Conference Abstract Book

13 – 15 November 2017
Mercure Ballarat Hotel and Convention Centre
Ballarat, Victoria

Presented by the Australian Injury Prevention Network and hosted by the Collaboration for Research into Injury in Sport and its Prevention (ACRISP) and Federation University
### Day One: Monday 13 November 2017  
#aipn17

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>7.30am - 8.30am</td>
<td>Registration Desk Open Located in the foyer area of the Convention Centre</td>
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<tr>
<td>8.30am</td>
<td>Welcome to Country Peter Lovitt</td>
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<tr>
<td>8.40am</td>
<td>Welcome Address Professor Rebecca Ivers, Australian Injury Prevention Network</td>
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<tr>
<td>8.50am</td>
<td>Official Welcome Catherine King MP, Member for Ballarat</td>
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<td>9.00am</td>
<td>Sponsor's Address Dr Bruce Bolam, Department of Health and Human Services</td>
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<tr>
<td>9.10am</td>
<td>Host’s Welcome Address Professor Leigh Sullivan, DVC Research &amp; Innovation, Federation University Australia</td>
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<tr>
<td>10.00am</td>
<td>Keynote Address: Family violence and suicide prevention: Exploring an intersection Megan Mitchell, Children’s Commissioner, Australian Human Rights Commission</td>
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<tr>
<td>10.30am</td>
<td>Morning Tea &amp; Exhibition, Convention Centre foyer</td>
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</table>
| 11.00am - 12.30pm | Concurrent Session 1: SPORT & RECREATION - PREVENTION OF SERIOUS INJURY AND DEATH  
                    Session Chairs: Liam Tochey & Sandy Bratt |
| 11.00am      | Identifying opportunities for the prevention of fatalities relating to sport and recreation in Australia  
                    Lauren Fortington, Federation University Australia |
| 11.10am      | Race-day fracture incidence in Irish professional flat and jump horse racing from 2011-2016  
                    Siobhan O’Connor, Dublin City University |
| 11.20am      | Referees are not sanctioning enough illegal tackles in South African youth rugby  
                    James Brown, University of Capo Town |
| 12.00pm - 12.30pm | Concurrent Session 2: IP in a GLOBAL SETTING 1 [BURNS]  
                    Sponsored by Monash University Accident Research Centre  
                    Session Chairs: Suzanne Cross & Stephen Marshall |
| 12.00pm - 12.30pm | Concurrent Session 3: SUICIDE & SELF-HARM  
                    Session Chairs: Amy Vessallo & Malita Glimmarr |
| 12.00pm - 12.30pm | Concurrent Session 4: CHILDHOOD SAFETY 1  
                    Session Chairs: Carolina Lukaszk & Dabbie Scott |
| 1.00pm       | Eureka Ballroom                                                          |
| 1.10pm       | Preserving identities: health systems approach to improving recovery in burns survivors  
                    Jagnoor Jagnoor, The George Institute for Global Health |
| 1.20pm       | Understanding burn injuries in Aboriginal and Torres Strait Islander children: treatment, access to services and outcomes: study progress  
                    Rebecca Ivers, The George Institute for Global Health, University of NSW |
| 1.30pm       | Railway suicide clusters: how common are they and what predicts them?  
                    Lay San Too, University of Melbourne |
| 1.40pm       | Taking action on intentional self-poisoning in the population: do we have the tools?  
                    Keiva Kati Kumpula, University of Otago |
| 2.00pm       | Victoria Room                                                           |
| 2.10pm       | WA Consumer Product Advocacy Network - Reducing the risk of childhood injuries related to consumer products  
                    Scott Phillips, Kidsafe WA |
| 2.20pm       | Home injuries in preschoolers. A household quandary - Who Is to blame?  
                    Nadaaya Mohamed Nor, Faculty of Medicine and Health Sciences, Universiti Sains Islam Malaysia |
| 2.30pm       | Western Australia Childhood Injury Report: Patterns of injuries among 0-10 year olds in Western Australia, 2001-2011  
                    Anita Stepan, Kidsafe WA |
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<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker/Institution</th>
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<tbody>
<tr>
<td>11.30</td>
<td>A 10 year analysis of boating and watercraft drowning deaths in Australia</td>
<td>Stacey Pidgeon, Royal Life Saving Society - Australia</td>
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<td>Hot tea and tiny tots don’t mix: a cross-sectional survey on hot beverage scalds</td>
<td>Jacqueline Burgess, University of Queensland</td>
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<td>Alcohol, pharmaceutical, and illicit drug consumption in males treated by Australian ambulance services following an episode of self-harm, attempted suicide, or suicidal ideation:</td>
<td>Rebecca Mitchell, Macquarie University</td>
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<td>Data from the Moveover Beyond the Emergency Project</td>
<td>Katrina Witt, Monash University</td>
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<td>11.40</td>
<td>The Talk Test: Teaching Non Medical Staff How to Assess Potentially Life Threatening On Field Emergencies - A pilot study</td>
<td>Dheesha Sayakkara, Eastern Victoria GP Training</td>
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<td>Cause and treatment of burn injuries in Aboriginal and Torres Strait Islander children: Baseline data from a prospective study</td>
<td>Rebecca Ivers, The George Institute for Global Health, University of NSW</td>
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<td>Screening for Suicide Risk</td>
<td>Denny Meyer, Swinburne University of Technology</td>
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<td>Incidence and Cost of Nontatal Paediatric Injury in QLD</td>
<td>Keriannawatt, James Cook University</td>
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<td>11.50</td>
<td>Effect of bicycle helmet promotion and legislation on serious head injuries in Western Australia</td>
<td>Jake Oliveri, UNSW Sydney</td>
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<td>Burn care for Aboriginal and Torres Strait Islander children in Australia – guidance and enactment of care</td>
<td>Sarah Fraser, Flinders University</td>
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<td>Suicide among nursing home residents: To prevent or assist?</td>
<td>Bithony Murphy, Monash University</td>
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<td>Identifying components of an intervention to reduce falls in children &lt;12 months using the Behaviour Change Wheel (BCW)</td>
<td>Julie Brown, Neuroscience Research Australia</td>
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<td>12.00</td>
<td>ROP - Cricket injury surveillance studies: A systematic review to identify knowledge gaps</td>
<td>Dulans Kodkana, Federation University</td>
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<td>Suicidal Ideation: a point for intervention?</td>
<td>Sharon Matthews, Turning Point</td>
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<td>Because Life Doesn’t Have a Reset Button: Using Interactive Online Film to Create Risk Awareness Among Youth Audiences</td>
<td>David Gribble, Caretale Caro Child Safety Foundation</td>
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<td>12.05</td>
<td>ROP - Development of a search strategy for monitoring the media for football-related fatalities in Australia</td>
<td>Lauren Forinton, Federation University Australia</td>
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<td>ROP - The Long Diva. Aquatic safety, voluntary endurance breath holding, aquatic activities and competition</td>
<td>Amy Peden, Royal Life Saving Society - Australia</td>
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<td>ROP - Knowledge Behavior and Perception in drowning prevention: A qualitative understanding on Bangladesh perspectives</td>
<td>Fadul Kader Chowdhury, Center for Injury Prevention Research of Bangladesh</td>
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<td>Strength of the collective and the power of place - A Victorian place-based approach to suicide prevention</td>
<td>Elieeh Diviney, Department of Health and Human Services</td>
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<td>ROP - Communities’ reaction on child drowning prevention intervention: experience from Bangladesh</td>
<td>Md. Shafkat Hoosen, Center for Injury Prevention and Research Bangladesh</td>
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<td>12.15</td>
<td>Q&amp;A with speakers</td>
<td>Seung Chul Lee, Dongguk University Ilsan Hospital</td>
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<td>ROP - Epidemiology and Outcomes of Traumatic Brain Injury in Korean Children</td>
<td>Sunghyun Lee, Chung-Ang University</td>
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<td>Q&amp;A with speakers</td>
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<td>12.20</td>
<td>Q&amp;A with speakers</td>
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<td>12.30</td>
<td>Lunch &amp; Exhibition, Convention Centre Foyer</td>
<td>Q&amp;A with speakers</td>
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<td>Eureka Ballroom</td>
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| 1.30pm - 3.00pm | **Concurrent Session 5:** ROAD SAFETY 1  
Sponsored by CARRS-Q  
Session Chairs: Ion Lewis & Jarneke Berecki-Gisolf | **Concurrent Session 6:** IP in a GLOBAL SETTING 2  
[INDIGENOUS POPULATIONS]  
Sponsored by Monash University Accident Research Centre  
Session Chairs: Rebecca Lilley & Andrea Gileen | **Concurrent Session 7:** VIOLENCE, ALCOHOL & DRUGS  
Session Chairs: Alyse Lennox & Lisa Keay | **Concurrent Session 8:** CHILDHOOD SAFETY 2  
Session Chairs: Nadeya Mohamad Nor & Kerianne Watt |
| 1.30pm | The utility and impact of colonial recommendations on improving road safety policy and practice and, preventing deaths – a theoretical framework  
Marilyn Johnson, Monash University | Road Crash Traumas amongst Aboriginal and Torres Strait Islander Peoples in New South Wales  
Andrew Graham, Transport for NSW | The co-occurrence of alcohol, drug and mental health symptomology in family violence related ambulance presentations in Victoria  
Dobbie Scott, Monash University | Childhood injury prevention: Strategic directions for coordination in New South Wales  
Kathleen Clapham, University of Wollongong |
| 1.40pm | Towards Autonomous Vehicles with Socially-Aware Predictive Models of Vulnerable Road Users’ Behaviours and Intentions  
Mo Hossny, Deakin University | Child restraint use: baseline survey results from a child restraint program with 12 Aboriginal and Torres Strait Islander communities in New South Wales  
Kate Hunter, The George Institute for Global Health | Unintentional fatal drowning in rivers and the role of alcohol  
Amy Peden, Royal Life Saving Society - Australia | Comparison of health outcomes of young people hospitalised with an injury who have and do not have a chronic health condition  
Rebecca Mitchell, Macquarie University |
| 1.50pm | Quad-bike related aeromedical retrievals in Queensland 2010-2014  
Richard Franklin, James Cook University | Preventing unintentional injury towards Aboriginal children and young people in NSW: guidelines for policy and practice  
Kathleen Clapham, University of Wollongong | A novel approach to measurement: Examining physical violence ambulance attendances involving alcohol and other drugs across Victoria  
Dobbie Scott, Monash University | Management of blunt splenic injury in children and young people in NSW  
Susan Adams, Sydney Children’s Hospital |
| 2.00pm | The Prevention of Back over Collisions  
Brian Filos, Monash University | Elder and youth perspectives on unintentional injuries and culturally-specific interventions in a Western Canadian context  
Tracy L. Friedel, Mount Royal University | Counting Dead Women: An In-depth Review of Femicide Cases in Australia  
Patricia Cullen, University of Technology Sydney | The Residual Problem of Child Unintentional Injury Mortality in Victoria, Australia 2001-2012 with a focus on Road Traffic Injury in children  
(S-14)  
Susan Chang, Monash University |
| 2.10pm | What could a road safety strategy for Victorian municipal roads look like?  
Nick Sned, KBHALL Pty Ltd | The Ironbark Project: developing and trialling a fall prevention program for older Aboriginal people in New South Wales  
Caroline Lukaszuk, The George Institute for Global Health | A systematic review describing the epidemiology of homicide and abuse related deaths in community dwelling older adults  
Grohney Kennedy, Monash University | Recruiting millenial mothers for an injury prevention campaign via social media  
Jacqueline Burgess, University of Queensland |
| 2.20pm | The burden of serious road traffic injuries in Victoria, 2007-2015  
Ben Beck, Monash University | Social marketing research to prevent unintentional injury towards Aboriginal children  
Karah Bennett-Brock, University of Wollongong | A comparison of rates and patterns of non-fatal assault-related hospital admissions among residents of metropolitan Melbourne and regional/rural Victoria  
Adrian Laingtin, Monash University | Analysing the use of ISOFIX compatible child restraints in Victoria  
Jason Chambers, Kidsafe Victoria |
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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>2:30pm</td>
<td>The Australian truck underrun dynamic crash test standard</td>
<td>TARS Research</td>
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<td>David Hicke, Transport and Road Safety (TARS) Research</td>
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<td>2:30pm</td>
<td>Characteristics of hospitalised unintentional poisoning amongst</td>
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<td>Aboriginal and non-Aboriginal</td>
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<td>preschool children in New South</td>
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<td>Wales: a population data linkage study</td>
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<td>Caroline Lee, UNSW</td>
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<td>2:30pm</td>
<td>Alcohol and injuries in a busy New Zealand Emergency Department:</td>
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<td>what's changed in 16 years?</td>
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<td>Bridget Koo, University of Auckland</td>
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<td>2:30pm</td>
<td>ROP - Exploring the comprehension of child restraint instruction</td>
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<td>manuals and errors in installation</td>
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<td>Catherine Ho, Neuroscience Research Australia</td>
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<td>Q&amp;A with speakers</td>
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<td>2:40pm</td>
<td>Preventive effects of motorcycle helmets on clinical outcomes in</td>
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<td>motorcycle crashes</td>
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<td>Ki Ok Ahn, Myoungji Hospital</td>
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<td>Q&amp;A with speakers</td>
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<td>2:45pm</td>
<td>Agreement between medical record and ICD-10-AM coding of mental health,</td>
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<td>alcohol and drug conditions in trauma patients</td>
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<td>Tu Nguyen, Monash University</td>
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<td>2:50pm</td>
<td>Q&amp;A with speakers</td>
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<td>3:00pm-3:30pm</td>
<td>Afternoon Tea &amp; Exhibition, Convention Centre Foyer</td>
<td>Convention Centre</td>
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<tr>
<td>3:30pm-4:00pm</td>
<td>Plenary Session Two</td>
<td>Convention Centre</td>
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<td>Session Chair: Amy Pedan</td>
<td>Convention Centre</td>
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<tr>
<td>3:30pm</td>
<td>Keynote Address: Aboriginal women and violence: Voices from the</td>
<td>Convention Centre</td>
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<td>community</td>
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<td>Marlene Longbottom, University of Wollongong</td>
<td>Convention Centre</td>
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<tr>
<td>4:00pm</td>
<td>Workshop: Health Behaviour Change and Public Education Campaigns in</td>
<td>Eureka Ballroom</td>
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<td>Injury Prevention</td>
<td>Eureka Ballroom</td>
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<td>Facilitator: Dr Ioni Lewis, CARRS-Q</td>
<td>Eureka Ballroom</td>
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<td>Session Chair: Amy Pedan</td>
<td>Eureka Ballroom</td>
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<tr>
<td>5:00pm</td>
<td>Conference Day One Concludes</td>
<td>Convention Centre</td>
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<tr>
<td>5:00pm-6:00pm</td>
<td>Australian Injury Prevention Network Annual General Meeting,</td>
<td>Convention Centre</td>
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<td>5:15pm-6:30pm</td>
<td>Student Session: Student Program - Developing Your Research Pitch</td>
<td>Convention Centre</td>
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<td>Location: Conservatory, Session Chair: Amy Vassallo</td>
<td>Convention Centre</td>
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</table>
## Day Two: Tuesday 14 November 2017

### Registration Desk Open
Located in the foyer area of the Convention Centre

### Plenary Sessions will be held in the Convention Centre

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Chair(s)</th>
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</thead>
<tbody>
<tr>
<td>8:30am</td>
<td>Welcome Day Two &amp; House Keeping</td>
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<tr>
<td>9:00am</td>
<td>Keynote Address: Too tough to tackle? Professor Andrea Gielen, Johns Hopkins Centre for Injury Research and Policy</td>
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<tr>
<td>9:30am</td>
<td>Keynote Address: From voice to resonance through liboratory arts research Dr Alison Baker-Lawton, Victoria University</td>
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### Morning Tea & Exhibition, Convention Centre Foyer

### Concurrent Sessions

#### Victoria Room

- **Concurrent Session 12:**
  - **Road Safety 2**
  - **Session Chairs:** Lisa Dillon & James Harrison

#### Conservatory

- **Concurrent Session 11:**
  - **Concussion & Head Injuries**
  - **Session Chairs:** Prasanna Gamage & Richard Lystad

#### Eureka Ballroom

- **Concurrent Session 10:**
  - **Workplace Safety**
  - **Sponsored by NSW State Insurance Regulatory Authority**

#### Convention Centre

- **Concurrent Session 9:**
  - **SPORT - TRANSLATION**
  - **Session Chairs:** Najeebullah Soomro & Lauren Fortington

### Session Details

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Chair(s)</th>
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<tbody>
<tr>
<td>10.00am</td>
<td>Invited Speaker: Multimedia tools to prevent sports injury - translation to the field of play</td>
<td>Kathrin Steffen, Oslo Sports Trauma Research Centre, Norwegian School of Sports Sciences</td>
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<tr>
<td>10.30am</td>
<td>Estimating the burden of work injury in Australia using a comprehensive national injury claims database</td>
<td>Alex Collio, Monash University</td>
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<td>10.40am</td>
<td>Work-related injury and illness in the Victorian public healthcare sector</td>
<td>Ting Xia, Monash University</td>
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<td>10.50am</td>
<td>The impact of a pre-injury cancer diagnosis on the cost of work-related injury claims</td>
<td>Jane Hayman, Victorian Injury Surveillance Unit</td>
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<tr>
<td>11.00am</td>
<td>Understanding and Preventing Led Outdoor Accidents: Contributions of a National Incident Dataset</td>
<td>Amanda Clacy, University of the Sunshine Coast</td>
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<td>Factors associated with leading indicators of Work Health and Safety</td>
<td>Miriam Marombo, Monash University</td>
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<td>The Impact of Helmet Use and High Risk Behaviors on Injury Patterns and Savarity in Motorcyle Child Pillows</td>
<td>Halu-Ping Fan, Taipei Medical University</td>
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<td>Occupy, entertain and distract: How does children's in-vehicle activity affect safety?</td>
<td>Suzanne Cross, Monash University</td>
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<tr>
<td>Time</td>
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<tr>
<td>11.10am</td>
<td>How to improve quality of pre-exercise screening in the fitness industry?</td>
<td>Befit Sekendic, Central Queensland University</td>
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<tr>
<td>11.20am</td>
<td>Policies and guidelines for the prevention of exertional heat injury published by sports organisations in Victoria, Australia: a qualitative content analysis</td>
<td>Prasanna Gamage, Federation University Australia</td>
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<td>11.30am</td>
<td>Social media strategy associated with increase in exercise-based intervention awareness in rugby union players and coaches</td>
<td>Janus Brown, University of Cape Town</td>
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<td>11.40am</td>
<td>ROP - The Economics of Sports Injury Prevention Compared to that of Sports Injury Treatment</td>
<td>Paul McPhee, Federation University Australia</td>
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<td>11.45am</td>
<td>Improving information relevance, accessibility, and legitimacy: how key intermediary organisations develop and distribute sports injury prevention and safety promotion resources</td>
<td>Shereen Bulker, Federation University Australia</td>
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<td>11.50am</td>
<td>A prospective cohort study of the impact of return-to-work Coordinators in getting injured workers back on the job</td>
<td>Shannon Gray, Monash University</td>
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<tr>
<td>11.55am</td>
<td>Lunch &amp; Exhibition, Convention Centre Foyer</td>
<td>Q&amp;A with speakers</td>
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<td>12:00pm</td>
<td>Q&amp;A with speakers</td>
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<tr>
<td>12:15pm - 12:30pm</td>
<td>Student Panel: Things I wish I knew... about a career in research</td>
<td>Location: Convention Centre Session Chair: Amy Vasallo</td>
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### Plenary Sessions will be held in the Convention Centre

