that a social marketing campaign that reaches people as close to the time and place when the risk of injury is highest could contribute to injury prevention in BC.

Through a province-wide, multi-partner collaboration and grounded in the Health Action Process Approach (HAPA) model of behaviour change, the purpose was to develop, implement and evaluate the efficacy of a social marketing campaign to change awareness, attitudes, self-reported behaviours and to significantly reduce the number and severity of injuries among BC residents aged 25-54. A critical strategy was to reach people as close to the time and place when the risk of injury is highest so as to provoke self-reflection and consideration of their intended course of action.

A multi-year, multi-faceted campaign focused on what people can do to prevent injury. Utilizing prime time TV, radio, print, ambient, guerilla events and social media, the campaign launched in June, 2009, with an investment of approximately $1.5M per annum, returning a $4-5M annual campaign in earned media. Public response to the campaign was assessed through an online survey administered to a regionally-representative sample of adults within the target population between 1-4 times per year on an ongoing basis since campaign launch. Using linear regression modelling, the association between exposure to the Preventable campaign and scores on perceived preventability of injuries, as well as conscious forethought applied to injury-related behaviours were assessed in the context of provincial injury statistics.

Approximately 50% of BC population was reached each week and over 100 million media impressions were generated. Campaign recall increased 45% between June and December 2009. Ads were considered informative, relevant, credible and generated self-reflection with no advertising fatigue. Campaign exposure was significant in both models (preventability: $b=0.27$, 95% CI: 0.20, 0.35; conscious thought: $b=0.24$, 95% CI: 0.13, 0.35), as was parental status (preventability: $b=0.12$, 95% CI: 0.03, 0.21; conscious thought: $b=0.18$, 95% CI: 0.06, 0.30). A significant reduction ($p<0.05$) in injury deaths was associated with the campaign period.
A well-developed injury prevention social marketing campaign based upon input from the target audience can result in significant changes in attitudes and behaviours, and is associated with significantly reduced injury mortality.
Keynote Speaker

Using Digital Health and Digital Technologies to understand Injury better – what are the opportunities?
David Hansen, CEO, Australian e-Health Research Centre, CSIRO Health and Biosecurity

There is an increasing amount of digital technologies being used in society – from smart phones to fitness trackers, sensors in our houses and cars, just to name a few. Our health system is introducing electronic medical record systems and using digital technologies to transform how health services are delivered. All of this adds up to huge amount of data collected across many different platforms and systems that might be used to inform us about our health and about our injuries.

The opportunities to use this data in injury management, prevention and research are huge. Data collected across multiple services electronically are now able to be shared with the patient as well as other service providers, opening the door to new services to manage the injury but also to collect data for analysis to get a complete picture of the injury and its impact on the patient. This also presents opportunities for new data analytics and artificial intelligence to identify new trends and markers of injury.

The increased uptake of digital solutions in healthcare and injury management can reduce injuries and reduce the impact of injuries.
Concurrent Session 13 – Digital Applications and Innovations in Injury Prevention

“bstreetsmart and beyond” – An outcome evaluation for behaviour change in adolescents transitioning to driving, using a smart-phone based app (BackPocketDriver), Lisa Sharwood  
*University of Sydney*

**Co-author:**  
*Bridie Scott-Parker, University Sunshine Coast*

**Background**

Road deaths and serious injuries among young novice drivers remain unacceptably high and a serious public health issue. They are among the most vulnerable road users in Australia; drivers aged 16-19 years are 6-8 times more likely to crash than those aged 55-59 years. Young novice drivers worldwide have extremely high crash+/fatality rates immediately post-licensure, highest in the first year. Injury prevention action must be multi-pronged to address the multiple factors influencing novice driver behaviour, including parental/peer influences, age/maturity, knowledge/attitudes, motivation and sensation-seeking. These factors impact involuntary and voluntary risky driver behaviour; highly challenging when developing effective countermeasures. Initiatives in recent years include GLS, parental involvement, education/training, legal enforcements, and interventions such as bstreetsmart; an injury prevention program encouraging safer road-user behaviours among NSW youth. Annually, ~20,000 pre-driving youth:

- witness crash re-enactments=>risk-taking consequences
- engage in interactive displays
- learn injury/death prevention strategies

**Aim**

To determine the impact of bstreetsmart on pre and post knowledge and attitudinal changes among the more than 20,000 young people who will attend the 2019 bstreetsmart event in Sydney, using a sophisticated, evidence based, behavioural theory informed and already piloted smart phone application (BackPocketDriver-BPD), engaging them as they transition to driving.

**Methods**

We will pilot an outcome evaluation of bstreetsmart, using a purpose specific smartphone app to engage attendees; pre, during, immediately post and up to 6-months post the Sept-2019 event. They will respond to short surveys pre/post, respond to within event impact statements and use BPD while transitioning to licensure. BPD uses in-built sensors to monitor and infer driver behaviour; implementing specific features informed by behavioural change technique theory. A key feature is messaging; used to instruct, motivate, educate, and relay feedback. Messaging also addresses attitudes and beliefs. Other developments include journey summaries, goal setting, achievements, and leader-boards.

**Results**
This will provide greater understanding of the profile of young adults who display willingness to engage in risky behaviour in their immediate future, engagement and follow-up of highest risk cohort on NSW roads; therefore acquisition of evidence to inform injury prevention and harm minimisation strategies.

Discussion

Analysis yet to come as event not yet held.

Pushes Boundaries

Using behavioural theory informed digital technology we will address its capacity to target a high risk group on our roads, aiming to reduce their risk and consequently the related injury and disability burden.

*Theme: Digital applications and innovations in injury prevention, Presentation Type: Oral*
Using a Google Grant: Artificial Intelligence for Social Good to establish a national suicide surveillance system, **Debbie Scott**  
**Monash University**

**Co-authors:**  
**Dan Lubman, Turning Point/Monash**  
**Sharon Matthews, Turning Point, Eastern Health**  
**Wray Buntine, Monash University**

**Context**

In 2017, in Australia, 3128 people died by suicide. Estimates suggest that for every death, 30 people attempt suicide, equating to 93,840 suicide attempts. Globally, suicide is the leading cause of death for men under 44, and suicide rates continue to rise. To develop effective national and international policy and public health responses timely data systems that can identify potential points for intervention are required. We received a Google: AI Impact for Social Good Grant to employ AI technologies to develop a cost-effective surveillance system.

**Objectives**

To establish a fiscally sustainable, national surveillance dataset by using AI methodologies to overcome cost barriers.

**Key messages**

The biggest impediment to an evidence base to inform policy and practice at a national level is the lack of funding to establish and maintain a national surveillance system. Ambulance clinical records are an important and rich data source, containing details of the nature and background to the attendance, the location of the event, and the clinical outcome. However, resources needed to code suicide-related attendances are prohibitive. With AI methodologies, fiscal and temporal efficiencies can be established resulting in a complete and reliable dataset to inform suicide prevention activities.

**Discussion and Conclusions**

Turning Point has been providing Victorian alcohol, illicit and pharmaceutical drug surveillance using coded paramedic clinical data for 20 years and recently expanded to report national data. The same methodology could be applied to suicidal behaviour in these datasets and Turning Point recently successfully piloted the feasibility of using coded ambulance records for suicide surveillance. We were able to code ambulance data within 3-6 months, allowing a much timelier response to emerging issues. However, manually coding this data at a national level is expensive, costing around $2 million per annum, which is not sustainable.

**How research pushes the boundaries**

Datasets currently informing suicide prevention are death, hospital and police data. All of these have limitations, in terms of timeliness, completeness and detail. Inadequacy of suicide data is internationally recognised as a key impediment to intervention, prevention, and the capacity to understand impact of current approaches. Utilising AI methodologies to streamline coding processes and timeliness will generate rich data in a cost-effective model that would be a global first, and a model for health surveillance internationally.

*Theme: Digital applications and innovations in injury prevention, Presentation Type: Oral*
Active & Safe Central: A resource to support the prevention of sport injury, Sarah Richmond
Public Health Ontario

Co-authors:
Shelina Babul, University of British Columbia
Amanda Black, University of Calgary
John Jacob, BC Children’s Hospital
Ian Pike, University of British Columbia

Background

Sport and recreation-related injuries have an enormous impact to the health care system. As health practitioners, we have a responsibility to provide evidence-based guidance on prevention not only to those who participate in sport, but also to those that parent, coach, and treat children and youth participating in sport.

Aims

To develop an end-user driven, digital platform that provides injury prevention information and resources across 51 sport and recreational activities.

Methods

An integrated knowledge translation approach was used to scope and develop an on-line sport and recreational injury prevention resource. The project team included end-users (coaches, parents, athletes), injury researchers, and practitioners, as well as members of a digital design team. All team members informed the development process, including a large-scale systematic review of the literature, a grey literature search of existing resources, translation of evidence, and development of the platform. Team members co-created knowledge for the tool at all stages of development, including participating in forming the research questions, approach, feasibility, and development of outcomes.

Results

The Active & Safe Central platform (www.activesafe.ca) provides web-based sport and recreation injury prevention information. The approach used in this project allowed for co-creation of knowledge for the tool by end-users, researchers, and practitioners. Navigation through the tool takes the user to a sport/activity specific content page subdivided into four sections: 1) sport injury overview, 2) incidence, 3) risk factors, and 4) prevention. Users can access personalized actionable prevention messaging by selecting their identity: Participant & Parent, Coach & Teacher, Official & Administrator, or Health Professional.

Discussion and Conclusions

Effective interventions exist to reduce injury in many sport and recreational activities; however, access to synthesized prevention information is often not available or accessible to the public. This user-friendly, web and mobile accessible tool increases the reach, awareness, and implementation of prevention programming in sport and recreational activity.

How Research Pushes the Boundaries
This research project used an integrated knowledge translation approach to increase the movement of knowledge into practice for the prevention of sport and recreational injury. End-users have access to publicly available synthesized evidence, across a range of sporting activities that can be used to inform decision making. This approach produced a relevant and useful tool that can have a significant impact on users’ practice and/or participation in sport. Examples from Active & Safe Central include the dissemination of neuromuscular training programs and concussion awareness training.

*Theme: Digital applications and innovations in injury prevention, Presentation Type: Oral*
Interactive Technology to Overcome Multilingual Boundaries: Industry Collaboration in a System Designed to Reduce Fatalities, Jennifer Tichon
Queensland University of Technology

Co-author:
Phil Diver, Construction Training Centre (CTC)

Operating an elevated work platform (EWP) is a highly hazardous work task in construction evidenced by the regular crushing fatalities that occur internationally. EWP operators report the requirement to transfer across multiple different control panel layouts is highly problematic. There is also a dangerous mismatch between literacy levels of operators and requirements to read and comprehend EWP model-specific manuals to determine the function of individual controls. This project examined the initial course operators undertake to gain a license to operate a boom-type EWP. Video data gained over the three-day course was analyzed to determine how students identified, selected and tested controls. Results indicate a lack of course content to specifically educate new operators on the need to, and how to, transfer between different control panels. A reliance on unsafe hands-on practice to educate trainees, one at a time, on one model of machine was identified as highly inadequate. Subsequent stages of the project developed interactive renditions of multiple EWP model’s control layouts on mobile tablet devices for use by multiple students in a classroom setting. The learning design, based on current aviation human factors addressing similar control issues, aims to overcome the risks created by training for multiple machines using only one machine. The use of tablet devices in construction classrooms and on worksites can deliver immediate experiential model-specific learning and is discussed in terms of a new multi-lingual approach to training and assessment.

Theme: Digital applications and innovations in injury prevention, Presentation Type: Oral
The concussed female athlete: Miserable minority or a missed opportunity? Andrew Fyffe
*Sydney Children’s Hospitals Network*

Co-authors:
*Gary Browne, Sydney Children’s Hospitals Network*
*Rhonda Orr, Sydney Children’s Hospitals Network*

Background

Concussion may affect young females with greater severity, as females experience worse symptoms and take longer to recover than males. While the pathophysiology of concussion remains poorly understood, recent research suggests concussion may affect cerebral blood flow (CBF). Research is limited regarding injury recovery and the acute effects of concussion particular on CBF in concussed females.

Aim

1. To determine if concussed females have a longer recovery time than males
2. To determine the effect of CBF on concussion recovery

Methods

This is a prospective study of children aged 12-16 years seen in a Concussion Clinic, Children’s Hospital at Westmead, from August 2018 to August 2019. All patients had comprehensive demographic, injury and clinical data collected at each clinic visit, and management determined by an attending clinician. During a 3 month period, a subgroup of this patient cohort underwent dynamic carotid ultrasonography to determine the effects of their concussion on CBF. All patients in this study were followed up until recovery complete.

Results

The study included 262 patients, with a mean age of 14.9 years, 46% female, mostly injured during organised sport and or recreational activity, with football accounting for 62%. Overall females were three times more likely to delay seeking medical care following injury (75.2 vs. 23.6 hours) and twice as likely to have a slower recovery compared with males (50.6 vs. 28.2 days). A subgroup of 42 patients, including 18 females, matched to controls, underwent carotid ultrasonography to determine internal carotid artery flow (ICAF) post-injury. Post-injury, there is an increase in dynamic ICAF, this change diminishing over time with concussion recovery. Further, a relationship with recovery was found in males, but not females. This lack of relationship in females may be related to females suffering a greater number of symptoms and needing longer recovery time from injury compared with males.

Discussion and Conclusion

Females have a delay in seeking medical care, and are twice as likely to have a prolonged recovery following a concussion. Dynamic ultrasonography may be a useful diagnostic tool to monitor and better predict recovery trajectory by measuring dynamic CBF response to injury.

How research pushes boundaries
As females respond to a concussion injury differently, our approaches need to meet their specific needs. The use of ultrasonography to determine post-injury dynamic ICAF has the potential to predict recovery trajectory and improve outcomes for concussed females, although larger studies are needed.

*Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral*
An innovative methodology to engage the voices of children and youth in improving community safety and injury prevention policy and programming, *Jennifer Smith*  
*BC Injury Research and Prevention Unit*

**Co-authors:**  
*Ian Pike, University of British Columbia*  
*Alison Macpherson, York University*  
*Emilie Beaulieu, BC Injury Research and Prevention Unit*

**Background**

Injury is the leading cause of death for First Nations (FN) children and youth; strategies and solutions for reducing the burden of injury are critically needed.

**Aims**

Partnership between FN communities and the research team is the foundation of the Voices of Children and Youth (Voices) project, which will demonstrate the potential to influence community safety and injury prevention policy and programming through youth leadership and capacity building.

**Methods**

Guided by a local project lead, the research team follows the community’s lead in addressing local child and youth injury prevention, and making expertise, tools, technology and research guidance available. Voices upholds the guiding principles of OCAP by ensuring that the ownership, control, access and possession of FN data remain with FN People. This work recognizes and respects Indigenous ways of knowing, such as storytelling, as Voices engages the FN people’s affinity for visual and oral communications by using an innovative information gathering and presentation method. Youth are engaged in Visual Storytelling – combining photography, video, narratives and mapping to capture lived experience and provide a platform for the community to identify and target selected injury issues.

**Results**

This method has been applied in two distinct Canadian FN communities, as well as in a mainstream setting in Surrey, BC, resulting in changes to municipal infrastructure and knowledge transfer products designed and produced by the youth themselves, such as visual displays and YouTube videos. Youth engaged in the projects have received training in photography, journalism, writing, first aid, fire prevention, staying safe online and other salient injury prevention topics.

**Discussion and conclusions**

Voices incorporates a community-based participatory research method to advocate for change by balancing power between indigenous community members and policy makers, creating a sense of community ownership, fostering trust and responding to cultural preferences.

**Pushing the boundaries**
This initiative sets the stage for the development of community policy and programming by exploring the youth’s perceptions of the causes of child and youth injury. This demonstration project is unique in its integration of FN youth in addressing their community injury priorities, supporting the community to work with their own information and programming, and in exploring how effective mainstream prevention initiatives may be adapted to FN settings.

Theme: Child health and safety, Presentation Type: Oral
Creating safer workplaces: Learning from work-related fatal injury in New Zealand, Rebecca Lilley
Injury Prevention Research Unit, University of Otago

Co-authors:
Bronwen McNoe, Injury Prevention Research Unit, University of Otago
Gabrielle Davie, Injury Prevention Research Unit, University of Otago
Simon Horsburgh, University of Otago
Tim Driscoll, University of Sydney

Background
Following recent catastrophic work safety failures there has been intense public scrutiny of workplace safety issues in New Zealand (NZ).

NZ’s workplace fatality record is high compared to similar countries, with a rate twice that of Australia and four times that of the UK. The reasons for NZ’s substandard performance are highly debated, and in-depth analysis to inform this debate is limited by a dearth of detailed fatality data.

This study aims to inform work-related injury prevention efforts for NZ by: i) enumerating the fatal injury burden; and ii) identifying high risk groups and circumstances.

Methods
A work-related fatal injury dataset spanning 40 years of Coronial records was created by collecting data for the period 1975-2014. Data collection involved: 1) identifying possible cases aged 0-84 years from mortality records using selected external cause of injury codes, 2) linking these to Coronial records 3) retrieving and reviewing records for work-relatedness, and 4) coding work-related cases. Work-related cases were classified as workers, bystanders, commuters or students. Work-related injury frequencies and rates per 100,000 workers for the most recent 20 year period were calculated by age, sex, employment status, occupation and industry. Causes and circumstances of injury were described.

Results
Provisional analysis of 17,658 injury fatalities reviewed for the period 1995-2014, 3,766 (23%) were work-related, of which 1762 were workers. This corresponds to an overall rate of fatal injury of 4.7 (95% CI 4.5, 5.0) per 100,000 workers. Rates of fatal injury were highest for workers aged 70-84 years (18.1, 95% CI 14.8, 21.8) and males (8.1, 95% CI 7.7, 8.5). The two industry groups with the highest burden of fatal injury were the Agricultural, Forestry and Fisheries and Transport, Postal and Warehouse.

Discussion and Conclusions
A substantial number of injury fatalities in NZ are work-related. Groups at high risk include males, older workers and workers in the Agriculture, Forestry, Fisheries, Transport, Postal and Warehousing sectors. This study identified...
opportunities for workplaces and employers to substantially reduce the high burden of work-related fatal injury in NZ.

How Research Pushes The Boundaries

This research demonstrates an innovative use of coronial data, to establish a continuous and comprehensive coronial dataset spanning 40 years. This data provides a historical evidence base on which to inform where relative effort should lie in terms of future strategies and in what direction that strategy should take to meaningfully reduce the number of work-related fatalities in NZ.

*Theme: Workplace injury and safety, Presentation Type: Oral*
Work-related injury and illness among older truck drivers in Australia: A population based, retrospective cohort study, Sharon Newnam  
Monash University

Co-authors:  
Ting Xia, Monash University  
Sjaan Koppel, Monash University  
Alex Collie, Monash University

This study explores the landscape of work-related injury and disease in the Australian transportation industry. This population based, retrospective cohort study was based on claim data collected from the National Dataset for Compensation-based Statistics (NDS) in Australia. Three key findings were identified: the relative risk of workers’ compensation claims increased with age; older truck drivers were not found to have significantly higher rates of MSK or fracture injuries, and; older truck drivers had a significantly larger proportion of neurological injury compared to younger age groups. The findings of this research support the need for context sensitive, multi-domain, interventions targeted at older drivers.

Theme: Workplace injury and safety, Presentation Type: Oral
Severe non-fatal injuries to older farmers, Jarrod Walker

The University of Sydney

Co-author:
Tony Lower, The University of Sydney

Background

Australian coronial records identify that farmers have elevated rates of injury related deaths when compared to other occupations. Further, older farmers (>50 years) have rates of injury death around 2.5 times higher than all agricultural workers. However, data on severe injuries are less well known.

Aim

This study seeks to determine variations in severe on-farm injury for older farmers (>50 years) and their younger counterparts.

Methods

Data are drawn from the NSW Institute of Trauma and Injury Management (ITIM), with Injury Severity Score [ISS] > 12. All cases that have presented to a NSW Trauma Centre and occurred in a farm setting in the 2011 - 2016 period are included in the dataset. Analyses assess data related to age, gender, injury type, severity and causal agent.