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<th>Time</th>
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<tr>
<td>1.15pm</td>
<td>Plenary Session Four</td>
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<td>Session Chair: Judith Charlton</td>
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<tr>
<td>1.15pm</td>
<td>Introducing Graham - art meets science in pursuit of road safety</td>
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<td>Dr David Logan, Monash University Accident Research Centre</td>
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#### Convention Centre

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<tr>
<td>1.45pm</td>
<td>Workshop: It's report card day! Assessing Canada's performance in</td>
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<td>paediatric injury prevention</td>
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<td>Ian Pike, University of British Columbia,</td>
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<td>Alison Macpherson, York University, Canada</td>
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<td>Session Chair: Aleksandra Natora</td>
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<td>1.45pm</td>
<td>Workshop: The six thinking hats of evidence-based community Injury</td>
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<td>Prevention and Safety Promotion Programs</td>
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<td>Dale Hanson, James Cook University</td>
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<td>Session Chair: Deborah Costello</td>
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<td>Workshop: Cracked Pots</td>
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<td>Monika Finch, Ballarat Art Therapies</td>
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<td>Maggie Date, Maggie Date Art Therapy</td>
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<td>Session Chair: Carolyn Staines</td>
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<td>Workshop: Theatrical Response Group</td>
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<td>Using Forum Theatre to Empower Secondary School</td>
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<td>Communities to Discuss Risk and Safety Issues</td>
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<td>Danielle Artaki, Constable Care Child Safety Foundation</td>
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<td>David Grigbbo, Constable Care Child Safety Foundation</td>
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<td>Session Chair: Lauren Forthing</td>
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<td>Using Forum Theatre to Empower Secondary School</td>
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<td>Communities to Discuss Risk and Safety Issues</td>
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<td></td>
<td>Danielle Artaki, Constable Care Child Safety Foundation</td>
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<td>David Grigbbo, Constable Care Child Safety Foundation</td>
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<td>Session Chair: Lauren Forthing</td>
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#### 2.45pm - 3.30pm  Afternoon Tea and Exhibition, Convention Centre Foyer

#### 3.00pm - 3.30pm 2020 World Injury Prevention and Safety Promotion Conference Bid Information Session, Convention Centre

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<td>Session Chairs: Himalaya Singh &amp; Belinda Gabbe</td>
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<tr>
<td>3.30pm</td>
<td>An updated subsequent injury categorisation model (SIC-2.0):</td>
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<td>data-driven categorisation of subsequent injuries in sport</td>
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<td></td>
<td>Liam Tochay, La Trobe University</td>
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<tr>
<td>3.40pm</td>
<td>Sports Injuries and Illnesses in the Lillehammer 2016 Youth Olympic</td>
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<td>Winter Games</td>
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<td>Kathrin Storfan, Oslo Sports Trauma Research Centre, Norwegian School</td>
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<td>of Sport Sciences</td>
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<td>3.50pm</td>
<td>Injury surveillance in the professional football codes:</td>
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<td>an overview of current data collection, injury definition and</td>
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<td>reporting practices</td>
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<td></td>
<td>Louise Shaw, Federation University</td>
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<td></td>
<td>Measuring the value of swimming and physical activity</td>
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<td>Paul Barnsley, Royal Life Saving Society</td>
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<td>Falls prevention among Personal Alert Victoria clients</td>
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<td>Aleksandra Natora, Department of Health and Human Services Victoria</td>
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<td>An epidemiological analysis of prehospital fatal injuries in New</td>
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<td>Zealand: Identifying opportunities for primary and secondary prevention</td>
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<td>modes of delivery for a school swimming and water safety program</td>
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<td>Falls before and after cataract surgery: a prospective cohort study</td>
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<td>evaluating determinants of risk</td>
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<td>Lisa Kasy, The George Institute for Global Health</td>
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<td></td>
<td>Trends in traumatic spinal cord injury in Victoria, Australia: 2007 to</td>
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<td>Ben Back, Monash University</td>
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<td>Stay On Your Feet: Learnings for future practice</td>
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<td>Rachael Meado, Injury Control Council of WA</td>
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<td>Trends in injury-related hospital admissions 2006/7 to 2015/16 in</td>
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<td>waterway users in two Australian states</td>
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<td>Grace Strugnell, Life Saving Victoria</td>
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<td>3.50pm</td>
<td>Trends in traumatic spinal cord injury in Victoria, Australia: 2007 to</td>
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<td>Ben Back, Monash University</td>
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<td>4.00pm</td>
<td>Sports incapacity definitions capture less than 10% of injury and illness in combat sports</td>
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<td>Investigating the context and impact of fatal and non-fatal drowning in India, identifying approaches to prevention</td>
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<td>Coroners' recommendations from injury-related deaths among nursing home residents: a retrospective cohort study</td>
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<td>Injury in older people with mild cognitive impairment</td>
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<td>4.10pm</td>
<td>Sports Injury in Victoria, Australia 2012/13 to 2014/15: evidence from Emergency Department records</td>
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<td>Built environment and drowning mortality: historical study of the development of the built environment and its impact on drowning</td>
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<td>The effect of exercise and physical training on falls and physical function in older adults with vision impairment: An updated systematic review and meta-analysis</td>
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<td>Calculation and application of the Injury severity measure ICD Injury Severity Score (ICISS) using the Victorian Admitted Episodes Dataset (VAED)</td>
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<td>4.20pm</td>
<td>Injury prevalence and reporting in professional dancers in Australia</td>
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<td>Evaluation of the Open Water Grey Medallion program: A beach safety education program for older adults</td>
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<td>Enhancing our understanding of falls risk - perceptions from the older person</td>
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<td>Non-fatal drowning in the Australian context</td>
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<td>4.30pm</td>
<td>ROP - Developing Sinhala and Tamil language versions of the ‘Juniors Enjoying Cricket Safely’ injury risk perception questionnaire</td>
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<td>ROP - Nipper’s perception of their surf swimming competence</td>
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<td>Q&amp;A with speakers</td>
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<td>4.35pm</td>
<td>ROP - Communities’ immediate traditional practice and health seeking behaviour for child drowning cases in rural Bangladesh</td>
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<td>Q&amp;A with speakers</td>
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<tr>
<td>4.40pm</td>
<td>Q&amp;A with speakers</td>
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<td>5.00pm</td>
<td>End of Day Two</td>
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<tr>
<td>6.00pm - 10.00pm</td>
<td>Conference Social Event</td>
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<td>A casual 2-course meal will be provided along with a range of soft drinks and fruit juices.</td>
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<td>Guests will also be able to purchase alcoholic beverages during the event.</td>
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<tr>
<td>8.30am</td>
<td>Invited Speaker: Evaluating quality in injury care Lynne Moore, Laval University</td>
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<td>6.50am</td>
<td>No association between static and dynamic postural control and ACL injury risk among female elite handball and football players Kathrin Gierwen, Oslo Sports Trauma Research Center, Norwegian School of Sport Sciences</td>
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<tr>
<td>9.00am</td>
<td>Rate of recovery following injury: the role of comorbidity Gabrielle Davies, Injury Prevention Research Unit</td>
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<td>9.10am</td>
<td>REcovery after Serious Trauma–Outcomes, Resource use and patient Experiences (RESTORE) study: 4-year outcomes for adults Reindra Gabb, Monash University</td>
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<tr>
<td>9.20am</td>
<td>The impact of major trauma: perceptions of health and disability 3-years after injury Sandra Braat, Monash University</td>
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<td>9.30am</td>
<td>Physical Activity and Sedentary Behaviour Subsequent to Serious Orthopaedic Injury: A Systematic Review</td>
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<td>Increasing awareness of drowning risk through the National Inland Waterways Drowning Prevention Program</td>
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<td>Ladder Safety Matters' - Insights into the Victorian Department of Health and Human Services response to Coroner's recommendations regarding ladder fall deaths in Victoria</td>
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<td>Incidence and Costs of Injury in Western Australia</td>
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<td>9.40am</td>
<td>Experiences with navigating and integrating information in the community following spinal cord injury</td>
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<td>Perceived injury risk among junior cricketers in Sri Lanka: a cross sectional survey</td>
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<td>Australia's data availability and use policy; implications for injury research</td>
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<td>ROP - Road safety through improvements to road transport infrastructure and policies</td>
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<td>9.45am</td>
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<td>9.50am</td>
<td>Long-term Disability Outcomes After Hospitalisation for Injury</td>
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<td>A Systems Snapshot of Concussion Management Practices in Grassroots Rugby Union</td>
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<td>Secondary and tertiary injury prevention in trauma patients: NSW Institute of Trauma and Injury Management Clinical Review Committee's current practices and future directions</td>
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<td>ROP - Time of day effects hospitalization in bicycle injuries in the elderly population</td>
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<td>9.55am</td>
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<td>10.00am</td>
<td>Current Hip Fracture Management in China</td>
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<td>ROP - Where do sport/leisure injury prevention efforts need to be targeted?</td>
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<td>ROP - Hospital treated injuries resulting from structural failures in buildings: Emergency Department data analysis</td>
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<td>ROP - Safety perceptions and practices for drowning prevention among fishermen in Bangladesh</td>
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<td>10.05am</td>
<td>Q&amp;A with speakers</td>
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<td>10:10am</td>
<td>Q&amp;A with speakers</td>
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<td>10:15am</td>
<td>Q&amp;A with speakers</td>
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11.00am - 12.45pm | Plenary Session Five
Session Chair: Kathleen Clapham

11.00am  Keynote Address: The True Impact of Injuries & Violence: Are Our Programs Equal to the Challenge  Professor Stephen Marshall, University of North Carolina
11.30am  Keynote Address: Responding to road injury prevention in the urban age: time for action  Professor Mark Stevansson, Melbourne University
12.00pm  Conference Wrap Up & Awards  Professor Rebecca Ivers, Australian Injury Prevention Network
12.40pm  Closing Remarks  Caroline Finch, Australian Centre for Research into Injury in Sport and its Prevention, Federation University Australia
12.45pm  Conference Ends

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- Belinda Gabbe, Trauma, Monash University
- Judith Charlton, Road Safety, Monash University Accident Research Centre (MUARC)
- Lara Harvey, Falls and Burns, Neuroscience Research Australia
- Alex Collie, Road Safety and Work Safety, Institute for Safety, Compensation and Recovery Research (ISCRR)
- Debbie Scott, Family Violence, Department of Families Melbourne
- Kerrianne Watt, James Cook University
- Kathleen Clapham, University of Wollongong
- Aleksandra Natora, Community Participation, Sport and Recreation, Health and Wellbeing Division, Department of Health and Human Services

The organising committee would like to thank all our reviewers for their efforts assessing abstracts for the 2017 AIPN conference.
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• Amy Peden
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• Belinda Wallis
• Ben Beck
• Bronwyn Griffin
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• Christina Ekegren
• Clare Murray
• Damian Morgan
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• Kathleen Clapham
• Kathrin Steffen

• Katrina Witt
• Kerrianne Watt
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• Sherrie-Anne Kaye
• Siobhan O’Connor
• Teresa Senserrick
• Tyler Lane

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• Lauren Fortington, Chair Scientific Committee, ACRISP Research Fellow, Sports and Recreation

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• Erica Davison – AIPN Executive
• Amy Jo Vassallo, University of Sydney (student representative)

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Iceberg Events
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Fax: 07 3367 0032
Email: jodie@icebergevents.com.au
Website: www.icebergevents.com.au
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WELCOME MESSAGES

Welcome from the Australian Injury Prevention Network (AIPN)


With the theme of “Take Action”, and with over 180 delegates attending across the three days, this conference highlights the collaborative nature of injury prevention and safety promotion, and the multi-disciplinary nature of our work.

The theme also underscores the importance of focusing on use of evidence, and its practical application in the real world. With continual advances in technology, our world is rapidly changing, and we need to continue to innovate, investigate and apply our findings to keep our communities safe.

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 Professor Caroline Finch, Conference Co-Chair; Dr Lauren Fortington, Chair of the Scientific Program Committee and members of the scientific and organizing 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!

**Professor Rebecca Ivers**  
President, Australian Injury Prevention Network  
Director, Injury Division  
The George Institute for Global Health Australia
Welcome from our Gold Sponsor – Victoria Department of Health


The Labor Government has a vision for a state free of the avoidable burden of disease and injury, so that all Victorians can enjoy the highest attainable standards of health, wellbeing and participation at every age.

Our Victorian public health and wellbeing plan aims to make this vision a reality. It sets out a long term agenda for improving health and wellbeing for Victorians. The prevention of violence and injury is one of its core priorities for action. This plan sets ambitious targets and provides a way for us to monitor changes over time.

I am incredibly proud of the work being done to prevent injury and promote safety. We have a strong track record of engaging sector stakeholders and the wider community to develop relevant and meaningful policies.

Victoria is a world-renowned leader in injury prevention and safety promotion. Our achievements in road safety, child safety, trauma management, workplace safety and injury surveillance are complemented by recent action to prevent family violence, suicide and self-harm, as well as safety initiatives for older Victorians.

This conference offers a unique opportunity to tackle the complex injury issues experienced by our communities, particularly by regional, remote and Indigenous people. Let’s find new solutions and form partnerships.

I trust this forum will allow you to share your knowledge, ideas and experiences, to strengthen existing friendships and build new ones, and to identify and enhance opportunities for collaboration.

I also hope you take the chance to enjoy some of Victoria’s highlights, spectacular scenery and outdoor activities. Ballarat is a regional city celebrated for its history and cultural attractions, and Melbourne is well known for its food, wine, shopping and year-round sports and arts festivities.

Please enjoy your time in our wonderful state. I wish you the very best for a productive conference.

Hon Jill Hennessy MP
Minister for Health
Minister for Ambulance Services
State Government of Victoria
In recent years, attention to ‘voice’ in qualitative research traditions has sought to center and amplify people’s voices, with the hope of excavating true and authentic lived experiences. Similarly, youth voice has also been an important part of democratic process, ensuring that in both community and research contexts that young people have say. However, as other researchers have noted, voice alone is not enough to create social change. Evan’s notes that “for young people to fully experience voice, it requires resonance—some signal that their contributions are being heard and actively considered.” In this talk, I draw on liberation psychologies and a counter-stories framework to explore the idea of resonance, focusing on the ways in which arts and cultural practices anchored in participatory research can create disruptions, dialogue and productive dissonance. Drawing on a community research project in collaboration with New Change, a collective of young African Australian women in Melbourne’s west, this talk will unpack the ways in which arts can foster a sense of identity and belonging, serve as an important preventative strategy and as a method of ‘taking action’.

Alison Baker-Lewton is a Senior Lecturer in Social Pedagogy in the College of Arts and Education at Victoria University in Melbourne. She received her PhD in Psychology in the Public Interest (Community Psychology) at North Carolina State University. Her research draws on critical community psychology, public health and education to explore how inequality impacts young people from marginalized backgrounds, focusing on social identities, sense of belonging and health and well-being. This research has focused on the contexts and ecologies of young people’s lives, including neighborhoods, schools and local arts and sports programs.

Over the past several years a significant part of her research has examined racialisation as a form of structural violence and its impact on young people in Australia. This has included experiences of both adults and young people of African background who have come to Australia as migrants/refugees, drawing attention to the role of settings and activities (i.e. sports, alternative education, community-based arts) as well as the symbolic resources deployed in the development of identity, belonging, and social action. In her research she has mobilised critical race theories and liberation psychology to map empowered community responses and narratives of resistance. Using visual and sound research methodologies, this work has explored possibilities for social change and activism through public and community pedagogies.
Behavior Change: Too tough to tackle? Professor Andrea Gielen
Professor and Director, Johns Hopkins Center for Injury Research and Policy & Johns Hopkins Bloomberg School of Public Health

Consistent with the theme of the conference, Take Action, this talk will focus on why some injury prevention efforts to change behavior are successful and some are not. Drawing on evidence from health promotion theory and practice, we will identify key elements of successful approaches to helping individuals and groups take action to reduce injury risk to themselves, their families, and in their communities. We will also discuss where behavior change fits within the larger context of strategies to prevent injuries, and the benefits of research-practice collaborations to achieve success.

Andrea C. Gielen, ScD, ScM is Professor and Director of the Johns Hopkins Center for Injury Research and Policy at the Johns Hopkins Bloomberg School of Public Health. This Center is home to a large and multidisciplinary faculty that conducts research, trains students, and supports research translation and practice partnerships. Dr. Gielen is a behavioral scientist with decades of experience as a public health department practitioner and as an academic researcher whose focus is on behavioral intervention trials. Currently, her work focuses on community and clinic-based programs to reduce home injuries, pedestrian injuries, motor vehicle occupant injuries, prescription drug overdose, and domestic violence. Dr. Gielen received her ScM in 1979 and her ScD in 1989 from the Johns Hopkins Bloomberg School of Public Health. She has received career awards from the American Public Health Association; the Centers for Disease Control; American Academy of Health Behavior; and the Elizabeth Fries Health Education Award.
Workshop: ICD-11: what is it and what will it provide for injury statistics and research? **Professor James Harrison**

**Director, AIHW National Injury Surveillance Unit (NISU)**

Prof Harrison is a public health physician and one of Australia’s leading injury epidemiologists. He is the founding Director of the Research Centre for Injury Studies at Flinders University and has been the Director of the AIHW National Injury Surveillance Unit (NISU) since 1990. Prof Harrison is active nationally and internationally in measurement and classification of injury, injury burden and determinants of injury in populations, and the descriptive epidemiology of injury for public health purposes.
Health Behaviour Change and Public Education Campaigns in Injury Prevention, *Dr Ioni Lewis*
Principal Research Fellow, CARRS-Q

Evidence supports the value of theory in regards to aiding the development of more effective public education campaigns. Theory has also been recognised as important for campaign evaluation; aiding in the identification of key constructs which can be subsequently assessed so as to provide insights into why a campaign was (or perhaps was not) effective.

In this presentation, an overview of Lewis, Watson, and White’s (2016) Step approach to Message Design and Testing (SatMDT) framework will be provided. Drawing upon social psychological frameworks of health behaviour change and persuasion, the SatMDT has been used to guide the development of targeted message content as well as the means by which to evaluate message effects/effectiveness. Examples will be provided to help demonstrate the application of the SatMDT. Particular focus will be upon the importance of ensuring comprehensive evaluations are conducted which incorporate the assessment of a range of measures including practically significant outcomes relating to attitudinal, intentional, and ultimately, behaviour change.