Results

The study sample consists of 627 cases. The mean age is 45.94, with the median being 49 years (range <1-93 years). A total of 313 cases involved those >50 years. The average age was 63.85 years, with 82% being male. Individuals aged over 50 had a mean length of hospital stay of 10.2 days, with a range of 1-108 days. This compared to younger farmers with a mean of 9.32 days (range 1-127).

The average ISS of individuals aged over 50 was 19.5 while for the younger cohort it was 18.1. Amongst the >50 cohort, 26.8% were moderately injured (ISS 13-15), 42.8% seriously injured (ISS 16-24), 16.6% severely injured (ISS 25-40) and 3.8% critically injured (ISS 40-75).

Conclusions

These preliminary results show some minor variations between older and younger farmers in relation to the severity of injury and length of hospital stay. Further data analyses are in progress to more comprehensively assess these data and to address the aim of this study.

How research pushes the boundaries

To our knowledge this is the first assessment of severe non-fatal trauma for on-farm injury in Australia. These data will likely provide further opportunity to target preventive approaches.

Theme: Workplace injury and safety, Presentation Type: Oral
Which factors are associated with having yet another injury at work? Findings from a prospective cohort study in New Zealand, Helen Harcombe
University of Otago

Co-authors:
Ari Samaranayaka, University of Otago
Emma Wyeth, University of Otago
Gabrielle Davie, University of Otago
Ian Cameron, University of Sydney
Rebecca Lilley, University of Otago
Sarah Derrett, University of Otago

Background
Work-related injuries are common, with over 230,000 registered with the Accident Compensation Corporation (ACC; New Zealand’s universal no-fault injury insurer serving a population of 4.7M New Zealanders) in 2017. Some people have multiple work-related injuries over time and these subsequent injuries contribute to the overall burden of injury. Therefore, preventing subsequent work-related injuries from occurring will reduce the overall burden of injury. However, to prevent subsequent injuries at work, predictors of these injuries must first be understood

Aims
The aim of this study was to examine factors predicting subsequent work-related injuries in the 24-months following a sentinel work-related injury, with a particular focus on pre-sentinel injury work-related factors.

Methods
Participants were recruited to the Prospective Outcomes of Injury Study (POIS) following an injury event (the ‘sentinel injury’). For this study a subset of participants with work-related injuries were identified. Data were combined from: 1) participant interviews, 2) injury compensation data from ACC, and 3) hospital discharge data. Sociodemographic and health variables, sentinel injury characteristics and a range of work-related characteristics were examined using multivariable analyses.

Results
Of the 754 participants recruited following a work-related injury, 104 reported not working at the 3, 12 and 24-month follow-up interviews and were ineligible. Of the 650 remaining, 243 (37%) had at least one subsequent work-related injury in the 24 months following their sentinel injury. Participants were aged 18-64 years at the time of recruitment, 70% were male, 60% were trade/manual workers, and participants experienced a range of sentinel injury types. Factors predictive of a subsequent work-related injury include having an inadequate household income (RR 1.33; 95% CI 1.02, 1.74) and carrying/moving heavy loads more than half the time at work compared to never doing such tasks at work (RR 1.42; 95% CI 1.01, 2.01).

Discussion and conclusions
Over a third of participants with a work-related sentinel injury had further work-related injuries in the following 24 months. Identifying factors that predict those at risk of subsequent work-related injuries could provide a useful focus for those involved in the rehabilitation of people with work-related injuries.

How research pushes the boundaries

This is the first study that combines both prospective survey and administrative data to determine the predictors of subsequent work-related injuries and provides new insights for rehabilitation following work-related injuries.

Theme: Workplace injury and safety, Presentation Type: Oral
How effective are workplace safety culture interventions? A systematic review, *Mohammed Aburumman Monash University Accident Research Centre*

**Co-authors:**
*Sharon Newnam, Monash University Accident Research Centre*
*Brian Fildes, Monash University Accident Research Centre*

**Background**
Safety culture has been conceptualised as “the ‘engine’ that drives the system towards the goal of sustaining the maximum resistance towards its operational hazards” (Reason, 1998, p. 294). The power of this concept is evidenced in investigations into major industrial accidents such as Piper Alpha, Chernobyl, Bhopal and the Challenger space shuttle, which have identified a “poor” safety culture (Cox & Flin, 1998; Reason, 1998) as a contributory factor. Recent studies have called for the translation of safety culture research into intervention efforts that can guide organisations in improving their workplace safety culture (Leitão & Greiner, 2016; Vu & De Cieri, 2016). While several notable publications have attempted to translate safety culture theory into intervention research within the workplace context (Zohar, 2002; Zohar & Luria, 2003), there have been no systematic reviews undertaken to identify and evaluate these efforts.

**Aims**
To identify, categorise and evaluate the effectiveness of workplace intervention studies targeted at improving safety culture.

**Methods**
Six online databases were searched for workplace intervention studies that evaluated pre- and post- measurements of safety culture. Data were then extracted from the included studies, categorised using an adapted safety management framework (Hale, Guldenmund, van Loenhout, & Oh, 2010) and assessed through the Downs and Black (1998) quality assessment tool to determine the level of evidence.

**Results**
Twenty-three peer-reviewed studies met the inclusion criteria. Overall, the majority of the studies had a positive impact on safety culture post-intervention. The most successful types of interventions were those related to the importance of safety, leadership style and behavioural monitoring. No significant differences in safety culture outcomes were observed between interventions targeted at the individual, work-group or organisational levels. However, these findings should be interpreted with caution due to the weak methodological quality of the assessed studies.

**Discussion and Conclusions**
The findings from this study provide theoretical and practical implications. From a theoretical perspective, the findings of this study confirm that the conceptual foundations of safety culture remain unclear, partly due to the focus of safety culture intervention studies on multi-faceted interventions that target distinct and varying aspects of behavioural change (e.g. attitudes, norms, perceptions). This makes it challenging to isolate the element(s) of safety
culture that have the strongest and most direct relationship to behavioural change. Practically speaking, practitioners may find the adapted framework utilised in this study to be helpful in guiding the implementation of safety interventions at their workplace.

*Theme: Workplace injury and safety, Presentation Type: Rapid Fire*
Challenges of ensuring the safety and well-being of travelling workers, Fiona O’Sullivan
Office of Industrial Relations

Context

Young international working holiday makers play an increasing role in the picking and packing of horticulture produce on Queensland farms. Some horticulture growing regions manage the influx of international workers well. Councils, grower groups, government agencies and community members have pulled together to promote their local area to attract the young workers with pleasing results. However, there is clearly more work to be done. The naivety of the travelling worker to the work environment and conditions together with opportunistic and unscrupulous employers and accommodation providers places them in an often-precarious position – Do I stay and put up with the situation or do I go? Workplace safety is often not at the front of the minds of the holidaying worker, there are adventures to be had. These young workers take on a range of jobs to meet the visa requirements for a longer stay in Australia, many of which they are unprepared for.

Objectives

This presentation explores the challenges of ensuring the safety and wellbeing of young traveling workers who are new to Australia and the work they are undertaking. How government agencies are addressing that will be discussed.

Key messages

Travelling workers on working holiday visas are imperative to the horticulture industry. Linked up agencies and place-based interventions that include a mix of education, awareness and compliance monitoring are essential to improve safety outcomes.

Discussion and conclusions

Whist the safety regulator has a role to play, so do a plethora of other state and federal agencies. Collectively, data can be shared, initiatives leveraged from and community groups engaged.

How policy/practice pushes the boundaries

Traditional responses to complaints and incidents relies on knowledge of processes and trust that personal safety will not be compromised as a result of raising a compliant. Many international travelling workers are unaware or unlikely to make complaint to regulating agencies. Linked programs which leverage from well-established and trusted local networks are the key to ensuring the community is aware, regulators and welfare agencies are well resourced, and employer and grower groups are engaged to drive change within their sectors.

Theme: Workplace Injury and Safety, Presentation Type: Rapid Fire
Concurrent Session 15 – Translating Research into Practice and Policy

Expansion of the Online Concussion Awareness Training Tool, Shelina Babul
University of British Columbia

Co-authors:
Kate Turcotte, BC Injury Research and Prevention Unit
Samantha Bruin, BC Injury Research and Prevention Unit

Context

Concussion is an under-recognized and -treated medical condition, requiring initial rest followed by gradual return to activity. The Concussion Awareness Training Tool (CATT, https://cattonline.com/) is a comprehensive evidence-informed resource providing training in concussion recognition, response, treatment and management. Launched in 2013, CATT includes e-learning tailored for medical professionals, community coaches, parents and caregivers, school professionals, and workers and workplaces. CATT aims to standardize practice in both the clinical setting and in community for both the adult and paediatric patients. Re-launched in 2018, CATT for medical professionals addresses variations in practice for supporting acute concussion patients. CATT for school professionals and for coaches were updated in 2019, providing information on how to support children and youth return to sport and school. With updates in process, CATT parents and caregivers addresses the invisible challenges of concussion and the need for support during recovery. Launched in 2019, CATT for workers and workplaces provides concussion information for the wider adult population ages 19-65 years. Updated regularly, the Resource section includes clinical resources, tools and handouts, and links to journal articles, websites and more.

Objective

To promote evidence-informed standardized concussion recognition, response, treatment and management, for children, youth and adults within and beyond sports and recreation, by providing easy access training and resources to a broad spectrum of audiences and settings.

Key Messages

Evaluation of CATT training among physicians/nurses, parents/coaches, and school professionals demonstrated significant change in concussion practices/knowledge. Over 100 organization/key stakeholder relationships have been developed, more than 20,000 print resources distributed, >37,500 coaches/parents and >3,500 school professionals have completed CATT, and >20 sporting organizations/schools have mandated CATT. BC Hockey has evaluated its mandate for concussion training using the CATT, and school districts in British Columbia are conducting pilot studies to evaluate the uptake of CATT training.

Discussion and Conclusions

Good concussion management can reduce risk of long-term outcomes, potentially lowering healthcare costs. Upcoming additions include CATT for professionals working with the survivors of intimate partner violence.

How Practice Pushes the Boundaries
The spread of concussion awareness, from sports to other venues, from sports-related to all-cause, and from children and youth to all ages, continues to expand. Based upon international consensus on concussion in sport and other evidence, diverse audiences are accessing tailored resources, and organizations are tracking training. Linked to the national Concussion Harmonization Project, CATT is supporting a national and international need for reliable concussion information, reaching an ever widening audience.

Theme: Translating research into practice and policy, Presentation Type: Oral
Button batteries, the perfect product safety storm, *Ruth Barker*

*Queensland Injury Surveillance Unit*

Button batteries have been killing children for 40 years. The rise in production of cheap LED globes and 3V 20mm lithium batteries has dramatically increased exposure to this hazard. A button battery should be considered a poison, and yet is a ubiquitous item that can be safely held in the hand. It is used in a myriad of unregulated yet common household products, manufactured in a globally complex market with suppliers who may be completely remote from the product design and brand and where the final product is largely unregulated, but overseen by several different regulatory frameworks; ACCC, TGA, electrical safety regulations. There are few standards, and only one mandatory standard that applies in Australia (Toys for children under 36 months). In such a complex system, who is responsible for preventing these devastating injuries?

*Theme: Translating research into practice and policy, Presentation Type: Oral*
Drowning is one of the leading causes of preventable death in children aged 0-4 years in Australia. The Royal Life Saving Society WA’s Keep Watch toddler drowning prevention program aims to prevent drowning deaths and injuries in children under five and has been delivered in Western Australia since 1999. The program is targeted towards parents and carers of children aged 0-4 with a secondary target group of professionals in the child health and injury prevention sectors.

Keep Watch is a behaviour change program which aims to raise awareness of the importance of adult supervision, preventing access to water, water familiarisation and learning CPR as toddler drowning prevention actions. These messages are promoted through strategies including mass and social media, parent presentations, resources, community events, CPR grants for high-risk groups and engagement with child health and community organisations.

RLSSWA has partnered with the Collaboration for Evidence, Research, and Impact in Public Health at Curtin University for the last five years to evaluate RLSSWA’s health promotion programs, including Keep Watch. This has involved process evaluation of program strategies including presentation surveys, a resource review with parents and stakeholder interviews with partner organisations. Cross-sectional population surveys were also completed at seven time points across the five-year evaluation period to assess campaign awareness, knowledge, attitudes and behavioural intentions.

Results of the evaluation have informed changes to Keep Watch. The content of resources, community presentations and online media has changed to better reflect both direct feedback from parents and the knowledge and attitudes expressed in the cross-sectional surveys. The importance of targeting culturally and linguistically diverse parents and carers was also identified through the evaluation process and new resources were developed to address this need.

Program strategies have also expanded from being primarily focused on mass media and the distribution of resources to working more closely with organisations such as aquatic centres, child health centres and Playgroup WA to promote drowning prevention messages to parents in settings (whether physical or online) that they already trust and are invested in.

With many avenues available to promote safety and injury prevention it is essential to establish the most effective and efficient strategies and messages to reach the target group. Evaluation and review of Keep Watch has led to an approach of both raising awareness about toddler drowning prevention through broad strategies and delivering specific messages in settings where parents are already engaged and seeking information.

Theme: Translating research into practice and policy, Presentation Type: Oral
"The dignity of risk", and other lame excuses, *Ruth Barker*  
Queensland Injury Surveillance Unit

**Context**

As a clinician and injury prevention advocate who sees patients first hand in a paediatric emergency department, I have had many conversations over the years with a broad range of bodies, trying to influence their thoughts about injury prevention. It is rare that change occurs (if at all) without considerable evidence, argument and collaborative lobbying. Whilst injury prevention advocates bring analysis and logic to the table, the counter-arguments to change are frequently illogical and usually blame the victim/parents.

**Objectives**

This presentation will summarise different themes to illustrate tactics that impede/excuse change and what can be done to anticipate and address this.

**Key messages**

Injury prevention advocates need a range of tools in order to effect change, only one of which is evidence.

**Discussion and conclusions**

Whilst injury prevention researchers believe in evidence, evidence itself is almost never enough to effect change. In particular, the evidence is often incomplete, imperfect or impossible to collect. Sometimes common-sense observations are what is needed.

**How policy/practice pushes the boundaries**

To be effective, the practice of injury prevention needs to incorporate more than logic and reason.

*Theme: Translating research into practice and policy, Presentation Type: Oral*
Theory and data tells us so: An evidence-based approach to developing electrical safety campaigns, Ioni Lewis
Queensland University of Technology

Co-authors:
Kirsten Vallmuur, Queensland University of Technology
Angela Watson, Queensland University of Technology
Bonnie Ho, Queensland University of Technology
George Buxton, Electrical Safety Office (ESO), Office of Industrial Relations
Victoria Thomson, Electrical Safety Office (ESO), Office of Industrial Relations

Background
Limited information is currently available regarding the extent and nature of electrical-related incidents in Australia broadly and Queensland more specifically. In 2016, Vallmuur examined electrical incidents in Queensland between 2004-2013 and reported 46 electrocutions and 1,380 people hospitalised. Of these admissions, 48% were non-occupational injuries. Vallmuur also reported an increase in non-occupational-related electrical fatalities in 2010-2013. The findings highlighted the need for further understanding of the factors contributing to electrical incidents in Queensland homes and the need to raise public awareness of electrical safety.

Aims
This research aims to develop evidence-based public education messaging regarding electrical safety. This research focuses on the contextual factors relating to electrical injuries in the home, as revealed by administrative data linkage, and a series of focus groups regarding community understanding of electrical safety behaviours.

Methods
Data linkage. Linked ambulance, emergency department, hospitalisation, workplace incident, workers’ compensation, and electrical incident data were analysed to determine the degree of overlap of the data sources and to provide a more comprehensive profile and examination of the context of electrical injuries in Queensland.

Focus groups. Group discussions with N = 27 (n = 15 females) Queensland home occupiers, who were not licensed contractors, were conducted. Key issues explored related to participants’ awareness of electrical risks in the home, strategies for staying safe, and thoughts regarding potential campaign content. Participants received a Coles/Myer voucher as a thank you.

Results
Investigation of the data revealed key contexts including poorly maintained equipment, not turning the power off before unplugging products, wet hands, broken switches, and poor quality wiring.

Focus group participants identified a range of risks with electricity in the home. However, there appeared to be a tendency to underestimate these risks as reflected by their willingness to engage in activities that may contribute to an electrical incident. In regards to strategies, many agreed there was value in offering information about basic information regarding electrical risks and ways to keep safe in the home.

Discussion and conclusions
The findings will inform message content. The findings thus far have supported the need for a ‘back to basics’ approach to electrical safety messaging with identifying key risks and strategies to reduce one’s risk of electrical injury.

How research pushes the boundaries

This research pushes boundaries through demonstrating the value and feasibility of applying theory and data-driven insights into developing public education strategies to raise awareness of electrical safety.

*Theme: Consumer product safety, Presentation Type: Oral*
Rapid Fire Speaker

Reducing serious injuries within trampoline parks, David Eager
UTS

Co-authors:
Lisa Sharwood, The University of Sydney
Ruth Barker, Queensland Injury Surveillance Unit

Content

In Australia and around the world trampoline parks are a major source of preventable debilitating injuries. Globally there are six known fatalities.

Objectives

Elimination of fatalities and reduce the number of serious injuries.

Key message

Serious injuries within the trampoline park industry are preventable.

Discussion and conclusions

Trampolining has many physical benefits including exercise, balance, and coordination. It can also be very dangerous when inexperienced participants attempt acrobatic manoeuvres beyond their skill level or if facilities offering trampolining fall short of minimum safety standards for injury prevention.

In 2014 Emergency Departments (ED) within major hospitals around Australia noticed a spike in injuries from indoor trampoline parks. A public forum was hosted by Standards Australia in August 2015 to discuss these emerging trends. At this forum, compelling evidence was tabled from ED experts from across Australia. Evidence was also tabled by a representative from the Australian Trampoline Park Association. It was agreed that a safety standard was required and that Standards Australia would create a committee to write a Standard. In January 2016 the Australian Standards Committee SF-051 Trampoline Park Facilities was formed; the writer appointed Chair. From the first meeting in May 2016, the first draft was written and published for public comment on 14 August 2017. Significant commentary and a further public comment round preceded the publishing of “Australia Standard AS 5159.1:2018 Trampoline Park Facilities Part 1: General safety requirements and test methods” on 22 October 2018. The Committee is in the process of writing Australia Standard AS 5159.2:20xx Trampoline Park Facilities Part 2: Dismount pits - Design and test methods.

Publication of this Australian Standard is currently contributing to the development of the first international standard for Trampoline Facilities. An Australian study is underway to further understand the incidence and nature of serious injuries sustained in trampoline parks.

This injury prevention initiative is clearly a work in progress both in Australia and overseas.

How policy pushes the boundaries
The publication of appropriate minimum Standard is a critical step on the road to control injuries; industry pressure is now mounting to drive facility adherence.

*Theme: Translating research into practice and policy, Presentation Type: Rapid Fire*
Rapid Fire Speaker

HOT DRINKS BURNS LIKE FIRE: Multi-lingual campaign to reduce scald injuries in children, Stacie Powell
Kidsafe NSW

Context

The majority of paediatric scalds occur at home and are largely preventable (Rayner, 2011). The leading cause of scalds for children aged 0-4 are caused by hot drinks (Burgess, Kimble, Cameron & Stockton, 2016) There is a need for scald prevention programs focusing on culturally and linguistically diverse (CALD) communities as these have a disproportionate prevalence of scald injuries (Riedlinger et al., 2014).

Objectives

The HOT DRINKS BURNS LIKE FIRE project focused on scald prevention from hot drinks in the kitchen and dining areas. The key elements of the project include: the delivery of an educational component to metropolitan, rural and remote communities; creation of scalds prevention and first aid safety messages developed into an infographic with short supporting text; and, translation into community languages. The resource included printable and digital assets, including an animated graphic of ‘flickering’ fire-like steam from the hot drink.

An evaluation of the resources occurred through expert consultation, focus groups and social media data.

Key messages

Hot drinks burn like fire

1. Prevent – Don’t hold your child when having a hot drink
2. Protect – Keep kettles, jugs, mugs and cups out of reach
3. First aid – Place burn under cool running water for 20 minutes

Discussion and conclusions

HOT DRINKS BURNS LIKE FIRE English language resource was developed in consultation with burns and scalds prevention experts. After the messages were developed and translated, focus groups evaluated the resource content and appropriateness. Changes to the texts were made based on focus group feedback by community language speakers/readers. This resulted in interactive resources translated into seven language.

Educational component to reinforce the messages on the infographic was delivered to seven regional, two remote and seven metropolitan communities.

The launch of HOT DRINKS BURNS LIKE FIRE was in National Burns Prevention Month, 2018, through social media platforms with use of website and e-Newsletter reaching over 22,000 people. This project was made possible by funding from Julian Burton Burns Trust and Clipsal by Schneider Electric.

How policy/practice pushes the boundaries

There is a need to reach CALD groups as access to health and safety information is potentially limited by lack of translated publications (Adams et al., 2017). The use of infographic is especially important if individual has low-
literacy levels in first language. Second language translating to reach the largest and fastest growing CALD communities pushes the boundaries of the existing predominantly English only resources.

*Theme: Burns prevention and treatment, Presentation Type: Rapid Fire*
Rapid Fire Speaker

An application (App) for child drowning and road traffic injury prevention: Global Safety Zone, Susan Chang
Global Safety Village

Introduction

Supervision of children is a complex undertaking. Lack of direct supervision is an antecedent to drowning and pedestrian road traffic injury (RTI). Although many Global positioning systems tracking devices (GPS) exist, none solely dedicated to providing ultra-supervision to the parents of children 0-14 years to prevent pedestrian RTI and drowning exists.

Methods

Identification of the GPS and cellular network directly preceded encrypted coding of information spatially related to a child. The system currently works on the IOS system. Creating a family on a secure server allows any body that you trust on to the server. This can be your own family but also somebody geographically proximate to you for e.g neigbour. Children should ideally be 0-14 years wears a watch, phone or an ankle bracelet in the case of a 0-4 year old. A location map which locates your child in relation to you is available. Parents define inclusion and exclusion zones which you create on the map using your finger. The drawing will show up on the screen and will auto-populate to become a danger zone around any exclusion or inclusion zones. You can set the perimeter of the zone for which you and all your family starts to get a push notification. Using cellular and GPS if the child goes near the zone both child and parents get a push every 2 minutes. There is a CPR chart which is taken from the Australian Resuscitation Council.

Results

The app has been tested in different children of different ages and it appears to alert both the parent and child with reliability around both the suburban and rural settings for both roads and water-bodies. It should not be used around private swimming pools as the GPS is not reliable within a house and backyard. Pedestrian RTI would only be prevented in children who were sensible enough to take the chosen route to school. Large diameters around water bodies should be chosen to prevent drowning.

Discussion and Conclusion

A stepwise randomized controlled study will be conducted at launch of the app. Multiple improvements will take place and it is hoped that it will prevention child drowning and RTI in the high income setting prior to scalability in Low and Middle Income Countries. How it pushes the boundaries: Complex supervision may be assisted to prevent injuries. A Non-Governmental Organisation in Australia dedicated to Injury Prevention will be sole recipients

Theme: Digital applications and innovations in injury prevention, Presentation Type: Rapid Fire
Using hospital discharge data for injury research or surveillance? An observational study illustrating the impact of administrative change, Gabrielle Davie

Injury Prevention Research Unit

Co-authors:
Dave Barson, University of Otago
Jean Simpson, University of Otago
Rebecca Lilley, University of Otago
Pauline Gulliver, University of Auckland
Colin Cryer, University of Otago

Background

Hospital discharge data provides an important basis for determining priorities for prevention, emerging issues and trends in incidence worldwide. Before using hospital discharge data for these purposes, processing is advocated to ensure cases are selected in such a way as to sufficiently minimise reporting biases. For injury, there is a considerable body of work illustrating the variation in estimates obtained when different inclusion and exclusion criteria are used to identify eligible cases for analysis.

Aims

This study aims to illustrate the impact of a recent change in administrative practice, the inclusion of short-stay emergency department (SSED) discharges, on estimates of hospitalised injury incidence in New Zealand and to investigate the extent to which different case selection affects trends in injury incidence rates.

Methods

New Zealand hospital discharges (2000-2014) with a primary diagnosis of injury were identified. Additional case selection criteria included first admissions only and for serious injury, a high threat-to-life estimate. Comparisons were made, over time and by District Health Board, between hospitalised injury incidence estimates that included, or not, SSED discharges.

Results

Of the 1,229,772 injury hospital discharges, 365,114 were SSED; 16% of the annual total in 2000, 38% in 2014. Identification of readmissions prior to the exclusion of SSED discharges resulted in 30,724 cases over the 15 year period being erroneously excluded from the analytical dataset. Age-standardised rates (ASRs) of hospitalised injury over the 15-year period increased by, on average, 2.7% per year when SSED discharges were included; there was minimal secular change (-0.2%) when SSED were excluded. For serious hospitalised injury, the annual increase was 2.3% when SSED was included compared to 1.1% when SSED were excluded.

Discussion and conclusions

Spurious trends in hospitalised injury incidence can result when administrative practices affecting the selection of eligible cases are not appropriately accounted for. Exclusion of SSED discharges before the identification of
readmissions and the use of a severity threshold are recommended to minimise the reporting bias in hospitalised injury incidence estimates for New Zealand.

How research pushes the boundaries

This study is a valuable reminder that in an age where routinely collected data is being increasingly utilised and often linked, the ‘trips and traps’ associated with each data source need to be understood and well documented.

*Theme: Injury surveillance methods, Presentation Type: Rapid Fire*
Concurrent Session 16 – Water Safety

The more things change, the more they stay the same: Fatal drowning surveillance in 1894 and 2019,
Keeley Allen
Royal Life Saving Society – Australia

Co-authors:
Stacey Willcox-Pidgeon, Royal Life Saving Society – Australia and James Cook University
Alison Mahoney, Royal Life Saving Society – Australia

Context
Royal Life Saving Society - Australia has been working to prevent drowning for 125 years. As part of our organisation’s celebrations, we prepared an analysis of drowning deaths in 1894. Australian society has undergone dramatic changes since the nineteenth century, however, drowning deaths have decreased since 1894. We explored the similarities and differences in how drowning deaths were reported and recorded in 1894 and today.

Objectives
This review considered the methods and data available for drowning prevention in 1894 across the Australian colonies and compared these practices to modern injury prevention approaches. The objective was to identify what has changed, what has stayed the same, and any lessons that could be gained from the past.

Key messages and discussion
The overall approach to understanding drowning deaths has changed little over the past 125 years. Coroner reports, magisterial inquiries, and police reports form the core of fatal drowning data collection across time. These investigations continue to provide important post mortem examinations and recounts of events to identify risk factors. The points of interest have largely remained the same over the past 125 years concentrating on the cause of death, circumstances leading up to the incident and risk factors to prevent similar incidents moving forward.

What has changed is the accuracy of information and the avenues available. Media reporting has become increasingly important, with real-time reporting across multiple channels enabling rapid case identification not possible through 19th-century technologies. Advances in technology have also enabled the use of toxicology studies to avoid reliance on witness accounts.

One distinct social change in fatal injury surveillance has been whose information is counted. Historical media reporting focused primarily on white Australian deaths with little to no reporting for drowning deaths or injuries among Chinese residents or Aboriginal and Torres Strait Islander populations. This oversight reflects the political realities of Australian colonies in the late nineteenth century, reminding us of the importance of including all relevant data to best prevent future injuries.

Conclusions and how practice pushes the boundaries
This review shows us that innovation in injury surveillance does not always require sweeping transformative change. The fundamental processes for data collection provide a foundation for effective surveillance into the future. Pushing
the boundaries does not need to be a rapid procedure, it can nudge at the edges of surveillance techniques to improve our knowledge as new technologies become available.

Theme: Injury surveillance methods, Presentation Type: Oral
Read me a story – keeping safe in the surf! Louise Lambeth
Ocean Beach Surf Life Saving Club

Co-authors:
Katie Dixon, University of Sydney
Aaron Camp, University of Sydney
Michael David, University of Newcastle
Isobel Lambeth, Macquarie University
Kerrie Stewart, Deep Water Publishing

Background

Community education is an integral element of aquatic safety (1). In Australia, surf safety education is traditionally managed by Surf Life Saving organisations, offered through surf sports junior programs, community education or multi-agency collaborations. Despite this coordinated approach, a vast number of children do not receive surf safety education. Cultural beliefs, religion/traditions, geographical location or cost may prevent children accessing educational opportunities (2).

Storytelling is a global phenomenon where knowledge can pass from individual to individual helping children discover ideas and life lessons (3). Illustrated books are easily accessible to most communities within Australia and can help children to adopt safety strategies when faced with a dilemma (4), which is especially important for families where English is a second language.

Research

To evaluate the effectiveness of ‘Annie and the Waves’, as an intervention to improve the knowledge of key surf safety messages.

Inclusion

Primary school children (aged 4-8) who have not had safety education provided by a surf lifesaving organisation in the preceding 3 years.

Methodology

Completion of a drawing and colouring activity and a knowledge survey, pre- and post-intervention.

Analysis

Pre- and post- knowledge scores will be analysed to assess whether there is a significant change in knowledge.

Conclusion

This project will measure changes in students’ knowledge of surf safety and thus determine the effectiveness of an intervention to increase their safety in a surf environment.

Theme: Water safety (including drowning), Presentation Type: Oral
Drowning - Differential diagnosis in special cases, John Hemsley Pearn

Faculty of Medicine, University of Queensland; and Burns Unit, Department of Surgery, Queensland Children's Hospital

The aetiology of most drowning events is tragically straightforward and well understood. Much research has focused on preventive aspects of such specific syndromes as infant bath-tub drownings; toddler drownings in proximate water hazards; surf and beach drownings; rock fisher immersions; and drownings of those of senior years, this latter syndrome not uncommonly the result of such predisposing factors as polypharmacy, high blood alcohol levels and dementia. Nevertheless, there exists a subset of both fatal and non-fatal drownings, often involving good swimmers and fit young adults, the cause of which remains uncertain. Such comprise a perplexing challenge to safety organizations such as the Royal Life Saving Society and Surf Life Saving Australia. Unexpected and enigmatic aquatic fatalities are also always a forensic challenge. In order to promote safer participation in aquatic recreation, recent research has examined such themes as shallow-water blackout; autonomic interplay (possibly dissociation) between the sympathetic cold-shock response and the diving reflex; and pre-existent cardiac abnormalities. Genetic cardiac abnormalities include the Long QTc syndrome and a series of genetic channelopathies. These themes have led to recent preventive guidelines and practices.

Following the unexpected sudden death of an otherwise fit young adult, it is correct to offer a cardiac consultation to all first-degree relatives, as a proportion of these may have a hitherto silent cardiomyopathy or conduction defect. Such can be detected by an electrocardiogram. In some cases, it is correct to refer such relatives for genetic testing, as it is now possible to test for six or more of the potential channelopathies which may have caused the sudden and unexpected death of their relative. The Royal Life Saving Society has been a leader in proscribing the practice of pre-immersion hyperventilation—usually an innocent and ludic practice but which can have fatal consequences. Such themes carry an important preventive and safety message for all who enjoy the delights of aquatic recreation.

Theme: Water safety (including drowning), Presentation Type: Oral
Drowning mortality in 0-14 years olds, Victoria, Australia, a detailed epidemiological study 2001 - 2016,  
Susan Chang  
Monash University  

Co-author:  
Joan Ozanne-Smith, Monash University

Background

Major reductions in child drowning mortality rates have been observed historically in Victoria, Australia for the period 1863-2000. Despite this trend, drowning remains the leading cause of unintentional child injury death in Victoria. This study investigates the residual fatal drowning problem in the Victorian child population (0-14 years).

Aims

Describe the detailed epidemiology of child drowning deaths in Victoria 2001-2016; investigate risk factors, direct antecedents and post-event factors to these deaths.

Methods

Population-based retrospective case data were extracted from the National Coronial Information System (2001-2016) and case-by-case analysis was conducted. Associated factors were determined using univariate, bivariate and Poisson analysis.

Results

88/97 cases had information available for analysis, pools/spas was the most frequent specific location (25%); 75% of drownings occurred between 8am-5pm; most victims were unintentionally in the water (61%) e.g. pool. Complex supervision scenarios included: large gathering of adults (7), no direct supervision (7), parents asleep (5) and visitors present (7). Delays in finding the child occurred when searches occurred elsewhere, before the body of water (21/88) and when carers were asleep (4/88). Fourteen of 88 children had developmental delays or pre-disposing medical conditions. The grouped Poisson analysis demonstrated that age 0-4 years, males and rural place of residence were significant. A downward trend in drowning rate continued in this period.

Conclusion

A case-by-case analysis of a drowned population of children identified details of risk factors, antecedents and post-event factors not previously described. Intervention points were identified for prevention. Further enhancements to systematic data collection are needed.

Theme: Water safety (including drowning), Presentation Type: Oral
Coroner’s recommendations and responses for child drowning 0-14 years Victoria, Australia 2001 - 2016, 
Susan Chang 
Monash University

Co-author: 
Joan Ozanne-Smith, Monash University

Background

A new Victorian Coroner’s Act 2008 was enacted in 2009, and included public health enhancements of prevention as an object, the mandated requirement for responses to coroners’ recommendations by recipients, and publication of both recommendations and responses.

Aim

To quantify and describe the nature of: (1) coroner’s recommendations 2001-2016; (2) corresponding responses from organisations to coroners’ recommendations, from 2009.

Method

A retrospective study was conducted of child 0-14 years drowning fatalities reported to the Victorian for the period 2001-2016. Recommendations and responses were identified via a unique encoded number on the Victorian Coroner’s Court’s publicly available website. Classification of recommendations was based upon Haddon’s matrix and Bujega’s public health framework (1) was used to quantify and describe recommendations and responses.

Results

Of 88 drowning deaths, coroners’ recommendations were made for 23 cases (26%) and included 68 recommendations. Recommendations were distributed as: 35% for swimming pools (8 cases); 20% beaches (2 cases); 20% bathtubs (3 cases); 15% other inland waterways (6 cases); 10% irrigation channel (1 case). Recommendation types included: environmental/product/design change (40%), education and training (27%), legislation (16%), behavioural modification (15%), other (2%). Of the 68 total recommendations, 45 were made post the 2009 enactment of the new Coroner’s Act to 30 recipients and all responded, indicating that 27 (mostly pre-event measures) would be implemented by 2020. Responses related to: private swimming pools including a state-wide pool register and mandatory four sided pool fencing; swimming lessons in public pools; carer education and respite regarding autistic children.

Discussion and Conclusion

Published Coroner’s recommendations and mandatory responses appear to be a useful intervention for drowning prevention.

Theme: Child health and safety, Presentation Type: Oral
Plenary Session Three

Keynote Speaker

Behaviour change in 2019: the old and the new

*Associate Professor Peter Bragge (BehaviourWorks Australia)*

*Ian Forsyth (The Shannon Company)*

Applied behaviour change research has gained enormous traction over the last decade with the advent of 'nudge units' within governments all around the world and the awarding of the Nobel Prize to behavioural economist Richard Thaler in 2017. This has coincided with the technology revolution, which has dramatically expanded the range of strategies available to applied psychology researchers and communications specialists. This presentation will illustrate key principles of behaviour change using real-world examples of behaviour change initiatives in Victoria - from successful population-wide public campaigns to trials targeting specific areas of health care.

In doing so, the presentation will demonstrate how well-established and evidence-based principles of psychological behaviour can be harnessed by today's ever-advancing behaviour change toolkit - as well as what not to do.
Pre-injury health status of major trauma patients with orthopaedic injuries, *Asmare Gelaw*  
*Monash University*

**Co-authors:**  
*Belinda J Gabbe, Monash University*  
*Pam M. Simpson, Monash University*  
*Christina L. Ekegren, Monash University*

**Background**

Determining the pre-injury health status of major trauma patients with orthopaedic injuries is important for evaluating the change from pre to post-injury health status.

**Aims**

To describe patients’ pre-injury health status reported 6, 12 and 24 months after orthopaedic major trauma and compare this with Australian normative values; determine the change in pre-injury health status in the first 24 months post-injury and identify factors associated with reporting better pre-injury health status.

**Methods**

A registry-based cohort study was conducted. Major trauma patients with orthopaedic injuries captured by the Victorian State Trauma Registry with a date of injury from January 2009 to December 2016 were included. Pre-injury health status (measured using the EuroQol-Visual Analogue Scale (EQ-VAS)), reported 6, 12 and 24 months post-injury, was compared against Australian population normative values using independent sample t-tests. The Bland-Altman method of comparison was used to determine the agreement between pre-injury EQ-VAS scores reported 6 to 12 and 6 to 24 months post-injury. Mixed-effects ordinal logistic regression was used to determine the predictors of reporting better pre-injury health status.

**Results**

A total of 3,071 patients were included. The median (IQR) pre-injury EQ-VAS score reported 6, 12 and 24 months after injury was 90 (85-100) out of 100. Participants’ mean pre-injury EQ-VAS scores reported 6, 12 and 24 months post-injury were significantly higher than Australian population normative values (t = 28.6; p<0.001, t = 29.8; p<0.001 and t = 29.4, p<0.001) respectively. Pre-injury EQ-VAS scores reported 6 months post-injury agreed with pre-injury EQ-VAS scores reported 12 and 24 months post-injury. People aged 35-44, 45-54 and 55-64 years, who were injured in intentional events, living with comorbidities and living in more socioeconomically advantaged areas had lower odds of reporting better pre-injury EQ-VAS scores. Pedal cyclists, who were injured via high falls and striking, with compensable injuries, with more severe injuries and who were working/studying prior to injury had higher odds of reporting better pre-injury EQ-VAS scores.

**Discussion and conclusions**
Major trauma patients with orthopaedic injuries reported better pre-injury health status compared to the Australian population. Pre-injury health status reported 6, 12 and 24 months post-injury did not differ and thus could be used interchangeably.

How research pushes the boundaries

Retrospective assessment up to 24 months post-injury could offer a reasonable estimate of the pre-injury health status of major trauma patients with orthopaedic injuries for evaluating the change from pre to post-injury health status.

Theme: Other, Presentation Type: Oral
Potential survivability of prehospital injury deaths in New Zealand, Bridget Kool

University of Auckland

Co-authors:

Rebecca Lilley, University of Otago
Brandon de Graaf, University of Otago
Gabrielle Davie, University of Otago

Background

Injury is the leading cause of death in New Zealand from age one through to 34 years, and the fourth most common cause of death in all age groups. Despite the significant impact on the health system and wider society, there have been no national studies exploring the potential survivability of prehospital injury deaths in New Zealand.

Aims

This study aimed to assess the survivability of prehospital injury deaths in New Zealand.

Methods

A retrospective review of all post-mortems (PM) from injury deaths in New Zealand that occurred prehospital between January 2009 and December 2012 was undertaken. Deaths where physical injuries were not present (e.g. drownings, poisonings), where there was no body or an incomplete body, or where there was insufficient information contained in the PM were excluded. The documented injuries were scored using the Abbreviated Injury Scale (AIS) 2005 and from this an Injury Severity Score (ISS) was derived by a certified ISS coder. Cases were classified as survivable (ISS < 25), potentially survivable (ISS 25 - 49) and non-survivable (ISS > 49).

Results

Of the 1796 cases that were able to be ISS scored, 10.7% (n = 193) had injuries classified as survivable, 27.9% (n = 501) potentially survivable and 61.4% (n = 1102) non-survivable. The ratio of non-survivable to survivable/potentially survivable injuries was 1.6:1. Injuries classified as ‘non-survivable’ more commonly occurred among those aged 15 to 29 years of age, with multiple injuries, and were transport related. The in-depth examination of cases classified as ‘survivable’ revealed that the majority were deceased when found. Among those who were alive when found, and around half had received either EMS and/or bystander care. About one in five survivable cases were classified as having delays in receiving care as a potential contributory factor.

Discussion and conclusions

In New Zealand, the majority of injured people who die before reaching hospital do so from non-survivable injuries. However, more than one third have either survivable or potentially survivable injuries, and as such are likely to benefit from appropriate bystander first-aid, improvements in the timeliness and the quality of prehospital care, and improved access to advanced level hospital care. However, given the majority of prehospital trauma deaths are from non-survivable injuries, the greatest impact on injury mortality is likely to be from primary prevention.