*Dr Ioni Lewis* - Ioni has 15 years’ experience in road safety and traffic psychology research. She is based at the Queensland University of Technology’s (QUT) Centre for Accident Research and Road Safety - Queensland (CARRS-Q) where she is currently a Senior Research Fellow. Ioni’s expertise is in the development and evaluation of road safety advertising messages, drawing upon social psychological perspectives. She has led the development of an innovative conceptual framework, The Step approach to Message Design and Testing (SatMDT) which she has applied in relation to the development and evaluation of road safety campaigns addressing high risk behaviours. Ioni has an extensive publication record comprising peer-reviewed journals, peer-reviewed full papers and abstracts for conferences, as well as reports for Government and Industry. Ioni has received invitations to present at international and national forums. In 2015, she was invited to the USA to consult on the development and evaluation of a large-scale National Driver Safety Education Campaign funded by the National Safety Council. In 2014, she was invited to present on health communications for injury prevention at the Center for Disease Control (CDC) in Atlanta, Georgia. Ioni was the developer and Chair of the Organising Committee for the inaugural Australasian Symposium of Health Communication, Advertising and Marketing (Health CAM) in 2014. The Symposium, the only one of its kind to be dedicated to Health Communications in Australasia, featured international and national experts as guest speakers. Ioni was also Chair of the Scientific Committee of the 2015 Australasian Road Safety Conference (ARSC).
Aboriginal women and violence: Voices from the community, Marlene Longbottom
Research Fellow, Indigenous Health, Australian Health Services Research Institute, University of Wollongong

Aboriginal women are the most marginalised population group in Australia who also experience greater rates of injuries from interpersonal violence and hospitalizations. This keynote presentation will provide preliminary results of a doctoral research project that focuses on bringing forth the voices of Aboriginal women who have survived interpersonal violence. The narratives presented by the women in this study are analysed through the lens of race, racism and intersectional vulnerabilities, which impact on Aboriginal women seeking support. The data presents stories from the community so as to disrupt the pathologised and dysfunctional narrative that is often used to describe violence in Aboriginal communities across Australia. Lastly, this paper will demonstrate that Aboriginal women are not victims, rather survivors who are thriving and successful despite their experiences of violence and adversity.

Ms Longbottom is from Roseby Park mission (Jerrinja) a former government reserve established in 1902 as part of the NSW Aboriginal Protection Act. She is from the Yuin Nation of the Dharawal and Dhurga language groups of the South Coast of New South Wales. Her research background has been implementing community based participatory research through critical Indigenous feminism and more recently, critical race theory and intersectionality as it applies to Aboriginal Australians. Her area of interest includes violence and trauma in Indigenous communities, gendered studies, public health, race, political studies and critical Indigenous research methodologies. Prior to moving into the research and university sector Marlene was employed in numerous Aboriginal and Torres Strait Islander communities in urban, rural and remote settings in Australia providing direct service delivery in health and human services. This has provided her with an extensive experience of working with Indigenous Australian communities, translating complex health, policy and research information, to ensure Indigenous communities are active participants of the research process. Her approach to research is one of enacting social justice and bringing forth the voices of populations where they may otherwise be silenced. Marlene’s PhD is seeking to understand Aboriginal women’s experiences of interpersonal violence and the support mechanisms available in the Shoalhaven, in partnership with Waminda South Coast Women’s Health and Welfare Service Aboriginal Corporation. As an early career academic, Marlene has published in international and Australian journals, successfully obtained research and program grants. From November to December 2016, Marlene was invited to attend Purdue University as a Visiting Scholar with the African American Studies and Research Centre based within the College of Liberal Arts. Marlene brings with her a large network of Indigenous and non-Indigenous researchers both nationally and internationally.
The True Impact of Injuries & Violence: Are Our Programs Equal to the Challenge? Professor Steven Marshall
University of North Carolina (UNC) Injury Prevention Research Center

What is the total impact of injury & violence on society? Comprehensive costing studies reach beyond immediate medical costs and try to quantify long-term costs of care, loss of earnings, and reduced quality of life. But even these research efforts fall short of capturing the true long-term effects of injury and violence. Few studies have measured the impact on family members who must care for severe traumatic brain injury patients for decades; the physical limitations and impairments in seniors from knee and ankle injuries sustained during adolescence; and the numerous negative developmental pathways associated with children witnessing violence or experiencing maltreatment. Research is currently being done to quantify these long-term “flow-on” impacts of injury and violence across the lifespan.

As we begin to shed light on the full impact of injury and violence, it is logical to ask ourselves “Are our current approaches to prevention adequate for a problem of this magnitude?” Most of the major strides forward in injury & violence prevention over the past 50 years can be viewed as either episodic (persistence on a single issue leading to an eventual breakthrough) or systemic (breakthroughs are part of an ongoing planned change strategy). The central argument of this paper is that systemic strategies have a greater public health impact than episodic strategies.

The common theme of systemic approaches is partnerships and actions that change how communities conceptualize and operationalize the value of safety. A current example of a systemic approach is “vision zero” approaches to roadway safety. Another emerging systemic innovation is work to mitigate sports-related concussion by changing cultural norms towards both head impact prevention and symptom disclosure post-injury. Potential systemic approaches in the future might include an alcohol and hospitality industry dedicated to alcohol server training and designated driving, or a criminal justice system that uses truth and reconciliation concepts to implement urban greening and other violence reduction strategies.

Systemic approaches can help us maximize the collective impact of our issue-specific programs, policies, and actions. As we press ahead with Taking Action, we should consider the strategy underlying our actions, and whether there is potential for a more systemic approach.

Steve Marshall, PhD, is an injury epidemiologist. He is the Director of the University of North Carolina (UNC) Injury Prevention Research Center. He is also a professor of epidemiology in UNC’s Gillings School of Global Public Health and faculty in UNC’s Matthew Gfeller Sports-Related Traumatic Brain Injury Center. Dr. Marshall has 25 years of experience and over 250 research publications in the fields of epidemiology and injury control. He serves on the Executive Committee of the SafeStates Alliance, the Board of Advisors for the Datalys Center for Sports Injury Research and Prevention, and on the National Steering Committee for the American Medical Society of Sports Medicine’s Collaborative Research Network.
Research is progressively showing an association between childhood exposure to family violence and self-harm and suicide in children. The UN Committee on the Rights of the Child has interpreted article 19 of the Convention on the Rights of the Child (which guarantees children the right to protection from all forms of violence) to include freedom from self-inflicted violence. The Committee also explicitly recognises intentional self-harm in children and young people as a health consequence from exposure to violence and maltreatment (including family violence). In Australia, data shows that intentional self-harm continues to be the leading cause of death among Australian children and young people, aged 5 to 17 years old. Considering this, the link between intentional self-harm and family violence needs to be explored and understood if we are to implement effective early intervention methods in suicide prevention. Within this context, my presentation will draw on my investigations into family violence and intentional self-harm and suicide by children in 2014 and 2015. I will also explore how the creation of child safe cultures, communities and organisations can assist practitioners support and respond to children in distress.

Megan Mitchell is Australia’s first National Children’s Commissioner at the Australian Human Rights Commission, appointed in 2013. Megan has previous experience in both government and non-government roles in child protection, out-of-home care, youth justice, disability, and early childhood services. Megan also holds qualifications in social policy, psychology and education. In her role as Commissioner, Megan focuses solely on the rights and interests of children, and the laws, policies and programs that impact on them. Each year, Megan presents a statutory report to federal Parliament on the state of children’s rights in Australia. In her work to date, Megan has focused on the prevalence of suicide and intentional self-harm in children and young people, the impact of family and domestic violence on children and young people, and the oversight of children and young people in correctional detention.
Violence and Injury Prevention in WHO’s Western Pacific Region, Jonathon Passmore
Technical Lead (Violence and Injury Prevention), World Health Organisation

Jonathon is an Australian public health road safety and injury prevention specialist educated at the University of Western Australia (Bachelor of Science with Honours) and Curtin University of Technology (Master of Public Health and Post Graduate Diploma in Public Health). Jonathon is an Associate Fellow of the Australasian College of Road Safety.

Prior to first joining WHO, Jonathon worked for the Department of Health and Human Services in the Australian state of Victoria.

Jonathon joined the WHO China Country Office in 2004 where he managed the collaborative road safety and injury prevention program for three years.

Returning to Australia in 2007, Jonathon was the Manager for Major Projects (Road Safety) at the Victorian Transport Accident Commission (TAC) where he managed a range of road safety programs including police enhanced enforcement, motorcycle and vehicle safety and supported the development of TAC’s internationally renowned road safety social marketing program.

Jonathon returned to WHO in 2008 to coordinate the implementation in Viet Nam of the Bloomberg Initiative for Global Road Safety, a collaborative program led by the National Traffic Safety Committee and focusing on the prevention of drink-driving and strengthening motorcycle helmet wearing, two major road safety risk factors in Viet Nam.

Since 2013, Jonathon has been based in Manila at the Western Pacific Regional Office where he now coordinates all regional programs, providing technical and other support to WHO Country Offices and Member States in road safety, drowning prevention and the prevention of and response to interpersonal violence.
Responding to road injury prevention in the urban age: time for action, Professor Mark Stevenson  
Epidemiologist and Professor of Urban Transport and Public Health, University of Melbourne

Although current approaches to road injury prevention have contributed to declines in road deaths in high-income countries, the extent to which these approaches continue to deliver reductions and the utility of these approaches to low- and middle-income country settings, is contestable. The current Safe System approach to road injury prevention lacks integration across the entire transport system as it does other urban systems including housing, education, and health. It continues to focus attention on tangible short- to mid-term safety targets along with measureable outputs which inhibits innovative solutions being sought at a time when the digital revolution provides new opportunities to deliver road injury prevention. Importantly, with the urban age upon us, there are opportunities for enhanced health and injury outcomes by advocating for elements of urban form and structure that knowingly shape cities as well as human behaviour and population health. The time is now to embrace the complexity of 21st century cities and thereby deliver reductions in road injury and at the same time build safe and sustainable future cities.

Professor Mark Stevenson is an epidemiologist and Professor of Urban Transport and Public Health at the University of Melbourne. He is a National Health and Medical Research Council (Australia) Fellow, an Honorary Professor in the Peking University Health Science Centre, China and an advisor for injury to the Director General of the World Health Organisation.

Prof Stevenson has worked on numerous national and international projects that have directly influenced transport policy and worked with both Federal and State Governments in Australia and internationally. He has led many research groups and is internationally recognized in the field of transport safety and public health. Prof Stevenson is the director of the newly established Transport, Health and Urban Design research hub (see https://msd.unimelb.edu.au/udth) comprising a cross-disciplinary research team exploring how the effects of urban form and transportation influence the health of residents in cities.
Management of blunt splenic injury in children and young people in NSW, Susan Adams
Sydney Children’s Hospital

Introduction

The importance and safety of non-operative management (NOM) of blunt splenic injury (BSI) has been established in children and adults over the last few decades. However, studies have shown higher operation rates in adults. There is international evidence that when children are managed in adult centres, operation and splenectomy rates are higher and, conversely, when adolescents up to the age of 20 are managed in paediatric centres, operation rates are in line with paediatric guidelines. This difference between children and young adults, and the factors responsible, have not been examined in NSW.

Objective

NSW hospital and mortality data was used to compare the characteristics of BSI in children age 0-16 to young adults aged 17-25, including factors related to operative management and splenic salvage in each group.

Methods

People 0-25 admitted to a NSW hospital between July 2000 and December 2011 with a diagnosis of BSI were identified in the NSW Admitted Patient Data Collection, and linked to deaths data from Registry of Births Deaths and Marriages and Bureau of Statistics. Operation rate was calculated and compared between children and young adults. Univariable analysis was used to determine factors associated with operative management (OM). Multivariable logistic regression with stepwise elimination was then performed to determine likelihood of OM according to age group, adjusting for potential confounders.

Results

1986 cases were identified with 422 (21.2%) managed operatively – 11.1% of children and 29.7% of young adults (p<0.001). Of those operated on, 58% of children underwent splenectomy compared with 73% of young adults (p<0.001) OM increased significantly after the age of 12 (p<0.05), and the percentage almost tripled in the teenage years, coinciding with a higher proportion admitted to adult centres. OM doubled again in young adults (p<0.001), all of whom were managed away from paediatric centres. On multivariable analysis, factors significantly associated with operation included age over 16 (OR 2.82, 95%CI 2.1-3.81), splenic injury severity, associated thoracic, liver, pancreatic and hollow viscus injury, and blood transfusion. Mechanism, other associated injuries and overall injury severity did not influence the odds of operation, when all potential confounders were controlled.

Conclusion

While Paediatric Surgeons have wholeheartedly adopted non-operative management, away from paediatric centres, children and young people in NSW are potentially still being operated on unnecessarily. The factors at play may be
complex, and further evaluation of the management and movement of injured children and young people within the broad NSW trauma system is

Theme: Rehabilitation and trauma care, Presentation Type: Oral
The Child Safety Good Practice Guide: We don’t need to reinvent the wheel, Susan Adams
Sydney Children’s Hospital

Context Despite child injury being the leading cause of death, disability and hospital admissions among children over the age of one in Australia, there are scant resources available for child injury prevention. Those that are made available tend to be short-term. As a result there are few well evaluated studies and valuable lessons learned are lost through high staff and topic turnover. It is vital that practitioners have ready access to the evidence and its implementation.

Objective To translate the evidence on effective child safety strategies into locally relevant good practice.

Key messages In order to develop a resource that provides injury policy makers and practitioners with evidence from the literature and implementation points from the field, a group of Australian child safety researchers and practitioners turned to an existing resource, The Child Safety Good Practice Guide, developed by the European Child Safety Alliance and subsequently adapted for Canadian audiences by SafeKids Canada. The process of securing funds for the guide, collaboration with overseas partners and consultation with local practitioners, will be highlighted.

The guide sets out current international evidence on effective strategies for 14 priority injury topics together with local case studies that highlight implementation issues, costs, partners and lessons learned. The previous versions of the guide, utilized by practitioners on two continents, have been reported to be an effective advocacy tool for injury resources, an impetus for evidence-based program planning and the foundation of inter-sectoral partnerships.

Conclusions The guide serves to promote evidence-based practice and prevent every child injury prevention practitioners reinventing the wheel of finding good evidence and seeking out good programs. This resource provides a valuable template for sharing and consolidating what works in the prevention of child injuries so that precious resources in this area can be maximally effective.

Keywords: child injury, evidence, good practice, resource

Theme: Translating research into practice and policy, Presentation Type: Oral
Epidemiologic characteristics of injured school-age children transported via emergency medical services, 
Ki Ok Ahn
Myoungji Hospital

Backgrounds: In worldwide, Injury is the major cause of death and disability in children. Schools have been regarded as relatively safe places from injury. Contrary to this belief, a significant number of injuries occur in schools.

Aim: Aim of this study is to identify the characteristics of school injuries by comparing with that occurred outside of school.

Methods: Nation-wide injury Data from the emergency medical services (EMS) from 2012 to 2014 were analyzed. Places of injuries were categorized school versus non-school. We collected information on demographic characteristics, injury mechanism, and timing of injury. The epidemiologic characteristics were assessed according to school age groups; low grade primary (6–8 years.), high grade primary (9-13 years.), middle (13–15 years) and high (15–17 years) school. Chronological information of school injury were compared with non-school injury. Gender–stratified multivariable logistic regression analysis was conducted to estimate the risks of on school injury in each age group.

Results: A total of 167,104 school aged children with injury were transported via EMS. Of these injuries, 13.3% occurred at school. The most vulnerable age group was middle-school children (39.6%) in school injury. In non-school injury, high-school children accounted for a significantly greater proportion of school injuries (44.0%) (p < 0.001). The most frequent mechanisms of school injury were falls (43.8%) and road traffic injury (47.9%) in non-school injury. The peak times for school injury occurrence were lunch time in all age groups. The peak times for non-school injury occurrence showed variability according to the age group. Multivariate regression identified the risky age groups for school injury as high grade primary (adjusted odds ratio [aOR]: 1.14; 95% CI: 1.09-1.20) and middle school-aged children in boys (aOR: 1.82, 95% CI; 1.74-1.90). In girl, only middle school-aged children demonstrated higher AOR (aOR 1.30, 95% CI; 1.21-1.40) compared with high-school-aged children.


Theme: Child health and safety, Presentation Type: Poster
Background: Adolescent injury is one of major public health problem that requires world-wide attention. Interventions about risk behaviors for adolescents aged 13~15 were important because these adolescents in these age group usually started to risk behaviors included alcohol intake. According to contexts of injury like a place of injury, there would be complex interactions between risks. An ecological understanding of this complexity can provide an important conception for establishing a strategy for injury prevention.

Aim: The object of this study was evaluation of discrepancy in ecologic factors associated with injury between at school and outside school.

Methods: The units of analysis were 43 community groups which were obtained from The Korea Youth Risk Behavior Web-based Survey (KYRBS) in 2014. We included adolescent who were aged from 13 to 15 years old. The proportion of adolescent who had risk behaviors such as current alcohol consumption, experience of bullying or violence, and social-economic status (SES) according to community group were estimated. SES census variables from 2010 Korean census data which were gathered by Statistics of Korea; education level (% of the population with higher high-school diploma), residential environment (% of the non-detached housing) and urbanization level (metropolitan, urban and rural). We also estimated proportion of students who were received education for injury prevention according to community group. Outcome variables were annual incidence rates of emergency medical system (EMS) assessed injury per 10,000 people in community groups. Place of injury was divided to school and outside of school. Multi-variable analysis was conducted for estimation of associations of risk factors and rates of injury in community groups according to place of injuries.

Results: Total 44,995 injured adolescent patient were used EMS in 2014. Of these patients, 14.8% were sustained by girl. School injury was sustained 6.5% of total injury. Annual incidence rate of EMS-assessed injury and those in school was 240.5 (IQR 221.0~280.6) and 16.1 (IQR 13.8~17.1) per 10,000 people, respectively. In boy group, experience of bullying and violence was associated with incidence of school injury. The protective effect of education for injury prevention on non-school injury demonstrated in boy group (estimate -9.16, p=0.03). Poor residential environment had significant association with non-school injury (estimate 11.24, p=0.02). Such association did not reveal in girl group.

Conclusion and discussion: There was discrepancy in ecologic factors associated with injury according to context of injury. Different prevention strategies should be considered according to gender and place of injury.

Theme: Child health and safety, Presentation Type: Poster
Efficacy of the Online Concussion Awareness Training Tool (CATT): Evaluation of Mandated Policy by BC Hockey, Shelina Babul
BC Children’s Hospital

Background: The Concussion Awareness Training Tool (CATT–www.cattonline.com) is an online resource with three comprehensive toolkits providing training in the recognition and treatment of concussion. Based upon international consensus on concussion in sport and new and emerging evidence-based resources, each toolkit includes a self-paced learning module as well as tailored resources. CATT for Parents, Players and Coaches, launched 2014, speaks to concussion identification and management, with resources including the Smartphone accessible Concussion Response Tool and Questions to Ask Your Doctor. In 2016, the CATT was mandated by BC Hockey for all (approx. 15,000) on-ice officials (i.e. coaches, safety personnel, etc.).

Aims: To assess the efficacy of the CATT online toolkit for parents, players and coaches in order to promote concussion awareness and knowledge by evaluating feedback and recommendations from members of the minor hockey community in BC.

Methods: A survey will be developed in order to evaluate the efficacy of the CATT as a education and learning tool. The survey will be distributed by BC Hockey to their respective 15,000 on-ice officials, inviting those who completed the CATT in 2016 to participate in this study.

Results: A qualitative analysis will be performed on the data, reporting frequencies, proportions, and narrative information.

Discussion and Conclusions: Sport plays an important role in maintaining one’s mental and physical wellbeing. Previous research has found the positive impact of sport to be especially apparent in children, as their brains and bodies are actively developing. However, concussion in sport is an under-recognized, -diagnosed and -treated medical condition, requiring immediate physical and mental rest. The CATT addresses this gap by increasing knowledge and awareness among appropriate specific audiences. Good concussion management can reduce related health problems and the risk of long-term brain damage, potentially lowering total health care costs among those who are injured. Ultimately, this analysis will be used to improve the Concussion Awareness Training Tool for Parents, Players, and Coaches, as mandated for BC Hockey Team Officials, but will look to determine if there is value in mandating it for parents who’s children participate in the sport. This resource supports the implementation of a standardized protocol for the prevention, recognition, treatment, and management of sport-related concussions, both in the minor hockey leagues and other sports in BC.