How research pushes the boundaries
This is the first national study that has estimated the potential survivability of prehospital injury deaths in New Zealand.

*Theme: Trauma care across health care continuum (emergency response to rehabilitation), Presentation Type: Oral*
Access to advanced level hospital care from locations of injury resulting in prehospital trauma fatalities: Exploring patterns of survivability and road-trauma, Gabrielle Davie

Injury Prevention Research Unit

Co-authors:
Rebecca Lilley, University of Otago
Brandon de Graaf, University of Otago
Bridget Kool, University of Auckland

Background

Eighty-four percent of US residents are estimated to have emergency medical services (EMS) access via road or air to trauma centres (advanced level hospital care) within 60 minutes. Using similar methodology, our previous research found that a similar proportion of New Zealanders also have theoretically timely access to these services. These measures of access are based on the assumption that the resident population distribution is a suitable proxy for locations of injury. Based on 911 calls, substantive geographic discordance has been reported between usual residence and incident injury locations; with the highest discordance observed for road traffic injury (RTI).

Aims

To i) determine the proportion of all prehospital trauma fatalities in New Zealand that are from injuries occurring in geographic areas without timely access to advanced level hospital care and ii) compare the survivability and spatial distribution of RTI and non-RTI prehospital trauma deaths.

Methods

Prehospital trauma fatalities registered within 2009-2012 were identified from the Mortality Collection and linked to Coronial files. Theoretical access times to transfer the patient from the incident injury location to advanced level hospital care were calculated for each death using the exact locations of road and air EMS bases. Survivability was estimated from post-mortem reports; Abbreviated Injury Scores were derived first, then the Injury Severity Score (ISS).

Results

Of the 1,877 prehospital trauma fatalities in those under 85 years of age, 53% resulted from RTIs. Using the geographical location of injury incidence, 56% (95%CI 52%, 59%) of prehospital RTI deaths and 65% (95%CI 62%, 68%) of non-RTI deaths had timely (‘golden hour’) access to advanced level hospital care. Among the RTI deaths classified as survivable or potentially survivable (ISS≤49), 45% did not have timely access; significantly higher than the 33% for survivable or potentially survivable non-RTI deaths. Geographical clusters of locations where survivable/potentially survivable deaths occurred with poor access were apparent.

Discussion and conclusions

Measures of access to advanced trauma care based on the resident population distribution overestimate the coverage of EMS services to locations of injury resulting in fatal prehospital trauma, particularly for those with RTIs. Improving access and availability of EMS, for RTIs in particular, has the potential to improve outcomes.
How research pushes the boundaries

To our knowledge this is the first study that has directly compared measures of access to advanced trauma care based on the population distribution with access based on actual locations of injury.

Theme: Trauma care across health care continuum (emergency response to rehabilitation), Presentation Type: Oral
Concurrent Session 18 – Workplace Injury and Safety

In-Field Operator Protective Device Safety Survey of Australian and New Zealand Workplace Quad Bike Riders, Raphael Grebieta
Monash University

Co-authors:
David Hicks, Transport and Road Safety (TARS), UNSW
Keith Simmons, Transport and Road Safety (TARS), UNSW and KND Pty Ltd
Soufiane Boufous, Transport and Road Safety (TARS), UNSW
George Rechnitzer, Transport and Road Safety (TARS), UNSW and George Rechnitzer & Associates
Jake Olivier, Transport and Road Safety (TARS), UNSW
Ann Williamson, Transport and Road Safety (TARS), UNSW

Background
Considerable interest in farming and workplace community for the fitment of Operator Protection Devices (OPDs or rollbars) to quad bikes to reduce severe or fatal injury risk in rollover incidents. Controversy concerning the claimed harm of fitting OPDs by industry also exists. There is no systematic evaluation of OPD effectiveness in the field and importantly, detecting whether in-field use of OPDs have resulted in serious injury to riders.

Aims
The aims of the study were to assess the effectiveness of OPDs in the field and importantly, detect whether in-field use of OPDs have resulted in any serious injury to quad bike riders.

Methods
The survey study was comprised of responses from three workplace categories (sub-studies):

i) Event data collected from a major Australian quad bike tour company with a large fleet (n=100 Quad bikes with and without OPDs, and 25,000 annual patrons);

ii) Company managers in charge of large quad bike fleets fitted with and without OPDs surveyed (436 quad bikes);

iii) Major survey of individual workplace quad bike riders with responses from 1,546 riders (712 Aust and 827 NZ).

Results
Sub-study i): 20 years of crash history obtained. OPDs fitted in 2008 to redress their major 70% rollover injury incidents in prior ten years. The company reported: no cases of serious injury resulting from OPDs; and OPDs are effective in reducing rollover harm to patron riders.

Sub-study (ii): 436 quad bikes where 321 were fitted with an OPD. There were 57 rollover crashes involving a quad bike with no OPD (17 injuries) and 12 crashes with an OPD (6 injuries). Survey identified that fleet managers considered the OPD generally protective.
Sub-study (iii): 1,430 crashes reported. 963 rollover events where 37 had an OPD fitted. Ten injury cases involved a quad bike fitted with an OPD. No incidents identified in which there were serious injury (chest or head) attributed to or associated with the OPD.

868 rollover crashes where no OPD fitted where 178 were injured (55 hospitalised and 24 received serious chest injuries. Risk of a serious injury is more than six times higher when the quad bike rolls over the rider.

Discussion and conclusions

From all the infield data, there were no cases of serious chest or head injury involving an OPD in a rollover crash. OPDs reduce to some extent serious chest injuries in rollovers.

How research pushes the boundaries

This was a ‘world first’ study of workplace quad bike riders and OPD effectiveness in protecting riders.

*Theme: Workplace injury and safety, Presentation Type: Oral*
Work-related motor vehicle traffic crash fatalities in NZ, 2008-2014: Occupational risks and opportunities to improve workplace road safety and reduce the road toll, Rebbecca Lilley

Injury Prevention Research Unit, University of Otago

Co-author: Bronwen McNoe, University of Otago

Background

Driving on public roads is a common activity in many occupations and industries. Previous research in both Australia and New Zealand (NZ) suggests that cases of work-related fatal injury on public roads contribute significantly to the overall burden of work-related fatal injury.

Aims

To identify and describe work-related motor vehicle traffic fatalities that occurred on a public road in NZ between 2008 and 2014.

Methods

This study used coronial file review to identify deaths involving occupational motor vehicle traffic crashes (MVTC) on a public road that occurred over a seven year period. Data collection involved: 1) identifying all possible injury deaths in those aged 0-84 years from the Mortality Collection using selected external cause of injury codes; 2) linking these to Coronial case files; 3) retrieving and reviewing case files for work-relatedness; 4) coding work-related cases and 5) restricting to those occurring a results of a MVTC. Work-related fatal MVTC injury frequencies, percentages and rates per 100,000 workers/persons were calculated. The burden of ‘bystanders to work’ (e.g. where a heavy vehicle collided with a car in which the person was not working) and people ‘commuting to/from work’ was also quantified.

Results

An analysis of preliminary data estimates that, between 2008 and 2014, 609 work-related MVTC fatalities occurred on public roads (161 workers, 157 commuters, and 291 bystanders). On average 87 deaths per year are attributable to work-related MVTC on public roads, comprising 27% of the road toll for the equivalent time period. An in-depth analysis of the data will be provided in the presentation, including factors such as rates, occupation and industry groups, and contributing factors to the injury and the death.

Discussion and conclusions

A considerable number of MVTC fatalities in NZ are work-related. System level and road infrastructure interventions seem likely to have the greatest potential to reduce injury severity/fatality risk for workers and for the general public.

How research pushes the boundaries

The number and rate of deaths due to work-related traffic crashes in NZ is sizeable and represents the single largest category of work-related death. It also an important contributor to the national road toll. This data represent the most detailed evidence base to inform priority and strategies to reduce work-related MVTC in NZ.
Theme: Workplace injury and safety, Presentation Type: Oral
3 Steps workplaces can take to reduce chronic disease risk factors and improve injury outcomes, Roslyn Miller
Office of Industrial Relations

There is increasing evidence that workplaces can play an important and active role in maintaining the health and wellbeing of their workers. Work design, workplace culture and the physical work environment can contribute to the development of chronic diseases and are closely related with musculoskeletal disorders and psychological illness. Chronic disease rates are expected to increase significantly which will have an impact on workers and workplace productivity.

The lifestyle chronic disease risk factors include physical inactivity and sedentary work, unhealthy eating, harmful alcohol consumption, smoking, obesity and poor mental health. According to the Chief Health Officer’s 2018 report “The health of Queenslanders”, 12% of Queenslanders smoke but this is still the leading risk factor for disease. International research reports people who smoke are 38% more likely to have a work-related injury.

Queensland’s Healthy Workers Unit (HWU) has led the development and promotion of a systems-based approach to integrating safety, health and wellbeing in the workplace to reduce chronic disease risks and improve the health of workers. There is still further work to be done in this area and a key aim of the HWU is to increase the capability of Queensland workplaces to manage lifestyle chronic disease risk factors to improve injury rates and return to work outcomes.

The HWU launched the Work Health and Wellbeing Toolkit in May 2019. The Toolkit is a call to action to assist employers, managers and leaders to embed work health and wellbeing into their business systems to improve the health of their workers and manage chronic disease risks. The Toolkit is evidence-based and focuses on the principles of good work design which considers the organisation of work, the work environment and the worker. It guides workplaces through a simple 3 step process – plan, implement and evaluate. The Toolkit includes a range of practical resources for example risk identification surveys, action plan template, examples of interventions aligned to each risk factor and evaluation tips.

This presentation will share the practical application of the Work Health and Wellbeing Toolkit. The HWU will discuss how this toolkit can be used to create a healthy and safe workplace sharing a recent industry case study on what work health and wellbeing can look like, the benefits to organisations and how other workplaces can strive to do the same.

Theme: Workplace Injury and Safety, Presentation Type: Oral
Causes of hospital-treated unintentional farm injuries, Victoria, 2008-2018, Jane Hayman
Monash University Accident Research Centre

Background

According to SafeWork Australia, the agricultural industry is one of the most dangerous in which to work due to common hazards on farms such as machinery and animals. Historically, approaches to workplace safety on farms have focused on causes of death in this setting. An alternative approach that examines causes of the more prevalent unintentional farm injuries can inform a broader view of workplace safety and prevention efforts.

Aims

To describe the major causes of hospital-treated unintentional injuries that occur on farms in Victoria.

Methods

Hospital admissions data and emergency department (ED) presentations were examined for the period July 2008 to June 2018. Records from both hospital data sets were extracted if the location of injury was coded as ‘farm’ and human intent was ‘unintentional’. Variables of interest included external cause of injury, type of injury, body region injured, length of hospital stay, injury severity, region of residence (Metro vs Regional), activity at time of injury, age, sex, and compensation type.

Results

During the 10-year study period there were 6,762 hospital admissions and 30,781 emergency department (ED) presentations due to farm injuries. During this time the number of admissions rose by 39% and ED presentations remained stable. A large proportion of those injured were undertaking paid or unpaid work at the time of injury (47% of admissions and 39% of ED presentations). Despite the number of work-related injuries, only 12% of admissions and 11% of presentations were WorkCover compensated cases. Those injured on farms tended to be male adults aged 25-to 64-years, however one-quarter of admissions and around one-third of ED presentations were females. The major cause of hospital admissions and ED presentations was transport accidents relating to motorcycles or horses. Other major causes of farm injuries were contact with animals, falls, and hit/struck/crush incidents. Further analyses will include age patterns of farm injury as well as a comparison of injuries sustained while working with those that occurred during leisure activities.

Discussion and Conclusions

This study demonstrates the value of a broader approach to farm safety by highlighting the potential hazards for people working on farms as well as those visiting farms for leisure activities. This information can be used to inform prevention strategies across all age groups and activity types.

How research pushes the boundaries

This research highlights the value of hospital data bases to inform injury prevention programs and demonstrates opportunities for collaboration between researchers and government.

Theme: Rural and remote injury prevention, Presentation Type: Oral
Concurrent Session 19 – Translating Research into Practice and Policy

A prospective investigation of barriers and facilitators to alternate transport use amongst older drivers: NZPATHS, Rebecca Brookland
University of Otago

Co-authors:
Jennie Connor, University of Otago
Jean Shope, University of Michigan Transportation Research Institute
Sue Crengle, University of Otago
Claire Cameron, University of Otago

Background

Older drivers have relatively few crashes, but due to frailty they have high fatality rates, especially those aged 75+. In less than 20 years, almost 1 in 4 New Zealanders will be 65 or older, and it is estimated that traffic deaths and injuries in this age group will increase 71% by then, due to the combination of an ageing population, growth in traffic, and more workers over 65. However, giving up driving can have serious consequences associated with the loss of independent mobility, including social isolation, and poorer physical functioning. In car-dependent societies it is important to understand the use of alternate modes of transport by drivers, and the barriers and facilitators to using these modes, in order to identify mechanisms for encouraging mode shift before driving cessation occurs.

Aims

Describe alternate transport use (public transport, walking, cycling) amongst older drivers at baseline and three years’ later; and barriers and facilitators to alternate transport use.

Methods

A prospective cohort study of 1181 community dwelling older drivers (65y+), recruited from a stratified random sample from the electoral roll. Quantitative data were collected through structured telephone interviews at baseline (2016-17) and follow-up (2019 under way currently). Measures included socio-demographics, health, modes of transport use by frequency and destination, and barriers and facilitators to using alternate modes.

Results

At baseline, drivers were aged 65-96 (mean=74, SD=6); 47% were female, and they were generally representative of the age, gender, Māori ethnicity and geographic distributions of the NZ population aged 65+. Older drivers were experienced: most had been licensed their entire adult lives (mean=55 years; SD=7 years), and 75% were driving ≥4 days/week. They had used several transport modes in the previous three months: all drove alone; 91% drove with passengers; 85% travelled as passengers; 51% walked (for transport); 9% cycled (for transport); 31% used public transport; and 5% used senior driving services (paid/volunteer services). Findings relating to changes in use of alternate transport modes over time, and barriers and facilitators to using these modes will be presented.

Conclusions
Although highly car-dependent, a reasonable proportion of older drivers used alternate travel modes at baseline. Understanding the change in use over time, characteristics of users, and why these modes are used, will help inform the development of programmes to encourage greater alternate transport use amongst older drivers, thereby reducing reliance on the private car and its associated injury risk.

Theme: Ageing/elder safety, Presentation Type: Oral
Using multiple data sources to inform non-fatal fire-related injury prevention efforts in New Zealand,

Amy Richardson

University of Otago

Co-authors:

Gabrielle Davie, University of Otago
Brandon de Graaf, University of Otago
Rebecca Lilley, University of Otago

Background

There is an absence of contemporary information regarding trends in the incidence of non-fatal fire-related injury (NFFRI) in New Zealand. Furthermore, at risk groups, and the common circumstances and outcomes associated with NFFRI are unknown. This information is needed to identify where, and for whom, to prioritise NFFRI prevention strategies.

Aims

To investigate the incidence of NFFRI in New Zealand between 2013 and 2017, in addition to common circumstances and outcomes associated with NFFRI, using three different national datasets.

Methods

The three datasets to identify cases of NFFRI (defined as injuries due to exposure to smoke, fire, or flame) included: 1) the Ministry of Health National Minimum Dataset (NMDS) of hospital discharges; 2) the Fire and Emergency Fire Incident Recording System (FIRS); and 3) the Accident Compensation Corporation (ACC) Claims database. Rates of NFFRI were calculated using census population data, and compared across age, gender, and ethnic groups. Common circumstances and outcomes associated with NFFRI were also examined. Linkage across all three datasets using person level variables was attempted to create a cohort of NFFRI injuries.

Results

While rates of NFFRI identified within each dataset were consistent across the study period, differences in rates were found between the datasets. Across all datasets, a higher rate of NFFRI was observed among males, individuals aged between 20-29 years of age, and Māori. The NMDS and ACC datasets provided information on the outcomes associated with NFFRI (including hospital admissions, length of hospital stay, and entitlement claims costs). While the FIRS provided limited information regarding outcomes of NFFRI, common circumstances associated with NFFRI were recorded. The most common cause of NFFRI identified within this dataset was unattended cooking. Linkage of cases across datasets was rare (<50%) and was limited by a lack of variables in common across datasets.

Discussion and conclusions

Rates of NFFRI identified within three national New Zealand datasets remained stable over time. While some consistencies in at-risk groups were found across the datasets, each dataset captures different information about NFFRI, and represents a unique population of injured individuals.

How research pushes the boundaries
Using data from three different national datasets is a novel approach to capture comprehensive information on NFFRI in New Zealand. Comparing data from these three sources allows recommendations to be made regarding changes in data collection that could enhance the linkage of NFFRI information to inform the development of targeted NFFRI prevention strategies.

*Theme: Burns prevention and treatment, Presentation Type: Oral*
Equity, social inclusion and human rights: Improving recovery outcomes in burns survivors, India, 

Jagnoor Jagnoor  
The George Institute for Global Health

Co-authors: 

Shobha Chamania, Choithram Hospital and Research Centre, Gandhi Medical College  
Sheree Bekker, Australian Centre for Research into Injury in Sport and its Prevention, Federation University  
Tom Potokar, Centre for Global Burn Injury Policy & Research, Swansea University  
Rebecca Ivers, UNSW

Background

India has one of the largest burdens of burns with an estimated 7 million burn injuries per year, a mortality rate of 8.3/100,000 population, disfigurement and permanent disability in 250,000 people annually, and 5 million disability-adjusted life years. The ratio of fire-related deaths of young (15-34 years) women to young men is 3:1. The high risk of burn injuries among women arises from increased exposure through use of kerosene during cooking, suicides, and homicides associated with domestic violence. With socioeconomic vulnerabilities, men in India are disproportionally affected by industrial burns. Limited literature suggests poor industrial legislation, a vast informal industrial sector with no labour rights, poor access to treatment, and no disability compensation as known risk factors contributing to poor recovery outcomes among men. The aim of this study was to explore the capacity of the Indian health system to provide adequate treatment and rehabilitation services for burns survivors.

Methods

We conducted a participatory action qualitative study including two rounds of in-depth interviews (n=23) with stakeholders working in burns care in Indian hospitals, health system managers, and burns survivors.

Results

Three key health system gaps to the delivery of adequate care for burns survivors were: 1) Inadequately skilled and poorly motivated workforce with high attrition rates in burns units, compounded by the absence of evidence-based guidelines; 2) Financial and physical barriers for patients to access services given the limited availability of burns units that face shortage of resources and supplies; 3) Social exclusion of burns patients within the health system. Stigma associated with burn injuries and disfigurement was a challenge within the healthcare system and at the community level. Burns survivors were also financially distressed, vocationally challenged and socially excluded.

Discussion and conclusion

Exposure to burns injury, subsequent access to health care, social inclusion and recovery are influenced by social determinants of health. The absence of coordinated efforts within the health care system to manage and treat burn injuries has led to very poor outcomes and quality of life for burn survivors. Establishing multidisciplinary care and community-based rehabilitation programmes integrated into the health care system are potential solutions to overcome these challenges.

How research pushes the boundaries
The research work emphasises the need for multi-sectoral action and health systems research. Future work is embedded health systems work, working closely with policy makers and implementers, and healthcare service providers.

Theme: Injury in a global perspective, Presentation Type: Oral
Burden of mental illness and substance use in patients with spinal trauma, Lisa Sharwood  
*University of Sydney*  

Co-authors:  
*Bharat Vaikuntam, University of Sydney*  
*Ashley Craig, University of Sydney*  
*James Middleton, University of Sydney*  
*Jesse Young, University of Melbourne*  

Background  
Traumatic spinal injuries include column fractures, spinal cord injury, or both. They are among the most severe injuries with potential long-term physical, psychological, and social consequences. Primary causes of traumatic spinal injuries are falls and motor vehicle crashes, however, mental illness and substance use are known to significantly increase all injury risk. Most research investigating the burden of unplanned readmissions following serious traumatic spinal injuries has been focused on infections, including urinary tract and respiratory infections, or pressure ulcers. However, injury is both a cause and a consequence of mental illness. Psychiatric co-morbidity in patients with traumatic spinal cord injury has been shown to increase the risk of more severe physical complications including self-harm and self-neglect. Therefore, we aimed to identify mental illness and/or substance use or self-harm at the time of injury and quantify post-acute readmissions and costs attributable to these co-morbidities.  