Theme: Translating research into practice and policy, Presentation Type: Oral
Concussions: A Conundrum of Uncertainty and the Need to Standardize Care - The Online Concussion Awareness Training Tool – cattonline.com, Shelina Babul

BC Children’s Hospital

Context: The Concussion Awareness Training Tool (CATT—www.cattonline.com) is an online resource with three comprehensive toolkits providing training in the recognition and treatment of concussion. Based upon international consensus on concussion in sport and emerging evidence-based resources, each toolkit includes a self-paced learning module as well as tailored resources.

CATT for Medical Professionals, launched 2013, aims to standardize practice in a clinical setting with a focus on the paediatric patient. Resources include diagnostic tools, clinical resources, patient handouts, journal articles, websites, videos and individual case studies. Evaluation found physicians demonstrated significant positive change in concussion practices (p=0.001), and significant change in knowledge by those treating more than 10 concussions per year (p=0.039). Nurses had significant positive change in practices (p=0.005) and attitudes (p=0.035).

CATT for Parents, Players and Coaches, launched 2014, speaks to concussion identification and management, with resources including the Smartphone accessible Concussion Response Tool and Questions to Ask Your Doctor. Evaluation found parents demonstrated significant positive change in concussion knowledge (p=0.002),

CATT for School Professionals, launched 2016, includes Return-to-Learn protocol and resources to support teachers, administrators, counsellors and others in the school setting. Evaluation found teachers and school administrators demonstrated significant positive change in concussion knowledge (p=0.027).

Objective: To promote the implementation of an evidence informed concussion awareness training tool.

Key Messages: To date, over 100 relationships have been developed with organizations and key stakeholders in British Columbia and beyond, more than 10,000 print resources have been distributed, >25,000 coaches and parents and >2,000 school professionals have completed CATT, and >17 sporting organizations and schools have mandated CATT.

Continuing implementation of this evidence-based concussion resource will include enhancing the CATT MP by adding specific modules dealing with recurring concussion symptoms such as persistent headaches and supporting good sleep hygiene, and speaking to the emerging awareness of the need for mental health resources. Other additions being explored include language translation and expanding CATT to address concussion in the workplace. Collaboration with the Canadian Football League Players’ Association is looking at developing a CATT toolkit specific to elite, university and professional athletes.

Discussion and Conclusions: Concussion is an under-recognized, -diagnosed and -treated medical condition, requiring immediate physical and mental rest. The CATT addresses this gap by increasing knowledge and awareness among appropriate specific audiences. Good concussion management can reduce related health problems and the risk of long-term brain damage, potentially lowering total health care costs among those who are injured.

Theme: Translating research into practice and policy, Presentation Type: Oral
Major farm injury in Victoria: Farmers’ perspectives on recovery, Jessica Beattie
Deakin University

Background: Australian farmers are at an increased risk of premature death and are over-represented in injury statistics compared to other occupations. Statistical data on farm injury morbidity and mortality is readily available in the literature, yet few studies have explored farmers’ perspectives on recovery after experiencing a serious farm injury.

Aims: To investigate the experiences of farmers’ recovery following serious farm-related injury in Victoria.

Methods: In-depth, semi-structured interviews were conducted with farmers who had sustained major trauma on a farm. Participants were identified using the Victorian State Trauma Registry (VSTR). Inclusion criteria included; experienced major trauma between January 2007 and December 2013 in Victoria, injured on a farm (not a farmhouse), and aged 18 years or over at the time of the incident. Major trauma was defined as any of the following; Injury Severity Score (ISS) >12, admission to an Intensive Care Unit (ICU) for >24 hours or required urgent surgery. Interviews were completed by telephone, audio recorded and transcribed for analysis. Thematic analysis was used to identify emergent themes.

Results: Thirty-three patients were interviewed. Overwhelmingly farmers held a positive view of in-hospital care, specifically medical expertise and quality of care provided by staff. Hospital discharge processes and subsequent ambulatory care experiences differed. Experiences ranged from feeling they were prematurely discharged from hospital, without appropriate follow up care and support, to describing being well supported by local health services during their recovery phase.

Barriers to recovery included difficulties communicating with insurance providers to access adequate funding and medical complications post discharge.

Psychological impact of the injury varied with some farmers reporting the experience had a greater emotional impact on their family than them, while others suffered recurring traumatic thoughts and developed anxiety and/or depression. Farmers also described the experience of returning to the farm post-injury, which included the emotional impact of selling the farm due to injury and difficulties in continuing farming during their recovery.

Discussion and conclusion: The high incidence of farm injuries is well documented. However, the voice of the farmer describing their experiences post farm injury is absent from the literature. This research identified that farmers require improved support services upon discharge from hospital after sustaining a major farm injury. In particular, support services should provide farmers with the opportunity to adequately rehabilitate before returning to their pre-injury work role and aid in enabling the farm enterprise to continue uninterrupted during this period.

Theme: Workplace injury and safety, Presentation Type: Oral
Head protection for wheeled recreational device riders: finding the right standard, David Beck
Transport for NSW

Background

There is no mandatory standard for helmets used by riders of wheeled recreational devices (WRDs), such as skateboards or roller blades, in NSW. As such, WRD helmets complying with a range of standards are currently permitted for sale in NSW. Consumers are at risk of using helmets that do not provide adequate protection, and/or mistakenly using WRD helmets that do not comply with the Australian/New Zealand standard for bicycle helmets (AS/NZS 2063) when riding bicycles.

Aims

Transport for NSW commissioned research to identify whether there is a current standard that meets the safety requirements for WRD helmets, and to assess the performance of helmets meeting current standards.

Methods

The head injury risks of WRD users were identified from a literature review documenting WRD crashes and injuries, and an analysis of fatalities related to WRDs in the National Coronal Information System database.

A list of head protection criteria was then developed. Performance testing requirements of relevant Australian and international helmet standards were assessed against these criteria. A sample of helmets meeting local and regional standards were tested to assess helmet performance.

Results

The study found that EN1078, ASTM F1447 and AS/NZS 2063 best met the pre-determined head protection criteria. AS/NZS 2063 was preferred over the other two as the requirements were more robust, including testing of a larger sample size, consideration of internal and external projections, and ventilation.

Adoption of this standard also simplifies usage for riders and their parents that may use both WRDs and bicycles, and gives TfNSW the ability to oversee changes to the standard, which is not possible with international standards.

Discussion and conclusions

The literature review identified that an ideal helmet would provide additional protection across the occiput (lower rear of the head). However, testing showed the increased protection is marginal, so the benefits of regulating this requirement do not justify the financial imposition and likely confusion of different helmet standards for bicycles and WRDs.

To allow for multiple low-impact falls when learning to ride or developing skills, an ideal helmet should also protect against multiple low-severity impacts over a 12-month period. However, only one standard currently allows for repeated impacts (ASTM 1492-15), and helmets complying to this standard do not provide sufficient protection on subsequent impacts.
Therefore, the local bicycle helmet standard AS/NZS 2063 was found to be the most suitable for protecting WRD riders.

*Theme: Road and transport safety, Presentation Type: Oral*
Background: Spinal cord injury (SCI) can have devastating and lasting effects on individuals and these injuries are associated with significant societal and economic burden. There is a need to understand the epidemiological patterns of traumatic SCI to inform the development of injury prevention strategies and the provision of health care and disability services.

Aims: This study aimed to examine trends in the incidence and causes of hospitalisations for traumatic SCI over a 9-year period.

Methods: We performed a retrospective review of major trauma patients who sustained a traumatic SCI using data from the population-based Victorian State Trauma Registry from 2007 to 2015. SCI was defined as an AIS (2005 version 2008 update) score ≥ 4 in the cervical, thoracic or lumbar spine, with the exclusion of cauda equina and nerve root injuries.

Results: There were 628 cases of traumatic SCI in Victoria over the 9-year study period. Most patients were men and the median age was 50 years (interquartile range: 30-68). Forty percent resulted from transport-related events and 26% from low falls. Fifty cases of SCI (8%) resulted from being struck by or a collision with an object. Of these, 17 (34%) resulted from diving into shallow water and 10 (20%) resulted from water sport activities.

The incidence of SCI did not change over the study period (IRR = 1.01, 95% CI: 0.98, 1.05; P=0.352). Similarly, there was no change in the incidence of SCI in motor vehicle occupants (IRR = 0.97, 95%CI: 0.91, 1.04; P=0.416), motorcyclists (IRR = 0.95, 95% CI: 0.87, 1.05; P=0.302), cyclists (IRR = 1.06, 95% CI: 0.95, 1.19; P=0.269) or pedestrians (IRR = 0.96, 95% CI: 0.75, 1.20; P=0.702). While the incidence of SCI resulting from high falls did not change over the study period (IRR = 1.01, 95% CI: 0.94, 1.09; P=0.706), the incidence resulting from low falls increased 8% per year (IRR = 1.08, 95% CI: 1.02, 1.15; P=0.009). These low fall events were commonly observed in those aged 65 years and older (61%), were incomplete cord injuries in the cervical spine (64%) and were isolated SCI injuries (96%).

Discussion and conclusions: Over a 9-year period, we observed no change in the overall incidence of traumatic SCI and an increase in the incidence of traumatic SCI resulting from low falls. Given the devastating effects on individuals and their families, continued efforts in primary prevention are required to reduce the burden of traumatic SCI.

Theme: Injury in vulnerable populations, Presentation Type: Oral
The burden of serious road traffic injuries in Victoria, 2007-2015, Ben Beck
Monash University

Background: Road traffic injuries are a major cause of death and disability. As the likelihood of surviving serious injury increases, reducing the burden of non-fatal injury should be prioritised. However, there is a need for current data on temporal trends of the incidence of road traffic fatalities, serious injury and the burden of injury stratified by road user groups. This is particularly important given that injury rates, and therefore the burden of injury, may be increasing in vulnerable road users (motorcyclists, pedal cyclists and pedestrians).

Aims: To investigate temporal trends in the incidence, mortality, Disability Adjusted Life Years (DALYs) and costs of health loss of serious road traffic injury by road user groups.

Methods: A retrospective review of road traffic-related deaths (prehospital and in-hospital) and major trauma patients (ISS>12) was performed using data from the population-based Victorian State Trauma Registry (VSTR) and the National Coronial Information System from 2007 to 2015.

Results: There were 8066 hospitalised road traffic major trauma cases and 2588 road traffic fatalities in Victoria over the 9-year study period. There was no change in the incidence of hospitalised major trauma for motor vehicle occupants (IRR=1.00, 95% CI:0.99,1.01; P=0.70), motorcyclists (IRR=0.99, 95% CI:0.97,1.01; P=0.45) and pedestrians (IRR=1.00, 95% CI:0.97,1.02; P=0.73), however the incidence for pedal cyclists increased 8% per year (IRR=1.08, 95% CI:1.05,1.10; P<0.001). While DALYs reduced from 2007 to 2015 in motor vehicle occupants (13%), motorcyclists (32%) and pedestrians (5%), there was a 56% increase in DALYs in pedal cyclists. The costs of health loss from road traffic injury totalled over A$14 billion, although the cost per case declined from 2007 to 2015 across all road user groups.

Discussion and conclusions: Given the absence of a decline in serious injury rates, current road safety targets will be difficult to meet. There is a need for greater attention on serious injury and further investment in road safety, particularly in pedal cyclists.

Theme: Road and transport safety, Presentation Type: Oral
Improving information relevance, accessibility, and legitimacy: how key intermediary organisations develop and distribute sports injury prevention and safety promotion resources, Sheree Bekker Federation University Australia

Background: A recognised research-to-policy/practice gap exists in the field of sports injury prevention and safety promotion. The role of key intermediary organisations in bridging this gap through increasing the relevance, accessibility, and legitimacy of injury prevention and safety promotion research knowledge for use in community sport settings remains under-explored.

Aims: This study sought to provide new insight into the knowledge translation activities undertaken by key organisations that work to ‘bridge the gap’ between research and policy/practice in sport settings. The aim was to determine, and describe, the processes of knowledge translation undertaken by a set of key intermediary organisations in developing and distributing injury prevention and safety promotion resources for informing policy/practice in community sports settings.

Methods: The National Guidance for Australian Football Partnerships and Safety (NoGAPS) project provided a clear and purposeful context for this study. The participants in this study were the self-nominated representatives from the following NoGAPS partnership organisations: 1) Australian Football League, 2) Victorian Health Promotion Foundation, 3) JLT Sport as a division of Jardine Lloyd Thompson Australia Pty Ltd, 4) Sport and Recreation Victoria, and 5) Sports Medicine Australia.

Semi-structured face-to-face interviews about organisational processes of knowledge translation were undertaken with representatives from the five NoGAPS organisations. A qualitative descriptive methodology was used to analyse interviewees’ descriptions of knowledge translation activities undertaken at their respective organisations.

Results: Several knowledge translation processes and considerations emerged around three key themes: 1) identifying a need for knowledge translation, 2) developing and disseminating resources, and 3) barriers and enablers to knowledge translation. The themes present the general knowledge translation practices undertaken by the NoGAPS organisations, and provide an overview of the types of knowledge translation decisions and activities discussed by interviewees.

Discussion and conclusions: This study provides new insight into the knowledge translation processes that key intermediary organisations undertake when developing and disseminating injury prevention and safety promotion resources for community sport settings. The role these organisations play in increasing the relevance, accessibility and legitimacy of research knowledge is foregrounded, with a view to increasing the influence of research on the development of resources suitable for policy/practice in community sport settings.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
Social marketing research to prevent unintentional injury towards Aboriginal children, Keziah Bennett-Brook  
*University of Wollongong*

Background: Despite increasing knowledge about the burden of unintentional injury among Aboriginal children, little is known about how to engage Aboriginal families and communities in the prevention of child injury. The current study involves the development and piloting of a social marketing campaign which incorporates Aboriginal perspectives and preferences. The research builds on our previous work in which we explored the knowledge, attitudes and perceptions of risk of unintentional injury to Aboriginal children from the perspectives of Aboriginal people in NSW.

Aims: To develop and evaluate a pilot online social marketing strategy around the prevention of unintentional injury to Aboriginal children aged 0-5 that reflects Aboriginal perspectives and preferences and could be transferred to other locations.

Methods: In collaboration with staff from the Waminda – South Coast Women’s Health & Welfare Aboriginal Corporation in Nowra, NSW we developed and evaluated a pilot program involving women from a ‘Mums and Bubs’ group in developing culturally effective child safety messages on Facebook. We developed a program logic model and evaluation framework with evaluation activities planned over a 6 month period. The campaign was piloted with a small group of parents/carers of Aboriginal children aged 0-5. Two training sessions with the pilot group on correct and appropriate child safety messages were delivered by Kidsafe NSW. Qualitative data were obtained through reflective yarning sessions, a focus group discussion with the pilot group, and online observation of social media during the implementation period. Ethical approval for the project was obtained from the Aboriginal Health and Medical Research Council and Wollongong University’s Human Research Ethics Committee.

Results: We will present the study results focusing on the effectiveness of the use of social media in increasing the knowledge and awareness of child safety prevention with the pilot group and their peers as well as the processes employed in the development and evaluation of the intervention.

Discussion and conclusions: The project employed culturally safe action research methodologies that engage local Aboriginal communities in the design, delivery and evaluation of the activities. The project was led by two Aboriginal researchers in collaboration with a leading child safety non-government organisation. The use of social media offers an innovative way to engage in a culturally effective way with Aboriginal parents, families and communities around child safety.

*Theme: Indigenous health and injury prevention, Presentation Type: Oral*
Preventing unintentional injury towards Aboriginal children and young people in NSW: guidelines for policy and practice, Keziah Bennett-Brook
University of Wollongong

Background: Despite increasing knowledge about the burden of unintentional injury among Australian Aboriginal children there is a lack of evaluation of programs targeting Aboriginal children and families. Moreover, little is known about how Aboriginal people engage in child injury prevention programs. Research was conducted to inform the development of guidelines for effective injury prevention approaches targeting injury among Aboriginal children. We also worked closely with investigators on a NSW version of guidelines modelled from the European Child Safety Alliance.

Aims: Underpinned by broad consultation with the Aboriginal community, policy makers, injury practitioners and researchers, the project aims to: inform policy by highlighting areas of prevention where most benefit can occur; inform and guide injury prevention practice within community settings; inform future research directions and future intervention studies.

Methods: In a staged process we conducted: (a) a review of effective injury prevention programs targeting Australian Aboriginal children; (b) qualitative research with practitioners and Aboriginal community members to explore attitudes to the prevention of injury and behaviours and perceptions of risk; (c) round table discussion with Aboriginal community members, injury practitioners and policy makers.

Results: A series of case studies of effective programs was developed. The project adopted a “best buys” approach to identifying programs with the most promise to address the burden of Aboriginal child injury. This was matched with community views and preferences about acceptable and appropriate programs and strategies. The guidelines also present what is known about the extent of the Aboriginal child injury issue and incorporate principles for successful engagement with Aboriginal communities including how to work with Aboriginal children and families when developing policy and programs for unintentional injury prevention and the most appropriate methods for their evaluation.

Discussion and conclusions: The guidelines are expected to contribute to ensuring that the efforts and resources of policy makers and practitioners are based on the views and experiences of Aboriginal communities and raise awareness within the Aboriginal community by informing the further development of a social marketing campaign around injury prevention. We will also discuss the process undertaken to develop the guidelines and their implications to inform the development of policies and programs targeting child injury in the Aboriginal population in New South Wales.

Theme: Indigenous health and injury prevention, Presentation Type: Oral
TRENDS IN INJURY-RELATED HOSPITAL ADMISSIONS 2006/7 TO 2015/16 IN VICTORIA, AUSTRALIA: ADMINISTRATIVE DATA ARTEFACT OR INJURY EPIDEMIC?, Jannke Berecki
Monash University

BACKGROUND: Hospital admissions due to unintentional injury have increased in Victoria over the last decade. Hospital admissions trends, however, are affected by population change as well as policies and practices that are unrelated to injury.

AIMS: To determine the underlying injury admission trend in Victoria, and explore sociodemographic factors and injury causes driving the observed increase.

METHODS: Hospital admissions data for Victoria 2006/07 to 2015/16 were extracted from the Victorian Admitted Episodes Dataset (VAED). Injury admissions were selected as “community injury” cases (principle diagnosis ICD-10-AM codes S00-T75 or T79), including only unintentional injury cases (first recorded external cause ICD-10-AM codes V00-X59). The effects of the hospital admission policy change in Victoria in 2012 were eliminated by excluding admissions that took place entirely (admission to discharge) in the Emergency Department. Age standardised rates were calculated to eliminate the impact of population growth and ageing. Change in rate was calculated using Poison loglinear regression models. The number of injury admissions that were expected each year were calculated based on the 2006/7 (baseline) rate per age, sex and cause and annual population statistics, and compared with the observed number of injury admissions.

RESULTS: There were 777,963 hospital admissions during the ten years. The age standardised rate increased from 1209 admissions per 100,000 population in 2006/7 to 1655 in 2015/16; the increase was most pronounced in the last four years. Controlling for age, sex and population growth, the injury admission rate increased by 3.9% [95%CI: 2.8%, 5.0%] per year. The increase was greater among women than men (4.5% vs. 3.5%) and reasonably uniform across age groups. Of the cause groups, fall related injuries had the highest baseline rate (635 admissions per 100,000 population) and with an annual 4.4% rate increase, falls contributed the most to the overall increase (56% of the total observed minus expected injury admissions). Falls injury rate increases were observed across all age groups.