Method  
Using population based unit record administrative health linkage data from the most populous state in Australia, New South Wales, we will determine accurate estimates of mental illness and/or substance use disorder prevalence among patients sustaining traumatic spinal injury, comparing specific characteristics of this vulnerable population, within the identified cohort of patients with acute incident traumatic spinal injury. Data sets linked include the NSW Ambulance data, Emergency Department Data Collection, Admitted Patient Data Collection, Registry of Births, Deaths and Marriages and Cause of Death files and Activity based funding costs data-set. This will firstly identify characteristics particular to this at risk population, important information for prevention activities. Secondly, using recurrent event analyses, we will estimate the contributions of mental illness and/or substance use disorder to risks of readmission for secondary complications; in RESULTS:  

During the study period 2013-2016 in NSW, the unit record-linkage dataset identified over 25,000 patients admitted to hospital with TSI. Mental health and/or substance use contributions were significant. Two further years beyond this 3 year cohort are being prepared, in order to provide longer term follow up. Analysis is currently ongoing and will be presented in full, proposing multi-sectoral recommendations for reducing this burden.  

*Theme: Injury in vulnerable populations, Presentation Type: Oral*
**Concurrent Session 20 – Intentional Injury and Violence Prevention**

Why we need to know more about the health needs of victims and perpetrators of family and intimate partner homicide, *Patricia Cullen*

*UNSW*

**Co-authors:**

*Tamara Mackean, The George Institute for Global Health, UNSW*

*Debbie Scott, Turning Point, Monash University*

**Context**

Each year, up to 40% of all homicides in Australia are committed by an intimate partner or family member with devastating impacts on families and communities. Evidence points to victims and perpetrators having contact with health services, which signals an urgent need to better identify those at risk and improve health pathways. We reviewed New South Wales homicide cases sourced from the National Coronial Information System (victim aged 16 years and over) committed by an intimate partner or family member January 2012–December 2017 (n=83) to explicate the trajectories of family and intimate partner homicide.

**Objectives**

We triangulate coronial and legal data to identify risk indicators and interactions with health, justice and community sectors of perpetrators and victims. Using a general inductive approach to analysis, we present critical reflection on the role of the health sector and data monitoring systems in preventing family and intimate partner homicide.

**Key messages**

Family and intimate partner homicide is not simply the tragic result of accumulating stressors that see people “snap”; these complex cases exhibit patterns and missed opportunities for prevention across multiple sectors including the health system. Escalating physical/mental health crises, self-harm and prior acts of violence are salient factors for both victims and perpetrators, however there are considerable unmet health needs and gaps in coordination between health and justice services in identifying and responding to risk.

**Discussion and conclusions**

There is an urgent need to better understand the trajectory of family and intimate partner homicide to identify potential points of intervention and appropriate responses. Policy and prevention efforts should target data collection and monitoring systems to ensure insight into health trajectories are consistent between states and sectors. This will strengthen safety assessment processes and ensure coordinated responses across health and justice sectors.

**How research pushes the boundaries**

This research generates new knowledge of risk pathways and trajectories of family and intimate partner homicide to inform robust multisectoral responses to violence that are risk sensitive. Crucially, this evidence can be embedded within health settings to inform optimal responses to violence and improve the health and wellbeing of families. Finally, this research signals the need for current evidence to be considered in policy and thus resource allocation to prevent family and intimate partner homicide deaths.

*Theme: Intentional injury and violence prevention, Presentation Type: Oral*
Identifying prevention points in firearm related suicide deaths in Tasmania, **Debbie Scott**  
*Monash University*

**Co-author:**  
**Agatha Faulkner, Department of Justice**

**Background**

Latest estimates suggest Tasmania has the highest rate of civilian firearm possession and the highest rate of firearm-related suicides of any other Australian jurisdiction. Suicides account for approximately 90% of firearm related deaths. Despite this, in 2018 the Tasmanian Liberal Government proposed new changes to their Firearms legislation. Although it is currently unclear what changes are likely to occur; there are ongoing concerns regarding the future agenda. In particular, the possible public health implications of any changes that increase access to firearms.

Following the Government announcements, supporting claims by industry groups included: ‘..registered firearms held by licensed firearm owners do not hold a statistically significant position in reporting of gun related violence in Australia’ and that ‘..Australians are permitted to engage in a range of firearms related activity subject to extremely strict licensing, use and storage regulations’ (4).

There is currently limited data to refute such claims which work to support both Tasmanian and other jurisdictional changes to Firearms legislation.

**Aims**

Utilising the Tasmanian Suicide Register (TSR), firearm-related suicides in Tasmanian will be examined for the years 2012-2016 to:

1. Identify key prevention points for firearm related suicides; while refuting current Industry claims:

   Examine source of the firearm used in the incident, evidence of a firearms licence and registration and details of firearm storage.

2. Determine risk factors for those at higher risk of suicide by firearm;

   Examine socio-demographics, mental and physical health, alcohol/drug involvement and stressful life events leading to death.

**Method**

2012-2016 de-identified data will be extracted from the TSR; which includes quantitative and qualitative data for suicides in Tasmania.

**Results**

46 firearm-related suicides were reported in Tasmania. For majority of cases, the deceased owned the firearm used in the incident (59%). Overall, 52% were licensed to own a firearm, and among this group 21% did not utilise a legally compliant storage facility.

Majority were male (98%), with a mean age of 56. 72% had at least one physical illness, and 46% had a previous mental health diagnosis. The most commonly identified stressors was related to substance use/misuse (50%) and death of a family member (48%).

**Discussion**
In Tasmania, an overwhelming majority of firearm-related suicides occurred among older males and those with a physical illness. Evidence suggests that some industry claims may be misleading at a local level.

Pushes the Boundaries

Utilises previously unavailable data to understand firearm-related suicides and potential points of prevention in Tasmania.

*Theme: Intentional injury and violence prevention, Presentation Type: Oral*
Establishing the empirical evidence-base to develop a model for family homicide prediction, *Lyndal Bugeja*
*Monash University*

**Co-authors:**
*Joseph Ibrahim, Monash University*
*Matthew Dimmock, Monash University*

**Background**

Every year in Australia, over 100 people die from homicide committed by an intimate partner or family member, known as family homicide. Family homicide is particularly distressing as the family unit is expected to be a place of safety and protection. The tragedy of family homicide often occurs ‘without warning’. However, after the homicide, when evidence for the criminal and Coroner’s investigation are examined, the causal chain of factors at the individual, relationship, community and societal level becomes clear. Risk factors, latent circumstances, trigger events and service contacts can be linked and, in retrospect, family homicides have many warnings.

**Aims**

This study aims to establish the empirical evidence base for the individual, relationship, community and societal factors associated with family homicide (both victims and offenders) to determine factors for inclusion in a predictive model.

**Methods**

For each of the victim-offender dyads (intimate partner, parent-child, other family member), a systematic review of the scientific research literature will be conducted to establish the strength of the evidence for individual, interpersonal, community and societal risk factors associated with family homicide. A systematic analysis will also be conducted of risk factors included in national or jurisdictional family violence risk assessment tools used in Australia, New Zealand, the United States, Canada and the United Kingdom. The risk factors identified from this analysis will be mapped against the 261 data items captured in the Victorian Homicide Register and corresponding data held in Victorian population survey datasets.

The strength of evidence and availability of data items will be important criteria for inclusion in the model. Selected data items will be included in a range of predictive modelling techniques including Bayesian network analysis and machine learning.

**Discussion**

By developing a model to quantify the links and inter dependencies between factors associated with family homicide the results of this study has the potential to save the lives of victims, change the life course of offenders and reduce exposure to violence to break the inter generational cycle that exists in many families. Once validated, the model will be feasibility tested for application by service system practitioners via an expert consultation panel comprising representatives from the major stakeholders.

How research pushed the boundaries
This study will also be one of the first in the world, and first in Australia to apply predictive modelling techniques to prevent family homicide.

Theme: Intentional injury and violence prevention, Presentation Type: Oral
Using ambulance clinical records to understand the relationship between violence, alcohol and other drugs, mental health and self-injurious thoughts and behaviours, 
Debbie Scott
Monash University

Co-authors:
Cherie Heilbronn, Turning Point
Kerri Coomber, Deakin University
Ashlee Curtis, Deakin University
Sharon Matthews, Turning Point
Karen Smith, Ambulance Victoria
Peter Miller, Deakin University
Dan Lubman, Monash University

Interpersonal violence is complex and though there are recognised associations between violence, alcohol and other drugs (AOD), mental health and self-injurious thoughts and behaviours (SITB) the association between them remains relatively unexplored. AOD use, mental health issues and SITB are gradually being incorporated into contemporary violence policy, but for the most part are treated as separate issues and seldom considered as a whole. Contemporary policies must advocate for better understanding of these links.

Aims

This study aims to describe the association of interpersonal violence within AOD-, mental health- and SITB-related ambulance attendances.

Methods

Turning Point was funded by an Australian Institute of Criminology grant to code all AOD- and mental health- and SITB-related ambulance patient care records for interpersonal violence involvement in Victoria and Tasmania from 1 July 2016 to 30 June 2017. Multivariate logistic regression was performed to identify contribution of violence with any of the three co-occurring issues, compared with 'violence only' attendances. The results of analyses are summarised with odds ratios and 95% confidence intervals (CI) reported for each group.

Results

Of the 74,478 AOD-, mental health- and SITB-related ambulance attendances in Victoria and 7,191 ambulance attendances in Tasmania 7.7% and 7.8% (respectively) were related to violence. Most of these (54.5%) were for males. The majority of these (60.5%) were community related violence, followed by other family violence (24.7%) and intimate partner violence (18.7%). Police co-attended approximately 3/4 of violence-related ambulance attendances and a similar number were transported to hospital. Although the majority of attendances involved no AOD, the most common substance associated with violence-related presentations was alcohol. Mental health and SITB were more commonly associated with aggressors than victims.

Discussions and Conclusions

Of the AOD- and mental health- and SITB-related attendances that were also violence-related the largest proportion were for community violence. Violence-related ambulance attendances for victims of all three types of violence were
more commonly associated with physical violence rather than threats or aggression, and had fewer acutely co-occurring issues. When co-occurring issues were present, this was most commonly AOD involvement. Violence-related ambulance attendances associated with aggressors were more complex than those for victims of violence, with more frequently co-occurring mental health-, SITB-, or AOD-related issues.

How research pushes the boundaries

This project demonstrates the utility of coded ambulance clinical records for population surveillance of interpersonal violence. Given ½-2/3 of violence-related attendances were co-attended by police, ambulance data provide a unique and important source of population

Theme: Intentional injury and violence prevention, Presentation Type: Oral
Wednesday 27th November 2019

Concurrent Session 21 – Alcohol and Drugs Related Injury

“Last-Drinks” – Prospective Monitoring of Alcohol-related Injuries and Harms in Nine Australian Emergency Departments, Peter Miller
Deakin University

Background

This Australian partnership project uses anonymised emergency department (ED) data sharing to monitor and reduce alcohol-related injuries, violence, and assaults, and has frequently been referred to as the ‘Cardiff’ model in the UK with demonstrable harm-reduction efficacy.

Aims

This paper summarizes the preliminary alcohol-related attendance, consumption, and injury trends from the first eighteen months of data-collection of the Driving Change partnership project.

Methods

The project is a 5-year multi-site stepped-wedge cluster design trial. Nine hospitals are participating in the 36-month data collection period which commenced in July 2017. “Last-drinks” data regarding alcohol use in the preceding 12 hours, typical consumption, and location of alcohol purchase and consumption is prospectively collected by ED triage nurses and clinicians at all EDs as part of clinical process for all attendees aged 18 years or over.

Results

All ED’s are collecting “last-drinks” data (n=465,734 records total). Between 3.5%-9.5% of attendances at each ED report alcohol consumption in the preceding 12 hours. During high-alcohol hours (HAH; 8pm Friday – 6am Saturday and 8pm Saturday – 6am Sunday) between 8.8%-35.3% of patients reported consuming alcohol in the preceding 12 hours. Trends in primary diagnoses are consistent between ED’s, with attendances related to alcohol consumption most commonly associated with open or superficial wounds to the head, face, and hands, ankle injuries related to falls, or injuries related to self-harm or suicide attempts. Attendances related to acute intoxication or alcohol toxicity, alcohol dependence and withdrawal symptoms, and unconsciousness, are also common. Between 50%-90% of ‘last drink’ locations prior to attendance at each ED were reported as domestic locations, where packaged (takeaway) liquor was consumed.

Discussion and Conclusions

Project data allows for, unique, accurate and actionable profiles of the alcohol related harm and injuries coming into ED’s in the cities Melbourne, Geelong and Warrnambool, Canberra, and Sydney.

How research pushes the boundaries

The public health interventions specified in the project design aim to identify the location of last drinks, including the most frequently reported venues where on-premise consumption had occurred prior to attending ED. However, the
current data also offers a large and unique illustration of the consumption of alcohol occurring outside of Australian licensed venues, being packaged liquor in domestic or private settings. These findings regarding purchase location illustrate the predominance of off-premise alcohol consumption among patients reporting to ED. The findings inform efforts to stem the burden of alcohol related harm attributable to packaged liquor in Australian communities.

Theme: Alcohol and drugs related injury, Presentation Type: Oral
The impact of alcohol and drugs on Australian coastal drowning deaths, Jaz Lawes
_Surf Life Saving Australia_

**Co-authors:**
_Nicole Gonzaga, Surf Life Saving Australia_

**Background**

Alcohol and drugs affect our capacity to effectively detect and respond to hazards and are major risk factors in many coastal drowning events. Coastal activities are deeply entrenched in Australian society with 85% of the population living near the coast. Alcohol and drug use are widespread and often occur alongside coastal activities despite the risk they pose.

**Aims**

The relationship between toxicity and health is a prominent national safety agenda item for Surf Life Saving Australia. This research examines causal factors behind coastal and ocean fatal drowning deaths involving alcohol and drugs. These results will guide future strategies to reduce drowning deaths attributed to toxicity.

**Methods**

Data was extracted from the National Coronial Information System (NCIS) including toxicology and autopsy reports of drowning cases. The Blood Concentration (BAC) and substances found through the post-mortem toxicological analysis information was collected to determine extent of alcohol and drug toxicity. The National Coastal Safety Survey 2018 was used to identify perceptions around alcohol and drug use whilst participating in coastal activities.

**Results**

Alcohol and drugs contributed to 315 coastal drowning deaths between 2004-2019. This is significant as it makes up almost one-fifth (19%) of all coastal drowning deaths. A BAC above the legal limit of 0.05g/100ml was reported in 87% (n=177) of all alcohol-related drowning deaths (n=204). For drowning deaths involving drug use (n=202), 45% of cases revealed illicit drug use (n=91), 35% had taken prescription and/or over the counter drugs, and the use of both was detected in 20% of cases (n=41). Australian males were over-represented in alcohol and drug-related coastal drowning deaths (86%, n=271), while men aged between 25-34 are highlighted to be particularly at risk (20%, n=70).

**Discussion and conclusions**

This research identified that men are at greater risk of alcohol and drug-related drowning in coastal environments. Drowning risk greatly increased when alcohol was consumed in combination with a ‘cocktail’ of both illicit and prescription drugs. These results emphasize the need for targeted education and awareness strategies for males who partake in risky behaviour in coastal environments. Surf Life Saving Australia will use these results to guide innovative and awareness campaigns and prevention strategies in recognition of the impact these fatal incidents have on Australian communities.

How research pushes the boundaries

This is one of the first studies to examine alcohol and drugs in relation to coastal drowning deaths and identifies an opportunity to develop targeted awareness campaigns to prevent drowning numbers related to alcohol and drugs.

**Theme:** Alcohol and drugs related injury, **Presentation Type:** Oral

Pathways to illicit drug overdose following a workplace injury in British Columbia, Canada, Jennifer Smith
_BC Injury Research and Prevention Unit_
Background

The Provincial Health Officer declared a public health emergency in British Columbia (BC) in 2016 in response to a rapid escalation of illicit drug overdose deaths. Fraser Health (FH), one of five regional Health Authorities in BC, leads the province in illicit drug overdose deaths, despite safe consumption sites and other overdose prevention and response efforts concentrated in high risk neighbourhoods. Men who use illicit drugs in private residences in FH represent the largest proportion of illicit drug overdose deaths.

Aims

The purpose of this study is to better characterize the pathway between workplace injury and overdose death, in order to identify potential strategies for early intervention that will prevent drug overdoses in private residences.

Methods

During Phase 1, detailed chart reviews of 90 men who were admitted to hospital in FH for a non-fatal overdose that occurred in a private residence were conducted. Phase 2 will entail analysis of linked health administrative data. All injury cases of working age adults who presented to a FH emergency department or filed a workplace injury claim within the past 10 years will be included. Path analysis will be used to test the strength of associations between the various factors within the pathway. The risk of receiving an opioid prescription or opioid agonist treatment prescription and the risk of illicit drug overdose following a medically attended injury, as well as whether or not these risks vary between workers’ compensation claimants and those injured individuals who are not covered for their injury will be calculated.

Results

Phase 1 showed that a disproportionate number of men who overdosed in a private residence had been employed in the building trades. The most commonly identified stressor was pain/uncontrolled pain. Preliminary Phase 2 results are expected in Fall 2019.

Discussion

Substance use in private residences means that locations are highly dispersed and people who use drugs may be disconnected, for various reasons, from preventative services. Upstream measures to connect with those at risk of overdose and prevent problematic illicit drug are needed.

Pushing the boundaries

Examination of linked data provides an opportunity to develop deeper understanding of risk factors and mechanisms that lead to problematic substance use and overdose especially following injury. This method captures all injuries that potentially lead to significant pain-management issues, not just those that are hospitalized, and will help to characterize the types of injuries, work settings and prescription parameters that affect overdose risk.
Unintentional poisonings: The impact of Poisons Information Centres in reducing unnecessary healthcare utilisation, Jared Brown
Sydney Children’s Hospitals Network

Co-authors:
Alanna Huynh, NSW Poisons Information Centre
Rose Cairns, NSW Poisons Information Centre
Nicholas Buckley, NSW Poisons Information Centre
Andrew Dawson, NSW Poisons Information Centre

Context

Until recently, most Australian research on poisonings analysed hospitalisation and deaths data only. Underascertainment and the need for further research to better investigate risk factors which may be addressed through targeted interventions is commonly identified.

Objectives

To highlight the extent of underascertainment in poisoning research and identify solutions to better use existing health datasets and guide improvements in data collection.

Key messages

The exclusion of emergency department presentations not resulting in admission and Poisons Information Centre (PIC) calls in study designs on poisoning remove most poisoning exposures occurring in the community, limiting their generalisability. In Australia, PICs effectively triage community calls with 87% of potential poisoning exposures relating to children under 5 years managed at home. Analysis of NSWPIC data shows only 1% of our cases are represented in the NSW Admitted Patient Data Collection. Even without hospital admission, they do represent near misses and health system utilisation.

Currently, PICs have more detailed data on substance of exposure as is evidenced by the limitations of ICD-10 taxonomy used for hospital separations from clonidine.

PIC data is available in real-time which offers additional benefits from the several year time lags associated with other morbidity and mortality data.

Discussion and conclusions

Simple study designs through the use of PICs could address research gaps following the initial helpline call for triage and management advice, by using follow-up phone or online surveys. These surveys can also incorporate public safety messages or separate post-exposure interventions which can be sent to help reduce future poisoning risk, eg home safety checklists.

The greater power afforded by the larger datasets allows improved opportunities for signal detection, surveillance and evaluation of interventions. Minor enhancements to routinely collected data from PICs (eg ethnicity) could further improve poisoning prevention policy and practice with small increases in resourcing.

How policy/practice pushes the boundaries

It is increasingly apparent that understanding poisoning in Australia is difficult to interpret with single datasets. Linked data is required to better understand the extent of poisoning, circumstances of exposure, details of substances and more importantly product formulation/presentation (eg recent unintentional paediatric deaths from...
poisoning have been from sugar-coated tablets, lack of child-resistant closures, liquid formulations and decanted products. The enhanced capture from PICs and clinical toxicology units need to be included in routinely reported injury statistics. Poisoning prevention needs a coordinated collaborative approach and needs to be integral to the upcoming National Injury Prevention Strategy.

*Theme: Alcohol and drugs related injury, Presentation Type: Oral*
Concurrent Session 22 – Indigenous Injury Prevention

Community led solutions to prevent Aboriginal child injury

Melanie Andersen, University of New South Wales
Tara Smith, Walgett Aboriginal Medical Service

Co-authors:
Christine Corby, Walgett Aboriginal Medical Service
Wendy Spencer, Yuwaya Ngarra-li: Dharriwaa Elders Group partnership with the UNSW
Ruth McClusland, Yuwaya Ngarra-li: Dharriwaa Elders Group partnership with the UNSW
Peta McGillivray, Yuwaya Ngarra-li: Dharriwaa Elders Group partnership with the UNSW
Rebecca Ivers, University of New South Wales

Background

Aboriginal children have significantly higher rates of injury than non-Aboriginal children, particularly in remote areas. Aboriginal Community-led interventions are likely to be the most effective means of preventing child injuries, but there has been little research or evaluation to show what works best.

Aims

This project involves the evaluation of a community-led child injury prevention program with Aboriginal community-controlled organisations in Walgett, a town in remote NSW. Partnering organisations will co-produce and evaluate a culturally safe child injury prevention program tailored to the needs of families with Aboriginal children.

Methods

This is a mixed methods study with three phases:

Phase One: Qualitative research with young parents and community stakeholders to understand perceptions about injury, health literacy, service providers engaged in child safety, parenting, educational and employment services, and the role of family, community and other providers to support them.

Phase Two: A community-led intervention will be developed, informed by community interviews and a literature review of effective interventions. The program will be delivered through existing supported playgroups and family services at Walgett Aboriginal Medical Service Ltd (WAMS), an Aboriginal community-controlled health service that has been providing a broad range of holistic health services for 33 years and now employs over a hundred staff.

Phase three: Evaluation of the delivery of the parenting program. The program will be described and outcomes examined including feasibility, acceptability, cost, opportunities for program improvement, and benefits identified by parents, caregivers and stakeholders with particular regard to child safety, health and wellbeing.

Results

Phase one findings about community perceptions of key drivers of injury, opportunities for child injury prevention and priorities for the parenting program will be presented.
Discussion and conclusions

The project will enable the development of culturally safe co-produced program and provide evidence on program feasibility and acceptability. We hope to demonstrate the success of this strengths-based, community-run program, with a view to evaluation on a larger scale.

How research pushes the boundaries

This work builds on a unique research partnership between The University of New South Wales and The Dharriwaa Elders Group (DEG), Walgett, called ‘Yuwaya Ngarra-li’, meaning ‘vision’. This project involves a partnership between WAMS, DEG, UNSW, Kidsafe NSW and The University of Wollongong. The project uses Indigenous qualitative methodologies including research yarning and a decolonising approach.

This research is not just about injury, it is about genuinely recognising social determinants of health and tackling injury by addressing broad community needs.

*Theme: Indigenous health and injury prevention, Presentation Type: Oral*
Does support received for subsequent injuries differ between Māori and non-Māori? Findings from a cohort study of injured New Zealanders, *Emma Wyeth*
*University of Otago*

**Co-authors:**
*Gabrielle Davie, University of Otago*
*Michelle Lambert, University of Otago*
*Helen Harcombe, University of Otago*
*Trudy Sullivan, University of Otago*
*Sarah Derrett, University of Otago*

**Background**
Indigenous populations consistently experience health inequities compared with non-indigenous counterparts. Māori in New Zealand (NZ) are no exception, with injury-related outcomes and healthcare service access inequities evident. Such inequities can be exacerbated by subsequent injuries. This study investigates differences in access to, and costs of, services from NZ’s no-fault injury insurer, the Accident Compensation Corporation (ACC), for subsequent injuries for Māori compared to non-Māori.

**Aims**
To compare: 1) proportions of self-reported subsequent injuries with proportions recorded by ACC 3-12 months after a sentinel injury, 2) costs of ACC subsequent injury claims, and 3) ‘personal level' ACC-recorded costs for subsequent injuries.

**Methods**
Using data from the Subsequent Injury Study (SInS), we combined data from: 1) participant interviews three- and 12-months post-sentinel injury, and 2) administrative claims data from ACC. Chi-square tests, tests of proportions and the Wilcoxon rank sum test were used to compare outcome measures between Māori and non-Māori.

**Results**
Of 2206 participants, 397 were Māori. For Māori, 33% self-reported a subsequent injury and 37% had an ACC-recorded subsequent injury, compared to 28% and 32% for non-Māori.

32% of Māori and 35% of non-Māori self-reported subsequent injuries and did not have ACC subsequent injury claims. 19% of Māori trade or manual workers with self-reported subsequent injuries did not have an ACC subsequent injury claim compared to 34% of non-Māori (p=0.03). Of those experiencing severe sentinel injuries and self-reporting subsequent injuries, 53% of Māori compared to 23% of non-Māori did not have an ACC subsequent injury claim (p=0.02).

Of the 903 ACC subsequent injury claims, the largest cost difference between Māori and non-Māori was for general practitioners’ treatment (71% of Māori claims compared to 65% of non-Māori claims). Other specific cost comparisons, e.g. income maintenance payments and specific medical treatment costs, will also be presented.

**Discussion and conclusions**
Differences were observed between Māori and non-Māori who reported subsequent injuries and did not have ACC subsequent injury claims. Of concern is the higher proportion of Māori self-reporting subsequent injuries and not having ACC subsequent injury claims. Differences in the median costs of ACC subsequent injuries were also observed.

How the research pushes the boundaries

SInS is unique, enabling the combining of detailed information from participants and ACC administrative data to gain detailed understanding of services received and the associated costs for subsequent injuries. Additionally, SInS comprises the largest cohort of injured Māori making possible the investigation of injury outcomes specifically for Māori.

*Theme: Indigenous health and injury prevention, Presentation Type: Oral*
Inequities in Burns Injuries for Aboriginal and Torres Strait Islander Children, Kate Hunter
The George Institute for Global Health

Background

Health equity is the absence of avoidable health disparities. Equity variables as defined by PROGRESS-Plus (residence, ethnicity, gender and socioeconomic status (SES)), have been associated with burn incidence and severity in Australian children.

Aim

We sought to evaluate equity variables associated with burn characteristics and severity in Australian children.

Methods

Using Australian data from the Burns Registry of Australian and New Zealand (October 2009 - June 2018), retrospective analyses were conducted on children aged <16 years with an acute burn presentation. Equity variables, burn characteristics and severity were examined through descriptive statistics. Significance was explored through X2 tests. Missing data were supplemented through multivariate imputation chained equations. All data were analysed through Stata 15.1. Indigenous research methods were used throughout.

Results

A total of 6980 patients were included. Male gender (61.0%), 1-4 years of age (52.9%), very low SES (57.2%) and primary cause from scalds (49.8%) were common in all Australian children. Aboriginal and Torres Strait Islander children made up 10.4% of the study group (compared to 6.0% of the total population) and were more likely to come from outer regional areas (29.0%), have full thickness burns (15.7%), with a hospital length of stay 4.8 days longer than other Australian children (4.59 days).

Discussion and Conclusion

Equity differences exist between Aboriginal and Torres Strait Islander and other Australian children for burn characteristics and severity. This suggests inequities in both prevention programs and access to health services, and calls for programs targeting those inequities.

How research pushes the boundaries

Despite the inequities observed in burn prevalence among Aboriginal and Torres Strait Islander children, this is the first study to examine burn registry data with an equity lens and applying Indigenous methods throughout.

Theme: Indigenous health and injury prevention, Presentation Type: Oral
A 15 year analysis of drowning deaths among Australia’s First Nations (Aboriginal and Torres Strait Island) people, Stacey Willcox-Pidgeon
Royal Life Saving Society – Australia

Co-author:
Amy Peden, Royal Life Saving Society – Australia

Introduction

The Australian Water Safety Strategy 2016-2020 focuses on reducing drowning deaths in high-risk populations, which includes Australia’s First Nations people; Aboriginal and Torres Strait Islanders. Aboriginal and Torres Strait Islander people account for approximately 3.3% of the population. The aims of this study were to determine the full burden and risk factors contributing to drowning for Aboriginal and Torres Strait Islander people, believed to be over-represented in drowning statistics.

Methods

A total population analysis of all unintentional, drowning deaths in Australia over 15 years (1-July-2002 and 30-June-2017) of people recorded as Aboriginal or Torres Strait Islander were included. Cases were extracted from the Royal Life Saving National Fatal Drowning Database, which is collated from the National Coronial Information System. Non-fatal drowning data was included where information was made available. Descriptive statistics, chi square and relative risk were calculated. Crude drowning rates were calculated based on population statistics.

Results

A preliminary total of 225 people drowned who identified as Aboriginal or Torres Strait Islander, accounting for 5% of total drowning deaths during the study period. 72% were men, 20% were aged 35–44 years. Risk factors identified included having a pre-existing medical condition (33%) and alcohol present (30%) (defined as a blood alcohol concentration ≥0.05%). Drowning deaths most commonly occurred during the summer (40%), in the afternoon (47%), at inland waterways (56%) and in remote locations (41%). 80% were not visitors to the location they drowned in. The leading activity prior to drowning was swimming (25%) followed by a fall (22%).

Next Steps

The establishment of a National Indigenous Drowning Prevention Steering comprising of people who have suitable experience working with and for Aboriginal people, and knowledge and understanding of the issues faced by Aboriginal people and communities. The purpose of this group is to provide advice and recommendations to RLSSA of how this knowledge can be shaped and translated to make it meaningful to Aboriginal communities. The role of the committee will be to provide guidance, to ensure that strategies and interventions are developed in consultation with Aboriginal people and are culturally appropriate at the community level.

How this research pushes the boundaries:

This the first national report dedicated to investigating drowning deaths of Aboriginal people over a sustained time period. Learning from best-practice case studies from within the wider injury prevention and public health sector.

Acknowledgement: The drowning prevention research of Royal Life Saving Society – Australia is supported by the Australian Government.
Theme: Indigenous health and injury prevention, Presentation Type: Oral
Off the radar: Completing the missing pieces of the poisoning puzzle, Jared Brown
Sydney Children’s Hospitals Network

Context

Until recently, most Australian research on poisonings analysed hospitalisation and deaths data only. Underascertainment and the need for further research to better investigate risk factors which may be addressed through targeted interventions is commonly identified.

Objectives

To highlight the extent of underascertainment in poisoning research and identify solutions to better use existing health datasets and guide improvements in data collection.

Key messages

The exclusion of emergency department presentations not resulting in admission and Poisons Information Centre (PIC) calls in study designs on poisoning remove most poisoning exposures occurring in the community, limiting their generalisability. In Australia, PICs effectively triage community calls with 87% of potential poisoning exposures relating to children under 5 years managed at home. Analysis of NSW PIC data shows only 1% of our cases are represented in the NSW Admitted Patient Data Collection. Even without hospital admission, they do represent near misses and health system utilisation.

Currently, PICs have more detailed data on substance of exposure as is evidenced by the limitations of ICD-10 taxonomy used for hospital separations from clonidine.

PIC data is available in real-time which offers additional benefits from the several year time lags associated with other morbidity and mortality data.

Discussion and conclusions

Simple study designs through the use of PICs could address research gaps following the initial helpline call for triage and management advice, by using follow-up phone or online surveys. These surveys can also incorporate public safety messages or separate post-exposure interventions which can be sent to help reduce future poisoning risk, eg home safety checklists.

The greater power afforded by the larger datasets allows improved opportunities for signal detection, surveillance and evaluation of interventions. Minor enhancements to routinely collected data from PICs (eg ethnicity) could further improve poisoning prevention policy and practice with small increases in resourcing.

How policy/practice pushes the boundaries

It is increasingly apparent that understanding poisoning in Australia is difficult to interpret with single datasets. Linked data is required to better understand the extent of poisoning, circumstances of exposure, details of substances and more importantly product formulation/presentation (eg recent unintentional paediatric deaths from poisoning have been from sugar-coated tablets, lack of child-resistant closures, liquid formulations and decanted products). The enhanced capture from PICs and clinical toxicology units need to be included in routinely reported injury statistics. Poisoning prevention needs a coordinated collaborative approach and needs to be integral to the upcoming National Injury Prevention Strategy.
Spatially forecasting serious injury into the future, Ben Beck

Monash University

Co-author: Belinda Gabbe, Monash University

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 in Victoria, Australia over an 11-year period.

Methods

A retrospective review of major trauma was conducted using the Victorian State Trauma Registry from 2007 to 2017. Coordinates of ambulance attended major trauma event locations were mapped to small statistical areas. Injury events were mapped to Victoria in Future Small Areas (VIFSA). Victoria in Future is the official Victorian State Government projection of population and households. The Victoria in Future 2016 includes population projections from 2011 to 2051. Bayesian spatiotemporal modelling was used to investigate spatial and temporal patterns of major trauma and generate forecasted counts in each small area to 2022. Spatial modelling was conducted using integrated nested Laplace approximations (INLA) with the R-INLA package.

Results

Over the 11-year period, there were 30,983 major trauma patients in Victoria. 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. More specifically, area-specific incidence rates were higher in the north and east of Victoria, and south-east of metropolitan Melbourne.

Global temporal trends in the incidence of major trauma demonstrated a significant increase over the 11-year period. After accounting for spatial variation, relative increases were generally greater in regional areas compared to metropolitan areas.

Differences in spatial and temporal variation were observed between motor vehicle collisions and low falls. 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.

Discussion and conclusions

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 and be used to inform the optimisation of trauma systems.

How this research pushes the boundaries

This is the first study to use spatiotemporal modelling to forecast future counts of major trauma events.

Theme: Injury surveillance methods, Presentation Type: Oral
Evidence on injury burden: From data sources to surveillance system in India, Jagnoor Jagnoor
The George Institute for Global Health

Co-authors:
Mathew Varghese, St. Stephens Hospital
Shankar Prinja, Institute of Medical Education and Research
Rajesh Kumar, Institute of Medical Education and Research
Rebecca Ivers, UNSW

Background

The burden of traumatic injury in India is high, but remains ill-defined and poorly quantified. The Global Health estimates remain two to three times higher compared to reported injury deaths in India. The lack of strong data on the burden of injuries associated with hospitalisation, disability, functioning, quality of life, use of health services and cost, partly explains why there are gaps in investment for injury prevention, trauma care, and rehabilitation in reducing the injury burden in India. The proposed work aims to identify effective sustainable pathways for building an integrated national injury surveillance system in India.

Methods

Systematic peer review, grey literature review of relevant Ministerial reports and site visits were made across 13 states in primary, secondary and tertiary health facilities. Three academic databases - Ovid Medline, Web of Science and ProQuest - were searched to identify research studies investigating unintentional injuries related mortality and morbidity from 2006-2016. Also, the quality of the data sources were evaluated against the attributes recommended by World Health Organization Injury Surveillance Guidelines.

Results

The major challenges to development of a comprehensive surveillance system are partial population coverage, poor level of completeness, lack of standardisation in data collection, bias in data sources (such as only police-based data or hospital-based data) and poor reporting systems. The existing data on the magnitude of burden for injury-related mortality, morbidity and cost are incomplete and of poor quality. Validity of morbidity data is a major challenge, and one that needs to be urgently addressed with an aim to improving trauma services in the country. No reliable sources for risk factor data were identified. Peer review articles (n=54) were a better source of risk factor data, however overall quality of research methods and reporting of injury burden was poor.

Discussion and conclusion

An important success indicator for an injury surveillance system would be to integrate it with the existing health information systems. Vertical programs are inefficient and likely to fail, and a diagonal approach across multiple health conditions, with focused refresher training for injury is recommended for efficiency and sustainability. It must be ensured that the National Injury Control Programme that is in development is not limited to institutional trauma care but injury surveillance so as to guide injury prevention initiatives.

Theme: Injury surveillance methods, Presentation Type: Oral
A review of the injury prevention workforce in Western Australia, Catrina Wold

Injury Matters

Co-authors:
Jonine Jancey, Curtin University
Gemma Crawford, Curtin University
Jonathan Hallett, Curtin University
Justine Leavy, Curtin University

Background

In Western Australia (WA), injury accounts for 10% of the total burden of disease and approximately one in five people report an injury that requires professional treatment each year. The injury prevention and safety promotion workforce are a primary point of contact for community injury prevention. Understanding their characteristics, their work focus and their professional needs can support future workforce planning and capacity building activities. To date there has been no statewide assessment undertaken to profile the injury prevention workforce in WA.

Aim

This study reviewed the scope of the current injury prevention workforce in WA, the challenges they face and the opportunities for capacity building.

Methods

In 2018, a mixed-methods study was completed to understand current work roles, challenges, priority issues, and capacity building opportunities within the injury prevention and safety promotion workforce in WA. An online cross-sectional survey was undertaken with those working in injury prevention and safety promotion (n=230). Twelve purposefully selected participants were interviewed about their experiences in the injury prevention and safety promotion sector. Univariate and bivariate analysis was used to analyse quantitative data. Qualitative data was thematically analysed using key domains of inquiry. Ethical approval was granted through the Curtin University Human Research Ethics Committee [RDHS-70-15].

Results

Survey participants were predominately female (82.0%), aged 40 years and older (66.1%), held tertiary qualifications (80.0%), employed full-time (55.6%), and focused one day per week (41.9%) on injury prevention and safety promotion work. Leading injury areas of focus were falls (38.5%), alcohol and other drugs (38.0%), injury in general (31.8%) and community safety (30.7%). Key challenges for the workforce were low injury topic knowledge amongst the community and sector awareness of injury prevention strategies. Qualitative interviews revealed individual, organisational and community level opportunities to build capacity within the workforce.

Discussion and conclusions

This research provides insights into the profile, characteristics and activities of the injury prevention workforce in WA. The workforce is diverse across disciplines and organisations, with varying challenges. Results highlight the need to regularly audit the injury prevention sector to determine its composition, activities, challenges and facilitators for best injury prevention practice. Building sector capacity can support injury prevention and safety promotion sector identity and positive population health outcomes.

How the research pushes the boundaries
This is the first research conducted in WA to understand the demographics, scope and priorities of the injury prevention workforce.

Theme: Injury surveillance methods, Presentation Type: Oral
Can text mining and machine learning help reduce systematic review workload for injury researchers?

Melita Giummarra  
Monash University

Co-authors:  
Georgina Lau, Monash University  
Belinda Gabbe, Monash University

Background

Text mining tools to support citation screening in large-scale systematic reviews have been recommended; however, their suitability for reviews in injury research is not known.

Aim

To evaluate the performance of text mining to support the second reviewer in a systematic review examining associations between fault attribution and transport injury outcomes of health, disability, pain, mental health and work.

Methods

Citations were independently screened by two reviewers in Abstrackr, a machine learning online citation screening tool. Reviewer 1 screening all citations (10,558 citations), and Reviewer 2 screening until no more citations were predicted to be relevant (1,809 citations, 17.1%). All potentially relevant full text articles were assessed by Reviewer 1 (555 articles), whereas Reviewer 2 used text mining (Wordstat, QDA Miner) to identify articles containing >=1 fault-related exposure term, and only screen those articles (367 articles).

Results

Abstrackr offered excellent workload savings: 82.7% of citations did not require screening by Reviewer 2, and total screening time by Reviewer 1 & 2 was reduced by 36.6% compared with traditional dual screening of all citations. Abstrackr predictions had high specificity (83.7%), and low false negatives (0.3%), but over-estimated citation relevance, probably due to the complexity of the review with multiple outcomes and high imbalance of relevant to irrelevant records, giving low sensitivity (29.7%) and precision (14.5%). Text mining of the full text articles reduced the number needing to be screened by Reviewer 2 by 33.9%, and reduced the total screening time by 38.7% compared with traditional dual screening.

Discussion and conclusion

Overall, text mining offered significant benefits to systematic review workflow, but should not replace full screening by one reviewer, especially for complex reviews examining multiple health or injury outcomes.