DISCUSSION: Injury admissions in Victoria have increased over the last decade: this increase does not appears to be attributable to population growth, population ageing or admission policy changes. Falls were the main contributor: this was observed in all age groups. These findings warrant an in-depth follow-up study on causal factors of falls injuries, to determine the most effective approach to prevention. Interstate and national trends in injury admissions should also be investigated.

Theme: Falls prevention and rehabilitation, Presentation Type: Oral
Evaluation of the Open Water Grey Medallion program: A beach safety education program for older adults, Rhiannon Birch
Life Saving Victoria

Background

Victorian adults aged 55 years and over have a high age-specific fatal drowning rate. In 2014/15, the number of drowning deaths in this group increased by 26% on the previous ten year average (2004-2014). Contributing factors to drowning incidents in older adults include unintentional entry, underlying medical conditions and reduced fitness. With the number of Victorians aged over 55 predicted to grow by 63% by 2031 on 2011 estimates, drowning deaths are likely to increase without immediate intervention.

Following the successful evaluation and implementation of an aquatics and health promotion program targeted at older Victorians across metropolitan aquatic facilities, the Open Water Grey Medallion (OWGM) program was piloted at Torquay beach on the Surf Coast. The program delivered content on personal survival techniques, accredited CPR training, and helped develop participants’ confidence and competence to safely enjoy activities in open water environments.

Aims

To increase the water safety skills and knowledge of participants, and empower them to recreate safely and confidently in, on or around water.

Methods

A pre-post cohort survey of 12 OWGM participants measured changes in water safety skills and knowledge, and intended future participation in water-based and community activities. Two semi-structured post-program focus groups elicited detailed program feedback.

Results

The proportion of participants reporting their resuscitation and water safety skills and knowledge as ‘good’ or ‘excellent’ increased from 33% pre-program to 92% post-program. More markedly, the proportion that felt they possessed sufficient knowledge to avoid getting into hazardous situations in and around water increased from 25% to 92%. Learning about CPR, rip currents and safe entries and exits were considered the most important learning outcomes.

Most participants (92%) described increased confidence participating in aquatic activities and applying water safety knowledge. Most (83%) considered participating in further activities in future including joining their local lifesaving club in support roles, formal First Aid training and recreational swimming. Additional benefits included forming new friendships, improved happiness and motivation to increase activity levels.

Discussion and Conclusions

The OWGM demonstrated the value of the program at improving the water safety skills, knowledge and confidence of older adults around open water environments. These environments differ to swimming pools and hold greater
dangers; therefore, by providing education, formal training and practical skills and experience in open water environment, expansion of the program has the capacity to reduce the number of people over 55 years old drowning through preventable aquatic incidents.

Theme: Water safety (including drowning), Presentation Type: Oral
The Inland Waterways Drowning Prevention Project: A study of urban waterway users in two Australian states, Rhiannon Birch
Life Saving Victoria

Background

Nationally, inland waterways account for over one-third of drowning deaths. Identifying those at drowning risk is necessary in determining ideal strategies for preventing inland waterway aquatic injury and death. Although data on inland waterway drowning patterns are available, with Victoria’s Yarra River and Western Australia’s Swan River identified as drowning blackspots, assessing drowning risk cannot be achieved without knowledge of water exposure.

Aims

To identify and document in situ behaviours that may place persons at relatively high drowning risk for the Yarra and Swan Rivers. This includes investigating behavioural patterns of recreational water users, including those in, on or around the waterbody, with a specific focus on alcohol consumption and lifejacket use for boaters.

Methods

Based on known use-patterns and drowning data, water users for the two river locations are recorded simultaneously by direct observation, at randomised times and days. Each river has nine identified observation points (representing known drowning locations). Data collected includes the number of people present, activities undertaken, plus observable demographic data. This 12-month study will conclude in November 2017.

Results

Preliminary data for the 2016/17 summer period is currently available for 4,304 individual observations, with updated results reported at the conference. On each river, females were more likely to be observed in, on or around the waterway (57% Yarra, 54% Swan). The most frequenting reported age groups were in the range of 18-59 years (85% Yarra, 68% Swan). Swan observations showed greater variety of younger and older individuals. Land and/or water usage did not vary significantly by river; however, Swan observations showed higher rates of recreation (88% with the Yarra 55%). Persons in transit accounted for a higher proportion of activity type at the Yarra (41%) as well as rowing and group exercise participants. The Swan showed more sightseers and picnickers. Appropriate child supervision was noted in 77% and 78% of instances for the Yarra and Swan respectively. Alcohol use was observed in 7% of instances among recreational visitors aged 15 and over, and lifejacket use varied by activity but showed low rates among recreational boaters.

Discussion and Conclusions

Inland recreation users participate actively and passively in and around water. Many fatal aquatic incidents occur unintentionally through slips, trips or falls, necessitating the need to encourage positive behaviour around inland waterways. Exposure pattern differences for the Yarra and Swan Rivers suggest that countermeasures should be tailored for these locations, with recommendations provided at the conference.

Theme: Water safety (including drowning), Presentation Type: Oral
Partnership, Evidence and Behaviour Change approach to Child Injury Prevention, Adele Blackwood
Accident Compensation Corporation

Context:

The New Zealand Accident Compensation Corporation (ACC) scheme is unique across the world - every New Zealander and every visitor to our country is covered for health-related costs due to accidents. ACC has prioritised investment in injury prevention to support its vision of ‘minimising the incidence and impact of injury’. This vision translates into investment in seven key injury prevention portfolios - Falls, Roads, Violence, Sport, Community, Workplace and Treatment Injury. The injury prevention initiatives focusing on children are in the Community portfolio.

Historically, ACC has often led injury prevention initiatives through its own resources, infrastructure and agenda. However, over the last 18 months, we have genuinely focused on the strengths of key stakeholders in the community to assist with the design and delivery of targeted initiatives to reduce injuries among different cohorts such as children. In relation to the safety of children, we have sought strategic partnerships with key organisations such as Plunket New Zealand and Safekids Aotearoa New Zealand.

Objectives:

To achieve significant reductions in injury, ACC’s collaborative partnerships with Plunket and Safekids relies on concepts such as collective co-design methodologies, systems thinking, cross sector strategy, government involvement, political will, human centred design, piloting, evaluation, continuous learning, and the utility of comprehensive datasets to inform some existing and new injury prevention initiatives. In practice this translates into a shared agenda of work where each partner brings their expertise and resources to achieve better outcomes for the target audience.

Key Messages:

ACC has also adopted ‘Community Based Social Marketing (CBSM)’ as one of its key approaches to behaviour change. CBSM is a structured, evidence-based methodology that helps identify and change behaviour(s). We have undertaken to upskill ourselves and our partners in this approach so that we are aligned in our design, delivery and expected outcomes. We have sought international experts in CBSM to assist with this process.

Discussion:

We at ACC believe that this delivery model will ultimately provide interventions which better engage with partners, stakeholders, citizens and communities in order to create long term behaviour change, and reduce injuries as a result. Throughout this presentation we will provide models and examples of how we are working collectively to reduce injuries to children. This presentation will provide practical models, case studies and evidence to show the lessons learnt and our successes.

Theme: Child health and safety, Presentation Type: Oral
The impact of major trauma: perceptions of health and disability 3-years after injury, Sandra Braaf
Monash University

Background: Improved survival rates from trauma increase the potential for people to live with the long-term impacts of injury. The qualitative perceptions of injured people are needed to gain an in-depth understanding of persistent health decrement and disability after injury, and to inform the development and operation of services for acute care, rehabilitation, disability support and compensation.

Aim: To explore the health and disability issues reported by seriously injured people 3-years post-injury.

Methods: This qualitative study, nested within a population-based longitudinal cohort study, included 66 major trauma patients, without severe traumatic brain injury or spinal cord injury, sampled purposively from the Victorian State Trauma Registry. In-depth interviews were conducted with the seriously injured person 3-years post-injury. Interviews were audio-recorded and transcribed, and a thematic analysis was performed.

Results: At 3-years post-injury, many participants reported persisting physical impairment and pain, which restricted specific actions (such as getting out of a bath), the ability to walk and run, and capacity for independent living. Many participants reported constant or intermittent pain, which was triggered by activities of daily living and often persisted for days after. Some participants reported new back pain related to their abnormal gait. Lack of activity resulted in general loss of strength and fitness and in weight gain. Other health issues included headaches, fatigue and sleep disturbances, which also impacted on their daily life.

Many participants reported long-lasting mental health and emotional problems including erratic moods, anxiety, depression and post-traumatic stress disorder. Pain made participants feel psychological low and reduced their enjoyment of life. Problems with cognitive function (memory, concentration and information processing) were attributed to the injury by some, while others pointed to ageing. The physical and mental health issues were predominately managed by medications, by learning to live with persistent pain, and by activity restriction (e.g. limiting activities of daily living, sporting and leisure activities). Other impacts of injury included change in, or loss of, employment, altered social relationships, and financial strain.

Discussion and conclusions: Participants described enduring and interrelated physical and mental health problems that impacted on their daily lives. Given the varied, persisting and sometimes devastating effects of serious injuries, we conclude that investment is required by acute care, rehabilitation and disability support services and compensation systems to find ways to reduce the long-term burden of injury.

Theme: Rehabilitation and trauma care, Presentation Type: Oral
Sports incapacity definitions capture less than 10% of injury and illness in combat sports, Sally Bromley Federation University Australia

Background: The consistency of injury definitions has been a primary focus in sports injury epidemiology research. Injury burden, in the context of sport, relates to costs associated with medical care, alongside decreased athletic performance. Previously, sports injury definitions have been classified into three broad categories: sports incapacity, athlete self-report and clinical examination. An injury can be classified across multiple categories, for example, an athlete injures themselves in training (sports incapacity), and presents a medical practitioner for treatment (clinical examination). Currently, injury definitions in combat sport are largely classified as sports incapacity, whereby injuries are recorded only when they result in time lost from training/competition. Injuries which do not result in lost time but are nonetheless burdensome to athletes have not been given due consideration. Employing a ‘health problems’ definition, whereby health problems that affect an athlete’s training or competition are recorded, irrespective of whether any time was lost, may provide more complete data on the total burden of injury in combat sport.

Aim: The present study aimed to compare the number of athlete self-reported injuries captured using a sports incapacity definition to the ‘health problems’ definition, which quantifies the burden of injuries as opposed to just their incidence.

Methods: Eleven athletes from two Olympic combat sports (boxing and judo) completed a daily training log and weekly Health Problems Questionnaire through an online system for 12 weeks. Sports incapacity was defined as any condition which prevented athletes from being able to take part in future training/competition. Health problems were defined as any health problem that affected athlete’s training/competition.

Results: When applying a sports incapacity definition, two injuries were captured. In comparison, when applying the health problems definition 52 injuries were captured: 22 unique injuries and 30 recurrent injuries. Using the health problems definition resulted in a 26-fold increase in the number of identified injuries.

Discussion and conclusion: The results of this study suggest that boxers and judo players continue to train through the majority of their injuries, and solely applying a sports incapacity definition will result in lower reports of injuries. There is a danger that employment of a sports incapacity definition alone could shift prevention priorities away from the most burdensome injuries in these sports. The Health Problems Questionnaire is a feasible way of collecting high-quality injury surveillance data, that can be used to determine injury prevention priority areas and guide the development targeted preventative strategies for a fuller range of injuries.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
Referees are not sanctioning enough illegal tackles in South African youth rugby, James Brown
University of Cape Town

Background

The tackle event in rugby union (‘rugby’) contributes to the majority of injuries to rugby players. South Africa has a nationwide injury prevention programme for rugby, BokSmart, which aims to reduce players’ injury rates through coaches and referees. For example, referees are required to accurately and consistently, sanction dangerous play – this includes dangerous tackles, such as high tackles. However, a study on elite level rugby in the United Kingdom suggests that referees did not sanction all illegal tackles appropriately.

Aims

The aim of this study was therefore to investigate whether referees at a merit-selection U18 youth rugby tournament in South Africa, were correctly sanctioning illegal tackles.

Methods

During the 2011 – 2015 under-18 Coca-Cola Craven Week tournament in South Africa, we recorded and analysed 99 matches using EncodePro rugby analysis software. A single coder then coded all of the matches, which included all tackles made, tackle-type, and illegal tackles (according to World Rugby Laws of the Game). The South African Referees’ Academy also coded the games to control that the single coder interpreted the laws correctly. The inter- and intra-rater reliability ranged between 0.97 and 1 depending on the variable measured. Descriptive frequencies were described for all the coded variables.

Results

In total, 12216 tackles were coded. Of these tackles, less than 1% (n=113) were coded as ‘illegal’ according to the laws. The majority of these 113 illegal tackles were front-on (75%), high tackles (72%), occurred in the 2nd and 4th quarters (29% each) and with only 1 tackler involved (91%). Moreover, the match referee did not sanction the majority (59%, n=67) of these illegal tackles. Specifically, 65% (n=53) of high tackles were not sanctioned.

Discussion and conclusions

The main finding of this study was that the referees missed 59% of illegal tackles and 65% of high tackles. This rate of appropriate sanctioning was superior to that observed in professional English rugby players, where only 7% of high tackles were penalised. However, for the success of injury prevention programmes such as BokSmart, it is critical that referees consistently enforce all safety regulations, including on-field laws. Further studies should investigate possible ecological reasons for this low rate of appropriate sanctioning of dangerous tackles amongst referees.

Theme: Translating research into practice and policy, Presentation Type: Oral
Children and motorbikes: Towards an answer for how young is too young, Julie Brown
NeuRA

Background

In Australia, motorcycle injury is the second most common reason for transport related hospitalisations after bicycles for all children >5 years. Similar high rates of injury due to off-road motorcycling occurs in the US. In many Asian countries, on-road motorcycle crashes are the leading cause of injury among children. There have been repeated calls to restrict the use of powered off-road vehicles based on likely sensory, motor and cognitive limitations experienced by children as they progress through typical development. However, there are currently no data available to answer the question, “how young is too young”? This question needs to be resolved before effective actions to tackle this childhood injury issue can be identified and implemented.

Aim

To develop a tool to study the association between development and safe operation of motorcycles.

Method

Using an occupational therapy approach, we undertook a functional analysis of the task of riding a motorcycle off-road to identify developmental attributes involved in motorcycle riding. From this we identified attributes across sensory, motor and cognitive domains important for off-road riding. This information was then used to develop a tool to discriminate developmental stage for each attribute. The tool was created using a panel of 12 experts who staged the attributes and used a Delphi consensus method to (i) compile a candidate list of assessment items, and (ii) refine this list via expert consensus. Redundant items were removed.

Results

The functional analysis identified 10 component tasks for off-road motorcycle riding and 37 key attributes across sensory, motor and cognitive domains. A candidate list of 35 items was compiled following the first Delphi consensus round. Ten items were removed following two further rounds on consensus that they had weak utility. Nine other items were removed due to redundancy. The final tool consisted of 18 individual assessments covering the 37 attributes identified in the functional analysis.

Conclusion

This is the first available tool to stage development relevant to the motorcycle riding task. Pilot testing is being used to confirm reliability and validity. Findings from the functional analysis are also being used to develop a measure of riding difficulty based on functional demand. This is being refined using in-depth crash investigation data. We are now planning a prospective cohort study to follow children’s riding and development over time.

Theme: Child health and safety, Presentation Type: Oral
Identifying components of an intervention to reduce falls in children <12 months using the Behaviour Change Wheel (BCW), Julie Brown

NeuRA

Background

Falls represent the leading cause of injury hospitalisations for children <12 months, accounting for almost 50% of hospitalised injury in this age group (2) and a national emergency department presentation rate of 3500/100,000. Effective child fall prevention interventions reported in the literature are limited to preventing falls from windows, falls associated with baby walkers and falls associated with stairs. As infants <12 months typically have limited mobility, these fall mechanisms are relatively uncommon in this age group. We recently reviewed medical records of children attending a tertiary paediatric hospital in Sydney and found the most common mechanisms among children <12 months presenting to the hospital were falls from a bed or couch (27%), from baby products (21%), and being dropped by another person (16%). For those admitted to hospital, being dropped was the most common mechanism, particularly for infants <6 months. Falls from prams, car seats, bouncers, chairs and change tables were much more common than falls involving stairs or baby walkers and often involved misuse.

Aim

To use the Behaviour Change Wheel (BCW) to identify components for a behaviour change theory driven intervention to reduce falls among children <12 months.

Method

We followed the systematic BCW approach. This follows a three stage process of understanding the behaviour, identifying intervention options, and identifying content options. Data collected during our recent medical record review were used to define the problem in behavioural terms and select target behaviours. We used the COM-B Model (‘capability’, ‘opportunity’, ‘motivation’ and ‘behaviour’ model) and the Theory of Domains Framework to link target behaviours with appropriate intervention functions. Appropriate behaviour change techniques (BCTs) were then selected using BCT taxonomy (v1), and BCT performance in related contexts.

Results

Priority fall mechanisms identified in the behavioural analysis were: dropped by sleeping adult, dropped by standing adult, dropped by adult who falls, misuse of baby product within home (e.g. pram, car seat, bouncer etc), fall from baby product, fall from bed/couch, fall from change table, fall from own height. Behavioural targets for each priority mechanisms were selected and mapped onto a behaviour-intervention-BCT matrix using the BCW.

Conclusion

The intervention components identified in this exercise are being used to develop an individually tailored intervention to be delivered via a smart phone app. This is the first time that the Behaviour Change Wheel has been used in a child injury context, and provides a model for systematic application of behavioural science to child injury prevention.

Theme: Child health and safety, Presentation Type: Oral
Social media strategy associated with increase in exercise-based intervention awareness in rugby union players and coaches, James Brown
University of Cape Town

Background

The BokSmart programme aims to reduce injuries in South African rugby union (‘rugby’) players. In 2014, BokSmart launched an exercise-based intervention - the Safe Six - to reduce common injuries. To increase awareness of this intervention among coaches and players, BokSmart used a social media marketing campaign before the 2015 South African Rugby Union youth week merit-based tournaments.

Aims

The aim of this study was to assess whether knowledge of the Safe Six intervention was different before and after the social media marketing campaign.

Methods

Questionnaires were designed by a combination of BokSmart implementers and researchers. Thereafter, they were distributed at all SA Rugby merit-based tournaments from 2014 onwards. A logistic regression was used to assess changes in knowledge/awareness over time.

Results

In total, 4502 questionnaires were completed and the majority of respondents were players (97%, n=4136, 254 unknown). Overall, the majority of respondents (66%, n=2815) had not heard of the Safe Six. After adjusting for role (player vs coach), reported awareness of the Safe Six was significantly (p<0.05) greater in 2015 (adjusted odds ratio = 1.74) and 2016 (adjusted odds ratio = 1.56) than 2014. Coaches (players only) and social media (coaches and players) were frequently cited sources of information on the Safe Six. Of the twelve coaches who reported not using the intervention, the majority (42%, n=5) had not heard or did not know enough about it.