How research pushes the boundaries

Systematic reviews of high quality prospective cohort studies or randomised controlled trials are valuable resources as they offer the highest level of evidence to guide clinical research. However, the exponential growth in publication rates over the past two decades has had noticeable impacts on the workload to screen citations, extract data and synthesise key findings. It now typically takes more than 12 months before systematic reviews are published. Our study shows some of the highlights and pitfalls of text mining tools can, when used in the right conditions, significantly reduce the workload for systematic reviews and allow researchers to publish findings in a timely manner.

Theme: Other, Presentation Type: Oral
Preventing Subsequent Injury: Healthcare Providers’ Perspectives on Untapped Potential, Helen Harcombe
University of Otago

Co-authors:
Amy Richardson, University of Otago
Emma Wyeth, University of Otago
Sarah Derrett, University of Otago

Background

Implementation of injury prevention initiatives at the time that people present to healthcare providers with an injury contribute to a reduction in the overall injury burden through the prevention of subsequent injuries. However, it is not known whether this opportunity is currently being maximised by healthcare professionals. In previous research, we found that 58% of 2856 participants had at least one subsequent injury event in the 24-months following the injury for which they were recruited, despite all having seen a healthcare provider. This highlights a potential injury prevention opportunity that may not be being maximised.

Aim

The aim of this study is to explore healthcare providers’ views about opportunities to prevent subsequent injuries. Specific objectives are to: 1) understand current injury prevention practices of healthcare providers, 2) identify barriers and facilitators for subsequent injury prevention in real world contexts, and 3) explore potential opportunities for the prevention of subsequent injuries from the perspective of healthcare providers.

Methods

Data were collected via individual face-to-face interviews with a range of healthcare providers including physiotherapists, occupational therapists, emergency department staff, and Accident Compensation Corporation (New Zealand’s’ universal no-fault injury insurer) staff. Thematic analysis of the data was undertaken using the Framework method.

Results

Key topics of interest we explored will be presented. These include: what (if anything) the providers currently do to try to prevent subsequent injuries; what factors enhance or limit their ability to provide injury prevention initiatives currently; how the providers view their role in terms of preventing subsequent injury; what strategies they see as having an effect on subsequent injuries currently; and, what potential opportunities they see for subsequent injury prevention initiatives.

Discussion and conclusions

Findings are important to inform the development of practical ‘real-world’ interventions to prevent subsequent injuries among people who are seeing healthcare providers following injury.

How research pushes the boundaries
A substantial proportion of people presenting to healthcare providers following injury have subsequent injuries. This study explores potential untapped injury prevention opportunities with the aim of contributing to reducing the considerable burden of injury.

Theme: Other, Presentation Type: Oral
Recognising and addressing unintentional injury inequities in Aotearoa, New Zealand, Moses Alatini
Safekids Aotearoa

Unintentional injuries do not strike randomly. Some children are at greater risk of injury than others. In Aotearoa, New Zealand, Māori (indigenous peoples) account for 54% of all unintentional injury fatalities for tamariki (children) aged 0 to fourteen years. They are five times more likely to die of unintentional injuries than European children. They are also one and a half times more likely to be hospitalised for unintentional injuries.

Safekids considers that these disparities are at odds with key principles of Convention of the Rights of Children. In particular, the right for children to live, grow and achieve their full potential. It also considers that gaps for Māori are inconsistent with our responsibilities under Te Tiriti o Waitangi (The Treaty of Waitangi) to protect the health, well-being and lives of children as the future generations of New Zealanders. Safekids is committed to not only reducing the overall incidence and impact of unintentional injuries in New Zealand, but to also ensuring that the gaps between groups, particularly those that exist between outcomes for Māori and Pacific tamariki and European children, are eliminated.

Objectives

2. Describe some actions taken to transform a mainstream injury prevention agency into an equity-focused organisation.
3. Identify challenges and critical success factors involved in the adoption of an equity approach to injury prevention.

Key Messages

2. An explicit strategy is required to address inequities within injury prevention.
3. An equity-focus requires a values-based approach to prioritisation, engagement and programme design, implementation and evaluation.
4. Interventions that seek to address disparities need to be fit for purpose – designed by Māori, for Māori.

Discussion and Conclusions

Mainstream injury prevention programmes can at times, perpetuate inequities that exist for those children who experience the highest rates of unintentional injuries and the poorest outcomes. A deliberate approach is required to recognise the unintended consequences of interventions and to design, implement and evaluate initiatives that address disparities. In Aotearoa, New Zealand, this requires the expertise and ownership of Māori. It means utilising kaupapa Māori approaches (indigenous approach, practices, ideologies) to provide injury prevention services that address the specific needs of Māori tamariki and their whānau (families).

Theme: Intentional injury and violence prevention, Presentation Type: Oral
Characteristics of victims attending Victorian hospitals due to assault by a stranger or multiple persons unknown, 2008 - 2018, Jane Hayman
Monash University Accident Research Centre

Co-author:
Geoff Smith, Pat Cronin Foundation

Background

Violence is a major cause of morbidity and mortality, and in Australia there has been a recent focus on individuals being assaulted by unknown perpetrators. Hospital data can inform prevention efforts by providing information about the characteristics of victims of these assaults, the impact on their health and the circumstances of the assaults.

Aims

To describe the characteristics of victims of assault inflicted by strangers or persons unknown over a 10-year period.

Methods

Hospital admissions data were examined for the period July 2008 to June 2018 for cases of assault by unknown person/stranger or multiple persons unknown (gang or mob). Analyses included demographics of victims, mechanism and location of injury, type of injury and body region injured, and injury severity. Within the emergency department presentations (ED) data the text variable was also examined to provide further information about the circumstances of assaults by persons unknown in the past two years.

Results

There were 8,129 hospital admissions due to assaults by person(s) unknown, with a 95% increase in the number of admissions since 2013/14. Perpetrators of assaults were a gang or mob in 54% of cases. Victims tended to be male and aged between 15 and 34 years (62%). Seventy percent of those admitted to hospital had a head injury and one fifth of admissions had a brain injury diagnosis, of which 70% were concussive. The majority involved assault by bodily force (64%), followed by assault by sharp object (31%) and assault by blunt object (16%). There were 9,169 ED presentations in the past two years due to assault by person(s) unknown. The circumstances of assaults included involved in a fight or brawl; struck by person unknown or by a gang/multiple people; king hit or hit from behind; assaulted in the street; assaulted in a pub, hotel or club; assaulted in a car park. One-third of those attending EDs were admitted for further treatment.

Discussion and Conclusions

Results highlight a significant health risk for young men exposed to violent assaults by person(s) unknown to them, in particular the large proportion of head injuries sustained by victims. The increase in admissions and large number of ED presentations in recent years warrants an urgent focus on primary prevention of this type of violence.

How research pushes the boundaries Highlights the value of hospital data bases to inform injury prevention and the value of collaborations between researchers and injury prevention organisations.

Theme: Intentional injury and violence prevention, Presentation Type: Oral
Identifying typologies among persons admitted to hospital for intentional self-harm in Victoria, Australia, 
Angela Clapperton
Monash University

Objective

The aim of this study was to determine whether people who have been hospitalised as the result of self-harm form meaningful groups based on mechanism of injury, and demographic and mental health related factors.

Design, setting and participants

A retrospective analysis of 18,103 hospital admissions for self-harm in Victoria over the 3-year period 2014/15-2016/17 recorded on the Victorian Admitted Episodes Dataset (VAED). The VAED records all hospital admissions in public and private hospitals in Victoria.

Main outcome measures

The primary analysis used a two-step method of cluster analysis. Initial analysis determined two distinct groups, one composed of individuals who had a recorded mental illness diagnosis and one composed of individuals with no recorded mental illness diagnosis. Subsequent cluster analysis identified four subgroups within each of the initial two groups.

Results

Within the mental illness subgroups, each subgroup was characterised by a particular mental disorder or a combination of disorders. Within the non-mental illness groups, the youngest group was also the most homogenous (all females who self-poisoned), the oldest group had a high proportion of rural/regional residents, the group with the highest proportion of males also had the highest proportion of people who used cutting as the method of self-harm, and the group with the highest proportion of metropolitan residents also had the highest proportion of people who were married.

Conclusions

Preventative interventions need to take into account that those who are admitted to hospital for self-harm are a heterogeneous group.

Theme: Intentional injury and violence prevention, Presentation Type: Oral
Intentional Drowning in Australia: Taking a public health approach for prevention, Richard Franklin
James Cook University

Co-authors:
Muthia Cenderadewi, James Cook University
Amy Peden, Royal Life Saving Society – Australia
Sue Devine, James Cook University

Background
There is a dearth of information regarding intentional drowning mortality. This lack of knowledge impedes the planning, implementation and evaluation of prevention strategies. By taking a public health approach to the issue, we hope to better define the problem, causes, evidence for effective policy and programs leading to prevention.

Aims
To examine published literature and ABS Deaths data on fatal intentional drowning in Australia, exploring rates, risk factors and prevention.

Methods
A systematic literature review and epidemiological analysis of data was undertaken. Guided by PRISMA (1), peer-reviewed literature published from 2007-2017 was included. Data were collected from the Australian Bureau of Statistics (ABS) from 2006-2014. Rates and trends of intentional drowning were compared with unintentional, water-transport related and undetermined intent drowning.

Results
Ten papers reporting the mortality rates and risk factors of intentional drowning deaths in Australia were reviewed. Most studies investigated suicidal drowning deaths, with none reporting homicidal drowning deaths. A downward trend in suicidal drowning was observed within the published studies, with risk factors being identified as older age (65+ years) and the involvement of pharmaceutical drugs, in particular benzodiazepines and antidepressants (2).

The crude mortality rate for intentional drowning was 0.23/100,000, lower than for unintentional drowning (0.89/100,000). Males (RR: 1.6 (CI: 1.4-2.6)), people aged 75+ years, non-Indigenous peoples and residents of major city areas were identified as being at increased risk of intentional fatal drowning in Australia (3).

Discussion and Conclusions
While the published literature on intentional drowning deaths in Australia is limited, data analysis of the ABS data allowed for several risk factors to be identified, to aid in prevention. Being male, of older age groups, non-Indigenous, residing in inner and outer regional areas and major cities were risk factors for intentional drowning deaths. Investigation of intentional fatal drowning using the medico-legal framework is recommended to further identify risk factors. Work is required in understanding the aetiology of intentional drowning including the underlying determinants of health. Prevention programs targeting intentional drowning are required.

How research pushes the boundaries
This study adds to the limited evidence currently available about intentional drowning rates and trends in Australia. This study proposes further opportunities for research, in particular improving data collection systems. This study also provides new evidence for suicide prevention and drowning prevention practitioners to consider when developing, implementing and evaluating prevention programs.

Theme: Intentional injury and violence prevention, Presentation Type: Oral
Patterns of personal responsibility after major trauma, Georgina Lau
Monash University

Co-authors:
Melita Giummarra, Monash University
Belinda Gabbe, Monash University

Background
Following a major injury event, it is common for those involved to assign responsibility either to themselves or others. Attributing fault externally is frequently associated with worse outcomes including mental health problems, persistent pain, poor health-related quality of life and prolonged absence from work. However, the factors associated with fault are rarely examined.

Aim
To characterise patterns of personal responsibility in the first six months after traumatic injury.

Methods
Major trauma patients who sustained unintentional injuries and received support from the major trauma recovery co-ordinators at The Alfred were included if they responded to questions regarding their perception of personal responsibility for the injury event (N=1,104). Patients were given four response options (not responsible, partially responsible, totally responsible, don’t know). Kappa statistics and Stuart-Maxwell tests were used to describe agreement between fault attributions over time (admission to post-discharge; admission to 6m; post-discharge to 6m).

Results
Approximately one third of participants reported being not responsible at each time point (admission: n=377, 36.4%; post-discharge: n=228, 36.0%; 6m: n=102, 35.4%). The proportion of people who reported not knowing who was responsible increased over time (admission: n=287, 27.7%; post-discharge: n=213, 33.7%; 6m: n=119, 41.3%). Meanwhile, the proportion of people who were partially (admission: n=119, 11.2%; post-discharge: n=57, 8.8%; 6m: n=21, 7.2%) or totally responsible (admission: n=254, 23.9%; post-discharge: n=135, 20.9%; 6m: n=46, 15.8%) decreased.

Agreement was substantial between perceptions of responsibility at admission and discharge (kappa=0.63, 95%CI: 0.57 to 0.65), with a bias towards reducing perceptions of responsibility (χ²=18.2, p<0.001). Agreement was moderate between admission and six months post-injury (kappa=0.51, 95%CI: 0.48 to 0.57), and fair between discharge and six months post-injury (kappa=0.39, 95%CI: 0.38 to 0.46). No unidirectional bias was observed between admission (χ²=1.71, p=0.64) or discharge (χ²=4.34, p=0.23) and six months post-injury.

Discussion and conclusion
Attributions of fault are unstable over the first six months post-injury, with a shift towards greater ambiguity and reduced perceptions of personal responsibility for the injury event. Future research is required to examine which factors may be influencing these changes.

How research pushes the boundaries
Findings that fault attributions are unstable after injury suggests that previous studies, which predominantly measure fault only at baseline, may not be representative of long-term attributions of responsibility and their
association with recovery. Having a better understanding of the patterns of fault after major trauma may facilitate the implementation of targeted interventions to minimise the impact of fault attributions on recovery.

Theme: Other, Presentation Type: Oral
The clinical utility of a home-based Concussion Action Plan (CAP) in children and adolescents recovering from a sports or recreation-related concussive injury, Andrew Fyffe

Sydney Children’s Hospitals Network

Co-authors:
Gary Browne, Sydney Children’s Hospitals Network
Rhonda Orr, Sydney Children’s Hospitals Network

Background

If managed well, the majority of children recover from concussion. In elite sport, management guidelines for concussion exist. These guidelines however do not suitably extrapolate to children, are ambiguous, and often result in inappropriately timed activity or inactivity that could be detrimental to recovery. A written Concussion Action Plan (CAP), divided into colour-coded zones, can give clarity by reinforcing expectations during recovery and improve outcomes.

Aim

To determine, the clinical utility of CAP in facilitating recovery from a concussive injury, following emergency department discharge.

Methods

A non-randomised controlled study was conducted in the emergency department, Children’s Hospital at Westmead, Sydney, NSW, over a 3-month period. Children aged 12-16 years presenting as a simple concussion (no hospitalisation or co-morbidity) were eligible to participate. Once discharge was imminent, families were given, in addition to education, a CAP with instruction on its use at home. All participants were followed until full recovery. Outcomes of interest were; patient compliance, adverse events and unscheduled representations, with parental and/or caregiver satisfaction a secondary outcome.

Results

During the study period September to November 2018, 132 patients with a simple concussion were evaluated in the emergency department. Of these, 69 participated in the study, with the remaining 63 managed with education alone. The mean age was 12.8 years, 70% male, with recreation-related falls accounting for 68%. Non-compliance with instruction was reported in 4.3% of participants using CAP and 48% undergoing education alone. Deviation from CAP was reported in 3.4% of participants due to a more rapid recovery than predicted. In all cases, parents were satisfied with CAP, while dissatisfaction was reported in 38% of those having education alone due to confusing or mis-information. No adverse outcomes were reported in either group, although unscheduled visits were reported in 11% of those undergoing education alone as the parent and/or caregiver was unclear about management.

Discussion and conclusions

The use of CAP improves outcome and streamlines the discharge process in a busy acute care setting. Parents also need to understand the disease and what to do if expectations are not met. Education before discharge tailored to meet this need in addition to CAP is important.

How research pushes the boundaries
The use of CAP in the care of all children with a concussion should be considered. Current education must be appropriately tailored to match written instruction to ensure clarity and compliance.

*Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral*
Plenary Session Four

Keynote Speaker

The National Injury Prevention Strategy
Dr Lisa Studdert, Deputy Secretary, Department of Health

In the 2018-19 Budget, the Australian Government committed $0.9 million to develop a new National Injury Prevention Strategy to reduce the risk of injury for Australian children. The strategy aims to reduce deaths and hospitalisations due to injury, and ongoing repercussions like physical or mental impairment.

Children have been identified as a priority for preventing injury, however the whole community will also benefit from this strategy. Evidence shows that a whole-of-population approach to the prevention of injuries and an all ages strategy represent the most effective approach.

Populations with high rates of injury – including Aboriginal and Torres Strait Islander people, homeless people, people at socioeconomic disadvantage, people with mental illness, and people living in remote, rural and regional locations – will be specifically addressed through the strategy.

The Australian Government Department of Health has commissioned the George Institute for Global Health to facilitate and manage the development of the strategy.

This presentation will provide an overview of the development of the draft strategy by the Department and The George Institute. The presentation will also include findings from the literature review and consultations with key stakeholders across Australia and next steps to finalise the strategy by June 2020.
Keynote Speaker

Defining boundaries before pushing them - Improving road safety capacity and outcomes in Asia by working in partnership

*Judy Fleiter, Global Road Safety Partnership*

The Global Road Safety Partnership (GRSP) works in collaboration with governments, road safety agencies, and the NGO community in low- and middle-income countries to reduce the burden of road traffic injuries. As a hosted programme of the International Federation of Red Cross and Red Crescent Societies, the GRSP is part of a global humanitarian network which offers extensive access to the voice and influence of civil society. The GRSP works on a partnership model, bringing together the voices of civil society, government, donors, and corporates to develop shared understanding of the problems and solutions. Asia is vast and complex, requiring nuanced approaches in different parts of the region. The importance of establishing trust-based relationships with in-country partners and donors to assist with programme implementation is vital to successful outcomes. This address will describe case studies from several Asian countries to demonstrate how boundaries need to first be recognised, before attempting to push them.
Poster Presentations: Monday 25th – Wednesday 27th November 2019

Facilitators and barriers to workplace safety culture in the construction industry: Views from within the industry, Mohammed Aburumman
Monash University Accident Research Centre

Co-authors:
Sharon Newnam, Monash University Accident Research Centre
Brian Fildes, Monash University Accident Research Centre

Background
The construction industry has traditionally relied on lagging indicators as measures of workplace safety performance. Recent literature, however, suggests that leading indicators carry more meaningful value for improvement efforts within an organisation (Sheehan et al., 2016). In particular, Safety Culture has shown promise as a leading indicator of workplace safety performance (Clarke, 2006). Safety culture represents the “shared values (i.e. what is important) and beliefs (i.e. how things work) that interact with an organisation’s structures and control systems to produce behavioural norms (i.e. the way we do things around here)” (Reason, 1998, p. 294). Whilst there is sound understanding of safety culture as a concept, there is limited guidance for practitioners on how to effectively implement interventions designed to improve it. To best approach this gap in research and practice, it is important to understand the facilitators and barriers to implementing safety culture interventions in the workplace.

Aims
To explore facilitators and barriers to workplace safety culture in the construction industry.

Methods
Semi-structured face-to-face interviews were conducted with key actors within the Victorian construction industry. Participants were asked a series of open-ended questions relating to their views on safety culture, and their perceptions of the facilitators and barriers to its implementation within the industry.

Results
Twenty-seven construction professionals covering five broad role categories (viz., workers, supervisors, managers, safety professionals and regulators) were interviewed. Professionals within each role group shared similar perceptions on facilitators and barriers to safety culture in the industry, but perceptions differed across groups. For example, most supervisors perceived worker attitudes as a barrier, while many workers perceived management pressure as a barrier.

In terms of facilitators, there was a general consensus among all groups that top management support is essential, as well as worker consultation into safety culture programs. Some of the most highlighted barriers were time and financial constraints within the industry, the transient nature of the workforce, and communication barriers.

Discussion and Conclusions
The nature of workplace safety culture is highly complex, therefore there is limited guidance for industry in the development and implementation of interventions to create and maintain a culture where safety is valued and prioritised. The results of this study will help provide a better understanding of the factors that can inform programs to support workplace safety culture in construction and the overall systems that are in place to identify and manage safety culture issues with consideration given to workplace constraints.

Theme: Workplace injury and safety, Presentation Type: Poster
Regional motorcycle related injuries treated at Soddo, Carolyn Chew

James Cook University

Co-authors:
Andrew Chew
Kerrianne Watt, James Cook University

Background/Aims

Road traffic injuries (RTI) cause significant morbidity and mortality worldwide. Ethiopia is estimated by WHO to have some of the worst RTI and fatalities. However, with no established trauma care registry in Ethiopia, official estimates from traffic police data significantly under-report the issue. The aim of this study was to use data from the trauma registry developed at Soddo Christian Hospital (SCH) in Wolaita, Ethiopia to describe the epidemiology of motorcycle related injuries occurring in the Southern Nation Nationalities and Peoples Region (SNNPR), treated at SCH.

Methods

A prospective case series was performed at SCH between 1 June 2016 and 30 September 2017. Data included demographics, mechanism of injury, injury patterns and clinical outcomes.

Findings

A total of 883 RTI were included in the database, of which almost 60% (n=517) were motorcycle-related injuries. Of these, 234 patients were drivers, 119 were pillions and 164 were pedestrians. The majority of drivers were male (99%, n=231). Of the 234 motorcycle drivers, less than 40% were licenced and helmet use was 1.7%. There was no significant difference in neurological status on admission, length of stay or mortality between the three groups. Drivers more frequently experienced maxillo-facial injuries compared to passengers and pedestrians (p= 0.002). Pedestrians more frequently suffered from lower limb injuries (p < 0.001) than drivers or passengers.

Discussion and Conclusion

Motorcycle related injury comprises a significant proportion of RTI. Our registry provides the only current RTI data in Ethiopia. Further RTI data for Ethiopia will aid in the development of feasible and contextually relevant prevention strategies.

Theme: Road and Transport Safety, Presentation Type: Poster
Background
In Thailand, drowning is the number one cause of death among children under 15 years of age. In this age group, there were 10,923 drowning deaths between 2006 and 2015, most of which occurred in natural water settings.

Aims
To encourage and urge the implementation of all child drowning prevention measures in a continual manner.

Methods
According to a gap analysis of the implementation of the Child Drowning Prevention Program, communities did not carry out the program continually; some undertook only one measure, not covering various risk factors, resulting in a not-much decline in the drowning rate. Thus, to resolve such problems, in 2015, the Department of Disease Control, MoPH, began using the “Merit Maker for Child Drowning Prevention” strategy and designated the creation of Merit Makers as a key performance indicator of the Ministry. The strategy was expected to promote the implementation of all child prevention measures continually by multidisciplinary teams, through community participation and the use of local resources.

The Merit Maker strategy comprises 10 elements or key measures for child drowning prevention, i.e. policy, management, situation and data, risky water setting management, child center operations, knowledge dissemination, survival swimming training, CPR training, public communications, and research or monitoring/evaluation.

Results
In 2015 to 2017, 2,177 teams of Merit Makers were established in 74 of all 76 provinces across the country. The teams could manage to have safety measures in place in 10,344 risky water settings (fences or warning signs and water safety devices), set up drowning prevention programs in 7,862 child development centers, organize monthly knowledge dissemination sessions on drowning prevention at 7,913 health centers, generate 17,881 survival swimming instructors, train 391,587 children aged 6–14 years in survival swimming, train 174,236 community members or children on CPR, and organize 8,343 sessions of public communications.

Conclusion
The Merit Maker approach is a process for promoting the implementation of drowning prevention program in a sustainable manner at the local level. That is because the communities are made aware of the problems and then implement the program, using multidisciplinary teams and local resources in resolving the problems by the communities. The process helps the communities to have a sense of belonging; and so they feel committed to running the program on a continual basis.

Theme: Water safety (including drowning), Presentation Type: Poster
A Comparison of Road Traffic Safety Policies Across 5 Municipalities in Canada, Alison Macpherson
York University

Co-authors:
Liraz Fridman, The Hospital for Sick Children
Sarah Richmond, Public Health Ontario
Ian Pike, University of British Columbia
Pamela Fuselli, Parachute Canada
Andrew Howard, The Hospital for Sick Children
Brent Hagel, University of Calgary

Background

In Canada, policy documents that outline recommended road traffic safety interventions differ by city. Certain municipalities, such as Toronto, have adopted a Vision Zero approach whereas other cities have a variety of road safety plans in place that target specific road users. While these documents provide insight into plans for future interventions targeted at motor vehicle occupants and vulnerable road users, little is known about the types of interventions that are most frequently recommended by policy makers and whether they are effective at reducing injuries across the country.

Aims

To identify and categorize the types of interventions outlined in city plans and/or policies directly related to road traffic safety in Toronto, Peel, Vancouver, Calgary, and Montreal Canada.

Methods

We performed an environmental scan of policies/plans that outline interventions for targeted road users such as physical projects, programs, policy, promotion, and preparation related strategies with a focus on road traffic safety. We summarized the available strategies described in the documents, their primary purpose, and the target road user(s). We also identified which of the proposed strategies were evidence-informed.

Results

The majority of road traffic safety interventions across municipalities were related to the built environment by implementing traffic calming strategies. Seven physical projects were outlined in policy documents from all municipalities including: accessible pedestrian signals, increased crossing times, pavement markings, pedestrian countdown signals, raised intersections/medians, and presence of sidewalks. Some strategies outlined in these municipalities had conflicting evidence related to their effectiveness. The scientific evidence for on street parking, for example, is mixed for pedestrian safety and suggests negative consequences for cyclists. Despite this, on-street parking is listed in the policy documents of Toronto, Peel, Montreal and Calgary as it is inexpensive, reduces speed and may possibly reduce short-cutting or through traffic.

Discussion and Conclusions

Although there are some similarities among physical projects outlined in Canadian road traffic safety documents, many differences exist. Policy documents from all cities outline some strategies that have not proven to be effective.
in reducing motor vehicle conflicts with pedestrians and cyclists. Although there are other factors that come into play that affect strategy choice, scientific studies that examine intervention effectiveness need to be considered.

How research pushes the boundaries

By exploring the differences in municipal road traffic safety policies and the reasons for those decisions by policy makers we can prioritize future research studies that demonstrate the effectiveness of specific interventions (e.g. speed limit reductions).

Theme: Road and transport safety, Presentation Type: Poster
Once Bitten: The Epidemiology of Fatal Venomous Bites and Stings in Australia 2006 - 2014, Lauren Miller
James Cook University

Co-authors:
Kerrianne Watt, James Cook University
Richard C. Franklin, James Cook University

Background
Venomous bites and sting fatalities are significantly understudied in Australia. Although Australia is known to harbour some of the most venomous creatures in the world, little is known about the burden of venomous injuries and deaths.

Aim
To determine the epidemiology of deaths in Australia associated with any form of venomous bite and/or sting, from 2006-2014.

Methods
Data were obtained from ABS (Australian Bureau of Statistics) on all fatalities from January 1st 2006 until December 31st 2014 (9 years) due to envenomations (using ICD10 external cause codes X20-29). Rates and trends over time were calculated using STATA, with geospatial analysis, using SLA codes. Risk factors and characteristics of envenomations were also examined.

Results
A total of 55 deaths occurred from a venomous organism; envenomation type was known for 54 cases. The overall mortality rate was 0.0278 per 100,000 persons per annum (pa); specifically 0.0126 per 100,000 pa for snakes, 0.0111 per 100,000 pa for hornets, wasps or bees. Almost half (45.5%) of deaths were from snakes, 40.0% were from hornets, wasps or bees, 5.5% from venomous marine organisms, and 5.5% from other venomous arthropods (scorpions, ants, caterpillars). Over one-third of fatalities occurred at home (37.0%), most occurred during the week (74.0%) and predominantly in males (85.2%) in the 45-64 year age group (48.2%). Envenomation deaths occurred most frequently in Queensland (25.9%), and in regional (inner/outer) areas (51.9%).

Conclusions
This study makes an important contribution to what is known about the burden of disease in Australia from envenomation deaths. However, further research is required using linked data from across the continuum of care (pre-hospital, emergency, admissions, deaths) to overcome some of the limitations encountered in this study (including lack of data on incident location). This would facilitate investigation of social, environmental, and occupational factors in all types of envenoming related deaths, which would inform better management and prevention, to ultimately improve patient care.

Theme: Other, Presentation Type: Poster
Injuries are a leading cause of morbidity and mortality among children in Western Australia. Aboriginal children are more likely to be hospitalised for injury than non-Aboriginal children in Australia. Between 2005 and 2012, Aboriginal children were hospitalised at nearly twice the rate for transport accidents; over four times the rate for burns and scalds; double the rate for unintentional poisoning; and over ten times the rate for interpersonal violence.

In June 2019 Kidsafe WA will be releasing the Kidsafe WA Childhood Injury Report: Injuries to Aboriginal Children, 2011-2015. The report aims to provide an overview of unintentional childhood injuries to Aboriginal children in WA. The report utilises data from the HealthTracks Reporting application of the Epidemiology Branch at the Department of Health WA and Injury Surveillance Data from Perth Children’s Hospital Emergency Department, along with survey data collected by Kidsafe WA with professionals across WA.

The report highlights the large over-representation of injuries to Aboriginal children compared to non-Aboriginal children using injury death, hospitalisation and emergency department presentation data. The report shows that despite Aboriginal children accounting for around 5 percent of children aged 15 years of age in WA they make up 20 percent of injury-related deaths and 11 percent of injury-related hospitalisations from 2011 to 2015. Survey results presented in the report also provide a valuable insight into the perceptions of professionals that work with Aboriginal families in WA on injury risks, prevention activities and challenges.

The collection of injury data plays a vital role in developing strategies to prevent and reduce the severity of childhood injuries. It also plays a key role in highlighting the importance of prevention policies and programs to reduce the burden of childhood injuries on the health system. This abstract aims to establish the over-representation of childhood injuries to Aboriginal children within WA. It works to push the boundaries by providing new data to assist in informing injury prevention activities to work towards closing the gap for injuries to Aboriginal children in WA.

Theme: Indigenous health and injury prevention, Presentation Type: Poster
Injury-related hospital admissions to Sydney Children’s Hospitals Network 2016 - 2017, Sue Wicks, Sydney Children’s Hospitals Network

Co-authors: 
Dushyanthi Nagaratnam, The Children’s Hospital at Westmead
Candace Douglass, The Children’s Hospital at Westmead
Erin Collimore, The Children’s Hospital at Westmead

Background

Injury is a leading cause of death and hospitalisation among children and young people throughout the world. In 2015, 17% of deaths among those aged less than 18 years registered in NSW were injury related. Child injuries heavily impact the health system, not only through patient admissions but also through emergency department presentations and visit to the general practitioner.

Aims

To gain a better understanding of child injury admissions within Sydney Children’s Hospitals Network (SCHN). This will be used to inform priority setting for the network health promotion and injury prevention work.

Methods:

A retrospective study of injury-related hospital admissions to the Network from 1 July 2016 to 30 June 2017.

Results

Of the 52,494 admissions to the Network during the study period, 13% were due to injuries. The majority (43%) of injuries occurred in children under 5 years of age with males sustaining 62% of all injuries. Falls (43%) was the most common injury mechanism, specifically falls on the same level followed by falls from playground equipment. The home (34%) was found to be the most common place of occurrence of these injuries. These results were consistent with those of the 10-year review of the characteristics and health outcomes of injury-related hospitalisations of children in Australia.

Discussion and Conclusions

The 10 year review and our data have found child injury hospitalisations to have remained the same over the years. As child injury is preventable and continues to be a leading cause of hospitalisations, it is promising to note recent plans for strategic investment in injury prevention. Further focused prevention and advocacy efforts are needed in reducing the incidence and impact of child injury.

How research pushes boundaries

This research confirms the existing knowledge on child injury in Australia. The data collected from SCHN confirms the need for work in child injury prevention and the directions highlighted in the 10 year review.

Theme: Child health and safety, Presentation Type: Poster
Geographic patterns of treatment for pain and mental health conditions after road traffic injury, Dinda Nisrina Wijanarko, Monash University

Co-authors: Belinda J Gabbe, Monash University Alex Collie, Monash University Melita J. Giummarra, Monash University

Background

Pain and mental health following an injury are common conditions, which have considerable impacts on health burden. There is evidence that residential geographic areas and socioeconomic characteristics play a crucial role in access to treatment for both pain and mental health problems.

Objectives

The aims of this study were to characterise the geographic variations in treatment for pain and mental health conditions following a transport injury, and to explore the relationship between treatment access and neighbourhood (Local Government Area, LGA) level socioeconomic advantage and disadvantage.

Methods

Data for this study were collected from Victorian residents, aged 18 years and over, with an accepted compensation claim with the Transport Accident Commission (TAC) between 2008-2013 (N=73,796). Cases were excluded if there were no payments within 84-days of injury, the claimant had surgery >6 weeks post-injury, if they sustained a catastrophic injury, or died within 24-months of injury. Treatments were identified from TAC payment records for medication and clinician-based services within 3-24 months post-injury that were indicative of treatment for persistent pain or mental health conditions. Geospatial mapping, regression and correlation analyses examined geographical patterns of treatment. Furthermore, hotspot areas with consistently higher or lower treatment were identified.

Results

Metropolitan LGAs had higher levels of treatment (pain: 7.0%, 96.45 per 100,000; mental health: 3.4%, 46.82 per 100,000) than regional LGAs (pain: 3.8%, 53.27 per 100,000; mental health: 2.2%, 29.63 per 100,000). In metropolitan LGAs, higher neighbourhood disadvantage was correlated with higher levels of treated pain conditions ($r^2=0.50$, 95%CI: -0.72, -0.17) and mental health conditions ($r^2=-0.63$, 95%CI: -0.81, -0.36). In regional LGAs, lower neighbourhood disadvantage was correlated with higher levels of treated pain ($r^2=0.39$, 95%CI: 0.11, 0.62), but not mental health ($r^2=0.15$, 95%CI: -0.15, 0.44). Most hotspot areas were located in inner regional areas, and outer metropolitan areas with high levels of socioeconomic disadvantage. Metropolitan “cold spot” areas, on the contrary were predominantly in regions with low socioeconomic disadvantage in inner metropolitan areas.

Discussion and conclusion
The finding from this study underlined the importance of considering geographic and social determinants in treatment access for pain and mental health, in order to provide timely and equitable treatment to improve recovery after injury.

How research pushes the boundaries

This study helps us understand the variation in treatment across geographic area and socioeconomic characteristics, and will help to inform strategies and policies to improve equitable and timely treatment access.

*Theme: Other, Presentation Type: Poster*
THANKING OUR SPONSORS & EXHIBITORS

MOTOR ACCIDENT INSURANCE COMMISSION (MAIC)

Silver & Conference Theme Sponsor

The Motor Accident Insurance Commission (MAIC) is the regulator of Queensland’s Compulsory Third Party (CTP) insurance scheme. As part of our role, we invest in research and initiatives that aim to reduce the frequency and severity of road trauma. We are passionate about preventing road trauma, reducing the impact of road trauma, and keeping CTP insurance premiums affordable to all Queensland motorists.

maic.qld.gov.au

OFFICE OF INDUSTRIAL RELATIONS

Silver Sponsor

Proudly supported by the Queensland Government

Office of Industrial Relations is proud to sponsor and speak at the Australasian Injury Prevention Conference 2019.

In partnership with our stakeholders, Office of Industrial Relations strive to achieve the lowest rate of work-related and electrical fatality, injury and disease in the nation, improved workers’ compensation regulatory services and a fair industrial relations framework in Queensland.

Office of Industrial Relations has more than 800 staff across Queensland. We offer a range of policy, advisory, compliance and specialist technical services and initiatives including:

- targeted initiatives that engage with workers, business and the community to build safe and fair workplaces
- ensuring compliance with work health and safety, electrical safety, industrial relations and workers’ compensation regulatory frameworks and taking any necessary enforcement action
- managing registration, licensing, certification and accreditation regimes for workplaces and electrical safety (licensing for the labour hire industry commenced on 16 April 2018).

For further information on our services, visit worksafe@oir.qld.gov.au.


SUNCORP INSURANCE

Silver Sponsor
Suncorp Insurance and its related brands have long supported Australians and New Zealanders to enjoy the life they have today and plan for the life they want tomorrow. Our purpose is to create a better today – whether that be by supporting an injured person to get back on their feet, helping protect someone’s valuable assets with insurance, or being there for our customers and communities when they need it most. In a world that is changing faster than ever, we are working hard to make it easier for our customers and communities to be resilient. Community support and involvement is at the core of what we do and collaborating with other injury prevention and management professionals is a big part of how we do it.

Suncorp Insurance is proud to join with AIPN to support the 14th Australasian Injury Prevention and Safety Promotion Conference. As we explore new technologies and research we are challenging ourselves to think differently, and more holistically, about injury prevention and management. Events such as this help us all create a better today by looking at new opportunities, examining future disruptions, and influencing change. Together, we will push the boundaries further.


ACC
Bronze Sponsor

ACC provides New Zealanders with comprehensive, no-fault personal injury cover. We work closely with businesses and the community, to try to prevent injuries from happening and to make New Zealand a safer place. But when injuries do happen, we’re here to help.

https://www.acc.co.nz/

INJURY MATTERS
Bronze Sponsor

For over 25 years, Injury Matters has been an injury prevention and recovery advocate for the Western Australian community. We are committed to making a difference in the community, being supportive of our team, and pragmatic in our approach to safety. As an organisation, Injury Matters work to influence individuals, agencies, and decision makers to recognise that injury prevention and the support of recovery is a priority; empower people, communities, professionals, and agencies to make better decisions to prevent and reduce the impact of injury; and collaborate for effective shared solutions and positive injury outcomes for the community.

www.injurymatters.org.au/
SCHOOL OF PUBLIC HEALTH & COMMUNITY MEDICINE, UNSW

Bronze Sponsor

The School of Public Health and Community Medicine at UNSW Sydney is a leading educator in postgraduate programs in Public Health, Health Management and Infectious Diseases. The School has a diverse range of offerings in its coursework and research degrees, including a range of specialisations linked with areas of research strengths. The strengths of our degrees are dual mode delivery (fully online and face to face) enabling work while you study and opportunities to choose from a range of courses and specialisations, including dual degrees.

Our Masters program also offers an Injury Prevention course 'Injury epidemiology, prevention and control' aims to provide students with a clear understanding of the scale of the injury burden, and best practice in prevention, both in Australia and globally. The course features a range of guest lectures from leaders in the field and will equip students with the knowledge needed to work in injury research or policy. Designed to suit the diverse needs of professionals, the School’s coursework programs can be taken part-time or full-time with options available to enrich the learning experience by incorporating independent projects, research projects or work integrated learning in their studies.

The Bachelor of International Public Health is a new fully online program which is designed to build and strengthen the international public health workforce. With courses available as part of Plus Alliance it is a unique experience and immerses students in a virtual global classroom, allowing students to study when and where they want.

The School offers a range of research degrees, both Master’s and PhD, with opportunities for supervision from within the School and Medical Research Institutes at UNSW. We also offer a unique doctorate in Applied Public Health which incorporates workplace experience and includes a thesis in professional practice.

https://www.unsw.edu.au/

THE GEORGE INSTITUTE FOR GLOBAL HEALTH, INJURY DIVISION

Bronze Sponsor

The George Institute for Global Health is a not-for-profit global medical research institute and a designated WHO Collaborating Centre in Injury Prevention and Trauma Care, committed to improving the health of millions of people worldwide. Our Injury Division aims to find the best solutions to address the world’s biggest injury challenges and transform injury and trauma care globally. Harnessing the power of governments, markets and communities through research, advocacy and thought leadership, we are at the forefront of innovations to reduce the burden of injury. We currently lead injury-related initiatives in Australia, India, Bangladesh, China, Uganda and South Africa including developing Australia’s National Injury Prevention Strategy, and projects relating to drowning reduction, falls prevention among the visually impaired and child restraint testing.

For more details of our injury projects, please visit https://www.georgeinstitute.org.au/units/injury

MONASH UNIVERSITY ACCIDENT RESEARCH CENTRE (MUARC)
Monash University Accident Research Centre (MUARC) is a world leader in injury prevention research and training. Our research has led directly to real-world solutions for making Australians safer on the roads, in the workplace, and in homes and communities. MUARC's long standing partnership with the World Health Organisation (WHO) as a Collaborating Centre supports initiatives towards the achievement of Sustainable Development Goals relating to violence and injury prevention in the Western Pacific Region. We are committed to the excellence of our research and training, the independence of our recommendations and the engagement we have with the communities we serve, locally and globally.

https://www.monash.edu/muarc