Discussion and conclusions

Following a social media campaign, the awareness of the BokSmart Safe Six significantly increased in this sample of players and coaches. However, this ecological cross-sectional questionnaire study is unable to determine if this social media campaign was the only factor associated with increased awareness. Future studies need to determine whether this reported awareness translates into actual behaviour.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
An Evaluation of Emergency Department Management of Mild Traumatic Brain Injury in Adults 16 Years and Older in a Regional Health Setting, Ashlee Brown

Federation University

Background

Mild traumatic brain injury (mTBI), known as concussion, is a growing public health concern. The emergency department (ED) is often the only medical service available for regional mTBI patients. To appropriately manage mTBI, many clinical practice guidelines (CPG) have been created to standardise medical practice. Regular evaluations of CPG, would affirm that best practice is being adhered to, or highlight areas in need of modification.

Aim

The aim of this paper is to profile mTBI presentations in a regional setting and assess the health services adherence to their current hospital CPG.

Method

A 12-month retrospective audit was conducted of 540 ED records of patients 16 years or older who presented with an mTBI to a regional Australian ED. Cases were selected using the Victorian Admitted Episodes Dataset (VAED) codes for suspected head injury: principal diagnosis codes (S00-T98); concussive injury recorded in diagnosis codes (S06.00-S0.05); and unintentional external cause code (V00-X59). ED records were accessed via the hospitals secure patient electronic medical record database. Thirty-seven variables were collected and analysed to determine: mTBI characteristics, need for a CT scan, education/follow-up provided and completion rates of Acquired Brain Injury Clinic (ABI) referrals and associated medical record documentation.

Results

Males aged 16-24 years had significantly higher incidence of mTBI (\(\chi^2=14.454, p=0.013\)), and were significantly more likely to be due to a violent injury mechanisms (\(\chi^2=22.073, p <0.01\)), than all other ages and gender. Cases were significantly more likely to be kept in the ED for four hours or longer (\(\chi^2=46.837, p <0.01\)), and receive a CT scan to assess their injury (\(\chi^2=23.326, p=0.009\)), if they were in the oldest or youngest age brackets. The most symptomatic mTBI cases were significantly more likely to receive a CT scan (\(\chi^2=19.368, p=0.04\)).

Discussion/Conclusion

The documentation practices for the management of mTBI were under-recorded. Full documentation was not recorded for 54.9% of cases for symptom documentation, 25% of cases for four hour observations, 20.9% of cases for safe discharge, and approximately 66% of cases for education. Over one third of the cohort had no referral details of any kind. ABI clinic referrals were documented in fewer than 10% of the entire cohort despite over half of the cohort having received a CT scan.

Overall, this study suggests that the regional health service does not currently fully adhere to the CPG in place and the referral services are potentially underutilised.

Theme: Rural and remote injury prevention, Presentation Type: Oral
Coroners’ recommendations from injury-related deaths among nursing home residents: a retrospective cohort study, Lyndal Catherine Bugeja
Monash University

Background: Recommendations for monitoring and improving the quality of care for nursing home residents arise from multiple sources in developed countries. Recent research has demonstrated that coroners’ recommendations influence changes in practice and that the nature of recommendation formulation influences intervention uptake.

Aims: This retrospective cohort study examined the frequency and nature of coroners’ recommendations following their investigation of external cause deaths amongst residents of accredited nursing home in Australia.

Methods: The study population comprised nursing home residents whose deaths resulted from external causes, occurred between 1 July 2000 and 31 December 2013 and were notified to an Australian Coroner. Coroners’ recommendations were identified and extracted from National Coronial Information System, which electronically stores and makes accessible evidence gathered for coronial investigations. Descriptive statistical techniques were used to calculate the frequency and proportion of recommendations made by Coroners by year death occurred, sex, age group and case type. The nature of recommendations was quantified using a method comprising seven elements derived from internationally accepted and applied public health conceptual models of mortality causation and prevention.

Results: Coroners made recommendations in 53 of the 3,289 (1.6%) external cause deaths of nursing home residents. Recommendations were most frequently made for deaths resulting from falls, however the rate of recommendations per 1,000 deaths was highest for thermal mechanisms and complications of clinical care. Most coroners’ recommendations described the countermeasure element, but rarely specified a timeframe for implementation.

Discussion and Conclusion: Coroners’ recommendations can positively influence public health and safety policy and programs. Given their impact in the community setting, coroners could consider an increased focus on making recommendations on injury prevention in nursing homes, particularly deaths from choking and suicide. What may assist with this is for coroners and medical examiners to develop international best practice guidelines on recommendation formulation.

Theme: Ageing/elder safety, Presentation Type: Oral
Ageing Without Affliction: Injury Prevention for Older Australians, **Thomas Burgess**  
*Department of Justice and Regulation*

**Context:**

Australia’s population is set to change substantially over the next forty years, with approximately one in four Australians being 65 years or older by 2057. This tremendous demographic shift presents formidable risks but also great opportunities for injury prevention. In this context, falls are among the most common and serious problems not just for elderly persons, but for the vast majority of us. The action we take today will determine the extent to which we can succeed at reducing the falls and other injuries among the elderly. However, it is essential that these efforts are based upon a strong evidence base of rigorously collected, analysed and interpreted data.

**Objectives:**

In order to take action on the challenge of injury prevention among the elderly, both within and outside the aged care facility, we need comprehensive evidence. This demands an interdisciplinary approach that builds networks of researchers across sectors to develop the evidence base to generate effective prevention strategies and policy.

**Key messages:**

The National Coronial Information System (NCIS) is a data repository for the collection and storage of mortality data from Australia and New Zealand about all deaths reported to a coroner, including fall-related fatalities among older persons. It is a comprehensive collection of national coronial data and includes both coded data and supporting medico-legal case file documentation. As the only available source of national mortality data, the NCIS can make a valuable contribution to injury prevention for older Australians. NCIS data is accessible for researchers after application to the Victorian Department of Justice Human Research Ethics Committee (JHREC).

**Discussion and conclusion:**

Preliminary analysis of NCIS data reveals there has been an increase in unintentional falls-related fatalities of older persons in recent years, increasing approximately 195 per cent from 2005 to 2015. Slipping on the same level was the most frequent contributor in 21 per cent of cases. NCIS data has also been utilised beyond falls prevention, informing stakeholders on fatal resident-on-resident aggression, intentional self-harm, and the incidence of absconding from care. Further detailed analysis of contextual information available on the NCIS will allow for identification of the unique circumstantial factors contributing to fatal injury for older Australians. In combination with other information sources such as hospital and Commonwealth data, such as prescribing history or pension data, the NCIS can serve as a powerful tool to inform national policy and forward planning in injury prevention among the elderly.

*Theme: Falls prevention and rehabilitation, Presentation Type: Oral*
Hot tea and tiny tots don’t mix: a cross-sectional survey on hot beverage scalds, Jacqueline Burgess  
University of Queensland

Background

Hot beverage scalds are a leading cause of burns in young children. In Australia, hot beverages cause one in five of all paediatric burns. The aetiology of these scald injuries is well documented with respect to the age of the child and broad mechanism. What is not so well documented are the detailed circumstances surrounding the scald in terms of supervision, setting and immediate first aid (if any) at the scene.

Aim

The aim of this study was to look at the circumstances surrounding these injuries in terms of setting, mechanism, supervision and first aid to inform a prevention campaign.

Methods

A cross-sectional study delivered via iPad to parents and caregivers presenting with a child aged 0-36 months with a hot beverage scald at a major paediatric burns centre.

Results

Of the 101 children aged 0-36 months that presented with a hot beverage scald over a 12-month period, 54 participants were included. The scald aetiology was as expected with the peak prevalence in children aged 6-24 months, pulling a cup of hot liquid down over themselves. The majority of injuries occurred in the child’s home and were witnessed by the caregiver or parent. The supervising adult was often in close proximity when the scald occurred. Less than a third (28%) of participants received adequate first aid treatment at the scene; an additional 18% received correct treatment within three hours of the injury – usually at an emergency department.

Conclusions

While the aetiology of these scalds were as expected, the low use of correct burn first aid was of concern. Although supervision was present in almost all cases, with the parent/caregiver close-by, proximity alone was not adequate. Attentiveness and continuity of supervision, which can be difficult with competing parental demands, appear to play a more important role. By incorporating the findings from this study and other research into a hot beverage scald prevention campaign, we hope to see a change in knowledge and behaviour in parents and caregivers of young children, and ultimately a reduction in the incidence of hot beverage scalds.

Theme: Burns prevention and treatment, Presentation Type: Oral
Recruiting millennial mothers for an injury prevention campaign via social media, Jacqueline Burgess
University of Queensland

Background

Globally, there are 2.8 billion people who are active on social media. It has become an integral part of modern society. Increasingly, researchers are now turning to social media platforms, such as Facebook, to recruit participants for health and medical research studies. In Australia, approximately 70% of the population actively use Facebook and the largest demographic are women aged 25-34 years. Mothers with children under five years of age are the most active on social media.

Aim

Given social media’s popularity among millennial mothers, this method was used to recruit mothers of young children to an app-based burn prevention intervention.

Methods

Between January and February 2016, females aged 18 to 45 years, residing in Queensland, Australia, with at least one child aged 5-12 months were recruited through Facebook and Instagram advertisements. Two message themes were used in the advertisements; incentive-based and emotive-based. Advertisement sets were developed, each containing different combinations, including device type, visual elements, message theme, and advertisement placement. Interested individuals could click on an embedded link in the advertisements which took them directly to the Cool Runnings app in the Google Play or Apple App Store. Once the app was downloaded, individuals were provided with additional information about the study and given the opportunity to consent to participate in the study. Participants completed a 19-item questionnaire detailing demographic factors (such as education level, age of youngest child, number of children, marital status, and smoking status) and extent of burn risk knowledge and burn first aid knowledge.

Results

During the 29-day recruitment period 498 participants were recruited to the Cool Runnings study. The 45 advertisement sets reached 65,628 people, and yielded 2,575 link clicks, and 1,161 app installs. The two most effective advertisement sets, which recruited 72% of the participants, were both emotive-based videos. The cost per recruited participant was $13.08. Participants were representative of the general population. Geographically, participants were from regional, rural and remote Queensland. Forty-three percent were first time mothers and 53% were under 30 years. Education levels were fairly evenly split with 44% having a Year 12 education or less.

Conclusions

Social media presents a new and effective way for recruiting targeted populations to injury preventions campaigns. With its broad reach, speed, representativeness, and cost-efficiencies, this recruitment channel offers access to a diversity of users which cannot be matched through traditional recruitment methods.

Theme: Burns prevention and treatment, Presentation Type: Oral
Analysing the use of ISOFIX compatible child restraints in Victoria, Jason Chambers
Kidsafe Victoria

Background:
ISOFIX compatible child restraints were first introduced in Australia as part of the 2013 Australian Standard (AS/NZS 1754:2013). This standard enabled the use of a pair of ISOFIX compatible lower attachment connectors (in place of a seatbelt) for rearward and forward facing child restraints, in conjunction with the top tether strap. The first ISOFIX compatible child restraints became available to purchase in Australia in late 2014.

Aims:
• Determine Victorian parental attitudes towards ISOFIX compatible child restraints
• Determine usage of ISOFIX compatible child restraints among Victorian parents and carers (including usage rates and barriers to use)
• Identify any common misuse/incorrect installation issues observed with ISOFIX compatible child restraints available on the Australian market

Methods:
In the first phase of the project, two 1.5 hour focus groups were undertaken to gain an understanding of attitudes towards and usage of ISOFIX compatible child restraints in Victoria – one with parents and one with child restraint fitters.

Findings from the focus groups were used to inform phase two of the project, which involved administering two online surveys (one with parents and one with child restraint fitters) that further explored attitudes towards and use of ISOFIX compatible child restraints in Victoria.

Results:
Results showed that while the majority of parents and carers who participated in the project had heard about ISOFIX compatible child restraints, aside from those who were currently using or had used them, there was a lack of awareness about how the system worked/was used.

Results also identified a number of incorrect installation/usage issues with ISOFIX compatible child restraints, including:
• Restraints that had been installed using both the ISOFIX connections and seatbelt.
• ISOFIX compatible child restraints that had been installed in the middle seating position in the rear of the car.
• Parents/carers had finding it difficult to get the ISOFIX connection to attach to the anchor point properly.
• ISOFIX compatible child restraints that had been installed without using the top tether strap
• Traditional child restraints that were being used with aftermarket ISOFIX extensions.
The research highlighted a general lack of awareness amongst the public of the need to regularly check and maintain the fit of child restraints (both those using traditional and ISOFIX compatible child restraints).

Conclusions:

This project demonstrates that while ISOFIX compatible child restraints may appear easier to install and move between vehicles, they are not foolproof and there is still potential for incorrect installation or usage issues.

Theme: Road and transport safety, Presentation Type: Oral
The Residual Problem of Child Unintentional Injury Mortality in Victoria, Australia 2001-2012 with a focus on Road Traffic Injury in children (0-14), Susan Chang
Monash University

Authors: Dr. S.S.M Chang and Professor J. Ozanne-Smith

Department of Forensic Medicine, Monash University

Background: Extensive efforts to reduce unintentional injury and road traffic injuries (RTI) specifically were enacted in the last three decades of the 20th century. Examination of the residual problem indicates the extent of fatal, unintentional injuries in children aged 0-14 that future interventions must address.

Method: We define the residual period in Victoria, Australia (2001-2012) and examine the National Coronial Information System’s database of 604 cases and the RTI subset at the individual case level. The study compares residual rates of the top 6 causes of fatal, unintentional child injury for Victoria to global unintentional child injury rates reported by the WHO 5 year age groups. It specifically studies, RTI, the most prevalent class of injury resulting in mortality. Data for all occupant and pedestrian deaths between 2001-2012 was examined. A univariate and pairwise analysis of recorded factors to the child injury death was conducted using totals and 5 year groupings to determine association.

Results: The top 6 fatal, unintentional child injury rates in Victoria were each 3-5 times less than WHO global estimates including low and middle income countries. For 173 RTI deaths, head injury was the most common medical cause of death (81-95%). The 0-4 age group was significantly the most vulnerable age group for both passengers and pedestrians as determined via poisson regression. More than eighty percent of deaths occurred in rural regions, with children age 0-4 significantly most affected. For occupants, loss of control and veering to the incorrect side were most commonly associated with death. For pedestrians the top 3 associated factors were inattention of parents, crossing the road unsupervised and crossing the road against the wishes of the parent.

Discussion and Conclusions: RTI’s are complex and usually a chain of events is involved. Reviews of published WHO key prevention strategies, and the recent literature, focusing on the identified road traffic fatalities among children 0-14 years found numerous promising interventions. Wider implementation of advanced engineering, education and enforcement strategies may improve the residual mortality rates in Victoria. Some feasibility issues remain with widespread implementation. However, the goal of reaching zero may be closer if our discussed issues are sufficiently addressed.

Theme: Child health and safety, Presentation Type: Oral
Drowning death during monsoon flooding, a tragic scenario in Bangladesh, Tanveer Choudhury
Directorate General of Health Services, Ministry of Health and Family Welfare

Author: Dr, Tanveer Ahmed Choudhury
Affiliation: Directorate General Health Services, Ministry of Health and Family Welfare, Bangladesh

Background:

Bangladesh is one of the largest deltas in the world and situated at the Ganges Belt and so, very much prone to Monsoon Flood. Every year it faces flood specially in the months from June to October with a range of affected geographical area from 18% to 55%. During these months Bangladesh is experiencing massive and sudden rainfall that causes flash flood, land sliding and thunderstorm. It is observed that in recent flooding situations, drowning is one of the main causes of human death along with due to snakebite.

Objectives:

The objective of this paper is to describe, the fact that the drowning is the prime cause of human loss during the recent monsoon flooding situation in Bangladesh.

Methodology:

A massive river and monsoon flooding had occurred from mid July to the end of August 2016, affecting 19 Northern and central districts of Bangladesh. National Health Crisis Management Centre of Directorate General of Health Services, had closely monitored the situation, collected the data and disseminated it daily. Health Cluster Working Group was set at the central level where there were representative from Government, UN agencies, NGOs who played a vital role in situation analysis and 4w matrix was used to collect information from the field and subsequently a Situation Report was prepared in weekly basis.

Results:

During the whole Flooding period, a total of 31151 cases (10053 diarrhoeal, 5358 skin diseases, 4512 Acute Respiratory Infection, 2538 eye infection, 1255 injury, 120 snakebite, 2 near to drowning case) had been reported. Out of total 168 deaths, there were 144 from drowning, 23 from snakebite and one from Acute Watery Diarrhoea.

Conclusion:

During natural disaster like monsoon flood, drowning is the prime cause for human death in flood affected areas of Bangladesh. Intervention is needed on urgent basis.

Theme: Water safety (including drowning), Presentation Type: Rapid Oral Presentation (e-Poster)
Knowledge Behavior and Perception in drowning prevention: A qualitative understanding on Bangladesh perspectives, Farzul Kader Chowdhury
Centre for Injury Prevention and Research Bangladesh

Introductions:

Drowning is the leading flagged of death in Bangladesh not only for children as well as other adult’s occupational groups. Drowning accounted almost 50 children died every day and resulting deaths, brings disabilities and mental traumas. As drowning is leading epidemic in Bangladesh, community reaction on drowning prevention need to be explored for further drowning preventions.

Objectives:

To understand perception, knowledge and behaviors toward drowning and its prevention.

Methods:

Three particular sub-districts of Barisal, the worst drowning favorable settings in Bangladesh was selected. An anthropological study was undertaken on September to October in 2016. Twenty interviews, eight focus group discussions conducted with household level parents and household heads both male and female, community heads and influential persons, caregivers to explore drowning conceptualization and drowning prevention reactions towards knowledge, behavior and perception

Results:

Drowning is a natural phenomenon to most of the community people, drowning often conceptualized as an accident, good wish, evil spirit and superstitions. Such Perceptions constructed with the influence of community myths, elderly people, neighbors, family. Significantly these perceptions influenced people behaviors and attitudes as most of the people perceived drowning is not preventable. They were reluctant to take any action as they perceived there are no measures if god will on that accident

However, a few believing that drowning can be prevented by learning swimming, proper children supervision, waterbody fencing, children schooling, awareness. Poverty, lack of capacity and skills, geographical situations, lifesaving equipment constraints informed as drowning causes.

A little attitude found to communities by fencing the ponds, teach swimming to children, relying on causal child supervision. Communities had been applying some traditional methods like spinning the body for keep alive the body, sands, salts, clay utensils to suck the water as post drowning treatment years after years which are mainly miss perceptions, sometimes leading death.

Discussions and conclusions

The research identified the community perceptions, knowledge and behaviors towards drowning principally locally constructed. Yet, death is preventable, study clearly indicated that perceptions of drowning is related to superstitions which restricted people to take measure of actions to prevent drowning. The study uncovered that the biggest hurdle of drowning prevention is mainly a cultural belief that drowning is inevitable. Preventing drowning is
certain for Bangladesh, and future interventions and research are required to address these perceptions beliefs and behaviors to assess the feasibility, cultural acceptance, effectiveness of strategies designed to preventing drowning.

Theme: Water safety (including drowning), Presentation Type: Oral
Safety perceptions and practices for drowning prevention among fishermen in Bangladesh, Fazlul Kader Chowdhury
Centre for Injury Prevention and Research Bangladesh

Introduction:
Fishermen are an occupational group who are typically highly exposed to water based risk, and face consequences of disaster frequently. A number of fishermen have experienced both fatal and non-fatal drowning, although fishermen are generally not treated as a vulnerable community. There is very limited knowledge on the context of drowning in fishermen and opportunities for prevention in fisherman in Bangladesh.

Objectives:
To explore current safety management perceptions and practices among the fishermen.

Methods:
An anthropological study was undertaken with the fishing community. We conducted in-depth interviews (IDIs-16) with both male and female fishermen and fishing leaders, key informant interviews (KI-4) with lenders and boat owners, and focus group discussions (FGDs-3) with various types of fishermen. We also conducted observations (6) of fishing practices. The study areas were at Barguna and Patuakhali, the two most southern districts in Bangladesh with many rivers and a long coastal line. Data were transcribed and coded into NVIVO-11 software. Data were analysed using content and thematic analysis.

Results:
Most fishermen perceived drowning as a natural incident, or as “God’s will” and therefore it cannot be prevented. Many fishermen did not take any safety equipment, as they believe in the case of bad weather they will able to come to inland and also think as fishermen they are strong enough to rescue themselves. They thought themselves as very good swimmers and perceived they could rescue themselves by floating equipment such as that used to float fishing nets. Most of the fishermen reported not carrying any safety equipment as they thought it is necessary only for fishing in the sea. Some fishermen had received previous interventions, and reported they had equipment such as life jackets, life-buoys, compasses, radios, torch lights, although they also reported being unsure how to use it and that some equipment was not in usable condition. Further, small boats consist of space for storage of fishing equipment with no space for safety equipment.

Conclusion:
Most of the fishermen did not perceive drowning as an occupational hazard, had no training of use of life-saving equipment and rescue and did not have adequate safety equipment. Community awareness along with first aid, safety equipment and training are necessary to reduce drowning risk in marginalized fishermen community in Bangladesh.

Theme: Injury in vulnerable populations, Presentation Type: Oral
Safety perceptions and practices for drowning prevention among fishermen in Bangladesh, Fazlul Kader Chowdhury
Centre for Injury Prevention and Research Bangladesh

Introduction:
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Theme: Water safety (including drowning), Presentation Type: Rapid Oral Presentation (e-Poster)
Knowledge Behavior and Perception in drowning prevention: A qualitative understanding on Bangladesh perspectives, Fazlul Kader Chowdhury
Centre for Injury Prevention and Research Bangladesh

Introductions:
Drowning is the leading flagged of death in Bangladesh not only for children as well as other adult’s occupational groups. Drowning accounted almost 50 children died every day and resulting deaths, brings disabilities and mental traumas. As drowning is leading epidemic in Bangladesh, community reaction on drowning prevention need to be explored for further drowning preventions.

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certain for Bangladesh, and future interventions and research are required to address these perceptions beliefs and behaviors to assess the feasibility, cultural acceptance, effectiveness of strategies designed to preventing drowning.

Theme: Water safety (including drowning), Presentation Type: Rapid Oral Presentation (e-Poster)
Understanding and Preventing Led Outdoor Accidents: Contributions of a National Incident Dataset, Amanda Clacy
University of the Sunshine Coast

Context. Detailed information on injuries and injury-causation is required to understand the risks involved in facilitated or instructed “led” outdoor activities (LOA). However, in Australia, there is a paucity of information available on the epidemiology and causation of incidents in this sector. To address this problem, the LOA sector in Australia has been engaged in a major program of research to develop a national approach to incident reporting, known as UPLOADS (Understanding and Preventing Led Outdoor Accidents Data System).

Objectives. The aim of developing UPLOADS was to ensure that the reporting and analysis methods were consistent with state-of-the-art thinking around accident causation, specifically the systems approach. Accordingly, the accident analysis method was developed to ensure that system wide contributing factors, and the relationships between them, could be reliably identified from the data collected in a National Incident Dataset. The UPLOADS project has now been collecting incident report data since 2014, presenting a systems analysis of almost 2000 incidents from across Australia. From the combined efforts of researchers and practitioners working together, we now have National incidence rates for led outdoor activities and are beginning to see trends in the contributory factors which lead to injuries, illnesses, and near misses in the Australian outdoors. The next phase of the UPLOADS project is to develop an associated incident prevention strategy development model to guide practitioners in how to effectively transform this new wealth of data into actionable injury prevention activities.

Key messages. Rather than progressing down the well-travelled road of blame aimed at the people or equipment directly involved with an incident, the UPLOADS project facilitates a culture of learning from incidents. A significant contribution of the UPLOADS method is that it enables practitioners to identify contributory factors and relationships that could be used to inform the development of data-driven prevention strategies. In further application of the systems approach, the UPLOADS project also identifies the need for incident prevention to reflect the complex and dynamic nature of accident causation.

Discussion and conclusions. The systems approach used in the incident reporting and analysis of the UPLOADS data encourages practitioners to view incidents in a new light - namely, by looking for the interaction of contributing factors across the whole led outdoor system, rather than just at the sharp end. The UPLOADS project has improved the reporting culture in the led outdoor sector and has produced analyses that facilitate system-wide improvements.

Theme: Translating research into practice and policy, Presentation Type: Oral
A Systems Snapshot of Concussion Management Practices in Grassroots Rugby Union, Amanda Clacy
University of the Sunshine Coast

Background. Sport-related concussion has been a growing point of concern in contact sports. While current concussion management guidelines have been widely adopted and endorsed by professional sporting bodies, the extent to which these guidelines are then broadcast and implemented in grassroots sport is largely unknown. Furthermore, many of the guidelines that are proposed only consider factors within the immediate environment, with limited consideration for the broader contextual factors which contribute to how sport-related concussion is understood, weighted, and managed. Modern safety science has shifted away from individual, reductionist approaches to injury prevention and management, and instead, recognised systemic influences on the occurrence of injuries. The so-called systems approach states that injuries have multiple interrelated contributory factors that are created by the decisions and actions of people across all levels of a particular system.

Aims. The aim of this study was to apply a systems approach to examine how people in the grassroots rugby union (rugby) system currently manage (i.e., prevent, identify, and treat) sport-related concussion. To do this, a systems approach was taken to first, represent the grassroots rugby system; and second, investigate differences in perceived responsibilities and actual behaviours of the various actors in this system.

Methods. Participants were 118 members of the community rugby union system in Australia (69.2% male). Participants from throughout the rugby system (e.g., players, parents, coaches, club management) were asked open-ended questions about their perceived responsibilities and the role-specific strategies they use in preventing, identifying, and treating sport-related concussion.

Results. It was found that: (a) proper training, technique correction, and education were recurring themes in concussion prevention; (b) the majority of key stakeholders felt that they could identify concussion, however medical aids (medics) were the only system actors who stated a responsibility to use standardised concussion assessment measures; (c) less than one third of the respondents indicated their involvement in treating concussion.

Discussion and conclusions. When considered together, the system-wide themes identified in this research highlight the specific junctures that may be impeding effective sport-related concussion awareness and management in grassroots rugby. This study clearly demonstrated the applicability of systems thinking to improve understanding of current system-wide concussion management beliefs and behaviours.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
Childhood injury prevention: Strategic directions for coordination in New South Wales, Kathleen Clapham
University of Wollongong

Background: In many countries, leadership and coordination along with sustained infrastructure support have resulted in significant gains in addressing childhood injury in recent years. A scan of childhood injury and disease prevention infrastructure in NSW completed in 2015 confirmed the need for stronger leadership and coordination to deliver further improvements in childhood injury in NSW. This paper reports on research commissioned by the NSW Child Death Review Team (NSW Ombudsman) in 2016, which further explored strategic options for coordination in childhood injury prevention.

Aims: The research explored the key components of a coordinated approach to childhood injury prevention: policy leadership; data and information systems; research and knowledge translation networks; and coalitions, collaborations and partnerships.

Methods: A rapid review of the peer reviewed and grey literature was supplemented by 28 qualitative interviews with 24 Australian and four international stakeholders with expertise in childhood injury and its prevention. Findings from the literature and interviews were synthesized around the key research questions. Thematic analysis of qualitative data was managed through NVivo software.

Results: International evidence identifies three structural measures to reduce child deaths and serious injuries which are: clear leadership nationally and locally; coordination of activities of agencies and departments nationally and locally; and good communication and partnership between stakeholders. Within Australia there is no nationally coordinated approach to childhood injury prevention. Injury prevention is considered a shared responsibility between all jurisdictions and the level of policy leadership varies across Australian States and Territories. The past decade has seen a ‘shift’ in the positioning of injury prevention within governments and a corresponding loss of visibility of childhood injury prevention. Barriers to the effective coordination of childhood injury prevention and the role of the Child Death Review Team are explored.

Discussion and conclusions:

Coordination of childhood injury prevention is complex, requiring action on multiple fronts including leadership and clear policy direction; robust data from effective surveillance systems to underpin evidence-based approaches; support for high quality research; and knowledge translation and collaborative mechanisms to bring people together that are funded, supported and sustained over time. Strong partnerships amongst key stakeholders, robust inter-agency and cross-organisational relationships provide the foundation for effective coordination. There is no magic bullet to generate policy leadership, but it requires: political will; committed policy officers; strategic frameworks and plans that identify priorities and set the agenda for change; and designation of a government department to take the lead and coordinate activities.

Theme: Child health and safety, Presentation Type: Oral
Hospital-treated self-harm among adults in Victoria: Patterns and increasing trends 2006/7-2015/16, Angela Clapperton
Monash University Accident Research Centre

Background

Hospital treatment for self-harm injury in Victoria is common – an average of almost 7000 ED presentations occurred each year over the period 2006/07-2015/16. Self-harm is clearly a major public health problem and trends in hospital-treated self-harm are a useful indicator of overall community mental health.

Aims

The aim of this study was to examine the trend in hospital-treated non-fatal self-harm in Victoria over the most recent available 10-year period (2006/07-2015/16) and to examine the pattern of injury among cases occurring in the most recent three-year period (2013/14-2015/16).

Methods

Cases include all hospital-treated incidents where the coders determined the injury or poisoning was purposely self-inflicted. Therefore, incidents where the person had the intent to die by suicide are included as are cases without suicidal intent.

Hospitalisation data were extracted from the Victorian Admitted Episodes Dataset if the first external cause indicated intentional self-harm (X60-X84) and the principal diagnosis was recorded as either an injury (S00-T98) or a mental or behavioural disorder (F00-F99). ED presentations data were extracted from the Victorian Emergency Minimum Dataset if the human intent variable was coded to “Intentional self-harm”.

Cases among persons aged less than 15 years and deaths were excluded.

Trends were modelled using Poisson models.

Results

There were 6,939 ED presentations and 3,903 hospitalisations for intentional self-harm injury on average each year over the 10-year study period. Approximately two thirds of cases were female (63% of ED presentations; 66% of hospitalisations), and one third aged 15-24 years (37% of ED presentations; 30% of hospitalisations). The modelled rate per 100,000 population showed a significant average annual increase of 3.2% among ED presentations and 5.5% among hospitalisations. The trends differed by sex and age group with the greatest increase in hospitalisations occurring among females aged 15-24 years (increased by 10.4% per year).

Over the most recent available 3-year period poisoning by pharmaceuticals was the most common mechanism of injury (46% of ED presentations; 76% of hospitalisations).

Discussion and conclusions
Hospital-treated self-harm injury in Victoria increased over the most recent 10-year period, particularly among females and among the more serious cases. These findings have important implications for prevention and suggest there is an urgent need to address the issue of self-harm in Victoria.

Theme: Intentional injury and violence prevention, Presentation Type: Oral
Estimating the burden of work injury in Australia using a comprehensive national injury claims database,
Alex Collie
Monash University

Background: Work-related injury is now estimated to cost the Australian economy $61.8 billion annually or 4.1% of GDP. Reductions in the reported incidence of work-related injury over the past decade has been cited as evidence of the success of occupational safety initiatives. There is now emerging evidence that the severity of work injury, estimated using duration of productive working time loss and RTW rates, may have been increasing over the same period. Understanding the population burden of injury, including the incidence and severity, is necessary for designing and monitoring effective work injury prevention and control programs.

Aims: To characterise the burden of work disability in Australia including the incidence, severity and population burden by demographic (age, gender, socioeconomic status), injury and workplace (occupation, industry, size) characteristics.

Method: Analyses of population work injury claim data from the National Dataset of Compensation Based Statistics (NDS) and labour force statistics. A total of 1.73 million accepted work injury claims from all nine major Australian workers compensation (WC) jurisdictions over the period 2004 to 2012 were included, representing every accepted work injury compensation claim in Australia over the time period (with the exception of military injury claims). Incidence, duration of time loss were calculated using standard metrics. Total burden estimates were calculated as total duration of time lost (in weeks) per 1000 working population.

Results: Most of the population burden was attributable to musculoskeletal disorders (MSD: 56.8% of injury and 54.5% of total burden) and by male workers (64.9% of cases). The incidence of MSD decreased by 19.5% from 13.0 injuries per 1000 workers to 10.4, while severity increased by 33.6% from a median of 1.9 weeks time lost per case to 2.6 weeks. Overall this pattern of decreasing incidence and increasing severity over the study period was observed. Estimates of total burden revealed either small decreases in time lost per 1000 workers or increases in some conditions (e.g., time lost to psychological injury per 1000 workers increased over the study period).

Conclusions: The population burden of work disability varies substantially by worker, workplace and injury characteristics. While incidence has been declining, severity has been increasing and large changes in overall burden have not been observed. In Australia the regulatory responsibility for primary and secondary prevention of work injury if often assumed by separate government agencies. Greater coordination of prevention and rehabilitation efforts is required to effectively reduce the national work injury burden.

Theme: Workplace injury and safety, Presentation Type: Oral
Safe Journeys Safe Communities: A collaborative approach to road safety education, *Louise Cosgrove*

*Kids and Traffic, Early Childhood Road Safety Education Program*

**Context**

Aboriginal and Torres Strait Islander children are consistently over-represented in road trauma. Safe Journeys Safe Communities is a Kids and Traffic project involving collaboration with early childhood organisations working with Aboriginal and Torres Strait Islander children, families and communities. Genuine and respectful partnerships between Aboriginal and Torres Strait Islander organisations and mainstream services have mutual benefits including increasing shared capacity to respond to community needs. Safe Journeys Safe Communities encourages organisations to explore local road safety issues and collaboratively develop effective community-specific strategies, resources and solutions. The project is founded upon joint consultation, engagement and evaluation with peak early childhood groups, Aboriginal community organisations, local government agencies, educators, community members and Elders.

**Objectives**

Safe Journeys Safe Communities supports localised solutions to self-identified road safety issues to improve the long-term safety and well-being of Aboriginal and Torres Strait Islander children. Featured on the Kids and Traffic website, the project shares nine unique stories emerging from families’ real life travel experiences. Relationships between educators and families – an integral part of connected, meaningful, community-focused road safety education – are at the heart of each story. Via Safe Journeys Safe Communities, Kids and Traffic disseminates a range of authentic, collaborative and relevant road safety education strategies and resources. Core principles for working with early childhood organisations are central to the project: respecting each other’s experience, knowledge and context; learning from each other to create shared understandings and meaning; supporting each other to keep all our children safe; nurturing relationships and processes that continue beyond any project and fostering outcomes that honour process as much as product.

**Key Messages**

Safe Journeys Safe Communities promotes Transport for NSW endorsed Kids and Traffic Key Road Safety Messages. These emphasise adults take responsibility for children’s safety by: holding their hands to protect them as pedestrians, using appropriate child car seats correctly in vehicles and ensuring they wear correctly fitted helmets when riding. Consistent use of these messages engages children in road safety learning without making them responsible for their own safety.

**Discussion and conclusions**

This project fosters effective ownership of community-identified road safety issues and local solutions resulting in positive outcomes for children and families and strengthened capacity for educators. Project strategies and resources inspire adaption and use by early childhood educators across diverse settings. Collaborative processes involved in this ongoing Kids and Traffic project are highly sustainable and readily transferrable to any Australian education and care context.

*Theme: Child health and safety, Presentation Type: Oral*
**Occupy, entertain and distract: How does children’s in-vehicle activity affect safety?, Suzanne Cross**  
*Monash University*

**Background**

Children do not sit still in child restraint systems (CRS) and frequently adopt positions that may compromise their protection during everyday trips[1]. The aim was to use naturalistic driving study (NDS) video data to explore in-vehicle activities and head position in relation to the protective structure of CRS. The focus of this paper is on activities that afford certain seating positions that might compromise safety, such as lap-based entertainment, in-vehicle entertainment systems and sleep. This NDS is part of a broader project[2].

**Method**

Forty two Melbourne-based families with at least one child aged 1 to 8 years, travelling in a CRS/booster seat drove a study vehicle for approximately two weeks. Two study vehicles were fitted with data acquisition systems, including a continuous video/audio recording system. Child occupant activities and head position were determined by manual review of the video/audio recordings. For each trip (n = 414), data was coded for one child (five second epochs, at 5%, 25%, 50%, 75% and 95% of trip). Subjective classification was used to describe types of in-vehicle activities of child occupants and associated head positions ['optimal' = upright; back/head against CRS seatback; ‘non-optimal’ = leaning forward/far-forward-to left/right/centre].

**Results**

Analysis of child occupant in-vehicle behaviour in 2070 epochs revealed 304 epochs containing activities of interest. Playing with toys (71%), sleeping/drowsy (5%), in-vehicle DVD viewing (4%), electronic use (10%) and reading (10%). Optimal head position was observed in the majority of epochs for sleeping (94%), DVD viewing (67%) and playing with toys (67%). In contrast, non-optimal positions were observed for the majority of reading (71%) and electronic device use (90%). The type of positions adopted for reading and electronic use were mostly forward-centre head position (81% each). Far-forward-centre was observed for reading (19%). Forward-side was observed for electronic use (19%).

**Conclusions**

This study revealed low frequencies of these activities. However, sleep, lap-based activities and in-vehicle entertainment systems are activities that may intuitively encourage head positions for lengthy durations. The findings support recent research which reported that forward flexed seating posture is common with electronic use[3]. Our study also provides insights into common postures associated with other behaviours. Future analyses will examine full trips and include any potential trade-off between child activities, head position and driver distraction.

The findings from this study will inform sled testing setup to mimic realistic head positioning.

*Theme: Child health and safety, Presentation Type: Oral*
Counting Dead Women: An In-depth Review of Femicide Cases in Australia, Patricia Cullen
University of Technology Sydney

Background:

Gender-based fatal violence (femicide) is a preventable cause of premature death, however in many countries the incidence of femicide is not monitored or accessible. The Counting Dead Women Australia campaign was launched as a femicide census counting violent deaths of women in Australia from May 20, 2014. This census counted 81 femicides in 2014; approximating to one woman violently murdered every 4.5 days in 2014. Yet in Australia, there is scant empirical evidence that investigates femicide; thus little is known about the women, perpetrators and social context of femicide.

Aim:

To better understand experiences and antecedents, we will describe femicide in Australia through an in-depth case review.

Methods:

Cross-sectional in-depth review of femicide cases in Australia Jan-Dec 2014. Interrogation and triangulation of publicly available law databases, court documents, coronial reports; where necessary data was supplemented by media sources. Descriptive statistics of socio-demographic and incident characteristics are presented.

Results:

There were 81 femicide cases, women ranged in age from 20-82 years of age (44±15.8) and half were mothers (n=43). There were 83 perpetrators, of which 13 were unknown (not yet apprehended). Known perpetrators ranged in age from 16-72 years of age (40±12.8) and 89% were male (n=62). Approximately one third of known perpetrators and women were in the most disadvantaged Socio-Economic Indexes for Areas (SEIFA) quintile, while approximately 15% were in the least disadvantaged.

The location of the crime was most frequently the victim’s home (n=46). In 10 cases, there were additional victims including the women’s children, and one fifth (n=14) of known cases involved murder-suicide. In cases where the relationship between the victim and perpetrator was known, over half of femicides were committed by intimate partners (n=33). Other salient antecedent factors in cases with available data included previous perpetrator violence (n=21) and perpetrator mental health issues (n=28). A high proportion of cases had missing antecedent information including substance misuse, mental health, violence and criminal history.

Discussion and conclusion:

Femicide is overwhelmingly perpetrated by males, with women most vulnerable in their own home and with their intimate partners. Furthermore, femicide is associated with modifiable risk factors that could be addressed through a combined justice and public health approach. Future research should target understanding risk and protective factors, including mental health and screening within primary healthcare as practitioners are well-placed to identify risk and assess safety. It is critical that we address significant knowledge gaps to prevent femicide and the pervasive violation of women’s human rights.
Theme: Intentional injury and violence prevention, Presentation Type: Oral
Rate of recovery following injury: the role of comorbidity, Gabrielle Davie
Injury Prevention Research Unit

Background: Understanding the role of comorbidity in recovery following injury is an important challenge given known associations between comorbidity and poor outcomes, more complex clinical management, and increased health care costs. Sufficient evidence exists to conclude that pre-existing comorbidity leads to worse outcomes at given time-points for injured individuals but, to our knowledge, no research has investigated the relationship between pre-existing comorbidity and the rate of recovery following injury.

Aims: To compare rates of recovery over 24 months following injury for those with no pre-existing comorbid conditions, one comorbidity and two or more comorbidities (multimorbidity).

Methods: The Prospective Outcomes of Injury Study recruited 2856 injured New Zealanders aged 18-64 years. Recovery, or lack of, in this longitudinal cohort was measured using the World Health Organization Disability Assessment Schedule (WHODAS II 12-item) at 3, 12 and 24 months post-injury. Twenty-one pre-existing chronic conditions were used to identify comorbidity. To investigate whether rates of recovery differed by pre-injury comorbidity, the interaction between interview month and comorbidity group was modelled using Generalised Estimating Equations.

Results: Of 1,862 participants with complete data, the distribution reporting none, one comorbidity, or multimorbidity pre-injury was 51%, 27%, and 21% respectively. Longitudinal analysis estimated no difference (log odds per year 0.05, 95% CI -0.17 to 0.27) between the rate of change of disability for those with one pre-injury comorbidity compared to those with none. Those with pre-injury multimorbidity had significantly slower reduction in disability over time than those with no pre-injury comorbidity (log odds per year 0.27, 95% CI 0.05 to 0.48).

Discussion and conclusions: Longitudinal analyses of disability outcomes following injury in a cohort (18-64 years) indicate there is no discernible difference in the rate of recovery over two years between those with one pre-existing comorbidity and those with none; however, those with pre-existing multimorbidity have significantly slower recovery rates. Given the increasing prevalence of multimorbidity in many countries, greater understanding of the opportunities for intervention to better support injured people with multimorbidity are required.

Theme: Rehabilitation and trauma care, Presentation Type: Oral
Incidence and Costs of Injury in Western Australia, Erica Davison
Department of Health W.A.

Background:

The incidence and costs of injury in Western Australia (WA) were investigated in a large data linkage study to guide policy development and investment in the area of injury prevention.

Aims

To determine the incidence and overall cost of injury to the WA community for the most recent year data was available.

Methods

The study utilised linked administrative health data and personal injury claims data from the Motor Injury Insurance Scheme to generate incidence and cost estimates for WA in 2012. Injury events were grouped into cases resulting in (1) death, (2) hospitalisation with survival to discharge and (3) injury events receiving treatment at an emergency department. Costs included health sector costs, costs relating to longer term care needs, loss of paid productivity and loss of quality of life.

Results

In 2012, the number of injury events in WA was 227,000, or 93 injuries per 1,000 people, resulting in a total cost of $9.6 billion. Health sector costs accounted for 12.3% of total injury costs, long-term care costs for 3.2%, loss of paid productivity for 19.8%, and loss of quality of life for 64.7%. Fatal injuries comprised 0.6% of injury events, non-fatal injuries requiring hospitalisation comprised 22.1%, and those requiring emergency department presentations comprised 77.3%. However, fatalities accounted for 61% of the total costs of injury. More detailed findings for incidence and costs were calculated by injury type, gender, age, Aboriginality, socioeconomic status and other demographic factors. The study also provides trend data on incidence and costs.

Discussion and conclusions

This study provides important information for policy makers and other injury prevention stakeholders to identify areas where further prevention and care are most needed. An 18-month theme-based seminar series commenced in 2017 and focuses on how the data can be understood and applied to inform policy and program development. The seminars include presentations from the perspectives of research, policy and practice highlighting the diversity of interests and stakeholders that characterise injury control in WA.

Theme: Translating research into practice and policy, Presentation Type: Oral
Calculation and application of the injury severity measure ICD Injury Severity Score (ICISS) using the Victorian Admitted Episodes Dataset (VAED), Angelo D’Elia

Monash University

Background: Injury severity measurement is important for monitoring trends in injury and for providing reliable information to inform policy and injury prevention practice. ICISS (ICD Injury Severity Score) is an empirically derived measure of injury severity based on actual survival rate for specified injuries calculated using a given large trauma database.

Aims: The objective of this research was to calculate ICISS using data specific to Victoria including investigating different methods of calculating ICISS. ICISS scores were then applied to Victorian road traffic injury hospitalisation data in order to analyse serious injury trends by road user group.

Methods: Data for a 10 year period was extracted from the Victorian Admitted Episodes Dataset (VAED), which contains information on all patients admitted to Victorian hospitals, in order to calculate ICISS based on ICD-10-AM injury codes. This approach to injury severity assessment is based on the calculation of Survival Risk Ratios (SRRs) for each ICD code. SRRs are derived by dividing the number of patients that survive a given ICD injury diagnosis code by the number of patients with that diagnosis code. ICISS is then the product of the SRRs corresponding to a patient’s injury or injuries. Different methods of calculating ICISS scores were employed and tested. This included adjusting the scores for age, comorbidity and the presence of multiple injury diagnoses. Models were run to determine which method of calculating ICISS was optimal for monitoring serious injury in Victoria.

Results: It was found that ICISS calculated using a patient’s “worst” injury diagnosis demonstrated the best ability to predict mortality than corresponding scores calculated using all injury diagnoses. This method was then used to calculate ICISS on road traffic injury hospitalisation data in order to examine Victorian road trauma serious injury trends by road user group.

Discussion and conclusions: Survival Risk Ratios (SRRs) have been derived specifically for Victoria using the VAED and the ICISS injury severity score has been calculated and tested. The empirically derived nature of this injury severity measure enables trends in road trauma serious injury by road user group to be easily calculated and examined using road traffic injury hospitalisation data. However, trends in serious injury using ICISS are easily able to be calculated on any administrative dataset where ICD injury codes are available.

Theme: Road and transport safety, Presentation Type: Oral
The effect of exercise and physical training on falls and physical function in older adults with vision impairment: An updated systematic review and meta-analysis, Lisa Dillon  
The George Institute for Global Health

Background: Older people with vision impairments have increased risk of falls and fall-related injuries. A previous meta-analysis including studies up to February 2013 found that although exercise and physical training improved physical function in older adults with vision impairment, the effect on falls is unclear. With an ageing population and increasing numbers of people with vision impairment, effective falls prevention programs for this population are needed.

Aims: To update the systematic review and meta-analysis of the effect of exercise and physical training on physical function and falls.

Methods: Electronic literature searches were undertaken of CINAHL, the Cochrane Register of Controlled Trials, Embase, and Medline for randomised controlled trials that investigated the effect of exercise or physical training on physical function or falls in older adults with vision impairment. Original search terms were replicated except age criteria, which was expanded to include trials with younger participants (50 years of age and above) due to earlier deterioration of postural stability in older adults with vision impairment. The updated search included studies published up until October 2016.

Results: Four hundred articles were identified after removal of duplicates. Article titles and abstracts were independently screened by two reviewers and after examination of the full text of seven remaining studies, three met the inclusion criteria and were added to the four which were included in the original review. New studies evaluated yoga, the Otago Exercise Programme in combination with a home safety program and the Alexander Technique as falls prevention strategies. Meta-analysis of data from two trials (n = 163) indicated a non-significant positive impact of exercise on the Chair Stand Test (weighted mean difference 0.281 seconds, 95% CI -0.025 to 0.587, p=0.072, I2 0%). In this update two new studies were found with falls as an outcome measure so meta-analysis was possible for three trials (n = 539) and revealed no impact on falls (pooled rate ratio = 1.076, 95% CI 0.81 to 1.42, p=0.602, I 26%).

Discussion and conclusions: There are still few trials of falls prevention programs for older people with vision loss but diverse approaches are being used, including the Alexander Technique, yoga, tai chi and the Otago Exercise Programme alone and in combination with home modifications. Exercise or physical training can improve physical function in older adults with vision impairment. However, reductions in falls in older adults with vision impairment have not consistently been reported and require further investigation.

Theme: Falls prevention and rehabilitation, Presentation Type: Oral
Strength of the collective and the power of place - A Victorian place-based approach to suicide prevention, *Eileesh Diviney*
*Department of Health and Human Services*

**Context:**

Suicide prevention is a shared focus of the Victorian Government and Primary Health Networks, an Australian Government initiative. Key policies include the National Suicide Prevention Strategy 2015 and the Victorian suicide prevention framework 2016-25.

In line with these, the Victorian Government and the six Victorian Primary Health Networks are collaborating to trial place-based approaches to suicide prevention across twelve locations – a mix of metropolitan, regional, and rural.

These collective efforts are guided by a common agenda, operating model, communications, evaluation and other relevant frameworks. The place-based trials seek to have a positive impact on rates of suicide and attempts, individual and community resilience and well-being, and broader system improvements. This innovative approach will provide a means to bring together local understanding and latest evidence, align funding streams and health investment, and an opportunity for shared outcomes in this important area.

**Key messages:**

The Victorian Government is partnering with Primary Health Networks to support local communities to develop and implement coordinated place-based approaches to suicide prevention.

This approach brings together different parts of the community, including people with lived experience of suicide, schools, businesses, local council, transport, police, health services, ambulance and others to identify what is needed to prevent suicide and find solutions that will work for that community.

**Discussion:**

This presentation will provide an overview of a collaboration between the Victorian Department of Health and Human Services and Victorian Primary Health Networks to trial place-based suicide prevention approaches.

*Theme: Intentional injury and violence prevention, Presentation Type: Oral*
Strength of the collective and the power of place - A Victorian place-based approach to suicide prevention, Eileesh Diviney
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Context:

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Discussion:

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Theme: Intentional injury and violence prevention, Presentation Type: Oral
The Early Warning System of the Curve Signal Real-time Monitoring Designed for the Oncoming Cars,

xinquan du

Zhejiang Police College

The road bends stadia and car speeding are prone to traffic accidents. Therefore, managers often used to install mirror measures to prevent accidents. However, the mirror image distortion is high, easy to cause the car driver’s miscarriage of decision of the cars from the opposite direction, and result in traffic accidents, especially in the mountain roads which are often immersed in the fog, rain and snow, so that the drivers are very difficult to see the corner reflectors; Night driving distance becomes shorter, the effect of reflectors is almost zero; mirror pollution, stains not cleaned on the surface of the reflectors will cause visual confusion; Meanwhile, the reflectors are likely to deform and break, easy to cause visual confusion and other problems. In this paper, the driver’s attention is taken as the object of study, and the design of the early warning system of the curve signal based on real-time monitoring is proposed. Through the installation of video surveillance and speed measuring devices at both ends of the curve, the driver’s sight distance and the speed of the vehicle will be monitored. The equipments are installed in the places about 50 meters ahead of the corner, when the oncoming cars go into the monitoring range, the yellow lights light up or the display screen prompts “Oncoming car” on the opposite direction; when the cars are speeding, the yellow lights in same lane light up or the display screen prompts “Speeding”, if no speeding and no car coming from the opposite direction, the green lights brighten or the display screen prompts “Drive cautiously”. These signals send timely feedback to the drivers to help them make accurate and timely response, take actions and avoid traffic accidents. This paper selects and designs the information collection and relevant parameters of the early warning system, installation technology, in order to ensure its normal operation.

Theme: Road and transport safety, Presentation Type: Rapid Oral Presentation (e-Poster)
Physical Activity and Sedentary Behaviour Subsequent to Serious Orthopaedic Injury: A Systematic Review, Christina Ekegren
Monash University

Introduction and aims: Lack of physical activity and prolonged periods of time spent sitting have detrimental metabolic consequences and can increase risk for type 2 diabetes, cardiovascular disease and other chronic health problems. For orthopaedic trauma patients, there is potential for an elevated risk of immobility-related chronic disease. We conducted a systematic review and synthesised the evidence on the impact of serious orthopaedic injury on physical activity and sedentary behaviour.

Methods: Studies on physical activity and sedentary behaviour measured objectively or via self-report among patients with serious orthopaedic injury (acute bone or soft-tissue injury requiring emergency hospital admission and/or non-elective surgery) were identified through systematic searches of eight electronic databases.

Results: Fourteen out of 2572 potentially eligible studies were identified for review: 10 were on hip fractures and four were on other orthopaedic injuries. Follow-up ranged from four days to two years post-injury. In the eight studies using objective measures, physical activity levels were found to be low at all time points post-injury, with hip fracture patients achieving only 1% of recommended physical activity levels seven months post-injury. The four studies using objective measures of sedentary behaviour showed patients to be highly sedentary throughout all stages of recovery, spending 76% to 99% of the day sitting or reclining. For studies using self-report measures, no consistent trends were observed in post-injury physical activity or sedentary behaviour.

Conclusions: For studies using objective measures with orthopaedic patients, low physical activity levels and high levels of sedentary behaviours were found consistently throughout recovery. More research is needed, not only to identify the impact of physical inactivity and sedentary behaviour on long-term orthopaedic injury outcomes and the risk of chronic disease, but also to identify the potential for increasing physical activity and reducing sedentary behaviour subsequent to orthopaedic injury.

Theme: Rehabilitation and trauma care, Presentation Type: Oral
Never in our history have our workplaces been so safe and our workers so well protected.

Yet in recent years, something strange started to happen. While many companies have ‘hit a wall’ in safety performance, some have seen a slow but visible increase in serious accidents, and most alarmingly, a few ‘best in class’ companies suffered catastrophic events. Something is wrong...

Organizations are like the Titanic: their delusions allow them to enter dangerous waters at full speed, ignoring obvious signs of impending catastrophe. This paper analyses 7 delusions in near zero organizations, such as BP Texas, Bhopal, Piper Alpha - and possibly yours...

The delusions of (risk) control, compliance, consistency, human error, predictability, statistical trends and invulnerability

The 7 deadly delusions are not readily visible in an organization, mostly because there are no mechanisms from inside to identify them. The problem is that role players such as managers, supervisors and employees all have a vested interest in positive safety outcomes, positive trends and good news about safe work performance.

The massive focus on positive safety in today’s business world, the lack of self-critical analysis and understanding of the complex dynamics in safety all contribute to the problem. Add to this mix the peddling of simplistic safety solutions, such as the concept that the human being can be reduced to a simple ABC (Antecedent-behavior-Consequence) model such as espoused by behavioral psychology/safety, and you have an explosive concoction.

Lincoln’s presentation will demonstrate how the few seconds before a disaster were years in the making – created by well-intended, but dangerous ideas, beliefs and delusions. He will discuss the new roles of leaders and practitioners in a different world awaiting us.

Theme: Translating research into practice and policy, Presentation Type: Rapid Oral Presentation (e-Poster)
A cluster randomised controlled trial to assess whether consumer-tested child restraint product instructions can improve correct use six months after purchase: a study protocol, Jane Elkington Neuroscience Research Australia

Background - Despite the high proportion of child passengers who use a child restraint while travelling in motor vehicle in Australia (99%), approximately half are in restraints that are incorrectly installed or used. As the risk of road traffic related death and injury to child passengers is reduced by more than half with optimal child restraint use, there is an urgent need to identify effective ways to minimise incorrect use.

Aim - The current study was developed to assess whether consumer-tested instructions result in reduced errors in child restraint installation and use, six months after purchase.

Method - Using a laboratory-based consumer feedback and an iterative consumer testing method, a set of materials to be supplied with child restraints were developed. To test the efficacy of this consumer-tested product information, a cluster randomised controlled trial (cRCT) will be conducted. Participants (n=836) will enter the study at the point-of-sale of restraints from one of 22 retail stores, belonging to four large baby and child product chains. These stores, which sell an estimated 90% of all child restraints in the greater Sydney area, will be randomised into intervention sites (n=11) and control sites (n=11). The stores will be stratified by geographic and socio-economic indicators. Outcome measures, assessed six months after purchase of the restraints, are errors in installation of the restraint as observed by a trained researcher via a home visit, together with assessment of adjustment checks made by the parent when the child is placed into the restraint (observed using an in-vehicle camera installed in the parent's car for 24 hours). Process evaluation measures will also be collected via a parent questionnaire administered during the home visit.

Results - Correct use and adjustment checks made by the parent will be compared between control and intervention groups using a logistic regression model. The number of installation errors between groups will be compared using Poisson regression.

Discussion and conclusion - Evidence from other health areas, such as medication use, indicate that consumer-tested instructions can greatly enhance correct product use. An evidence-based approach to the development of instructions to enhance the correct use of restraints is overdue. The findings will have the potential to reduce the currently high prevalence of incorrect child restraint use, at a global level, and thus reduce serious injuries and deaths of child passengers.

Theme: Road and transport safety, Presentation Type: Rapid Oral Presentation (e-Poster)
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Theme: Road and transport safety, Presentation Type: Rapid Oral Presentation (e-Poster)
The impact of injury treatment, management and prevention by female Indigenous participants. An exploratory investigation of the Ella 7s rugby tournament, John Evans
University of Technology Sydney

“Sport and recreation activities are an important component of Aboriginal and Torres Strait Islander (ATSI) communities” (2004, p. 17). Indigenous people and communities have made an outstanding contribution to both community and elite sport in Australia over a sustained period of time (Norman, 2006; Colin Tat, 1987). Sports such as rugby league and Australian football form important mechanisms for promoting community identity and cohesion (Daffey, 2001; Topp & Nauright, 2004). However underpinning this success and participation is the incidence of sports injuries and their treatment especially for those in rural areas which has not been addressed in literature. The professionalization of Rugby Union has created new opportunities for indigenous Australians. This article reports on a research project to understand the issues associated with sports injuries and their management by female Indigenous athletes. The results of the research suggest that cost, education and location are factors that impinge on families and communities.

Theme: Injury in vulnerable populations, Presentation Type: Oral
The Impact of Helmet Use and High Risk Behaviors on Injury Patterns and Severity in Motorcycle Child Pillions, Hsiu-Ping Fan
Taipei Medical University

Pediatric motorcycle injury is an increasing and substantial public health problem worldwide, and it is much serious in South-East Asia, such as Taiwan. Roadside observations have shown high prevalence of unhelmeted and other children-specific risky riding behaviors. However, there is no clear evidence whether these high risk behaviors are related to pediatric motorcycle injuries. Our aims are to clarify the associations between high risk behaviors and injury patterns in motorcycle child pillions, and to identify the independent risk factors for severe injury (Injury Severity Score ≥ 9) in this vulnerable population. This is a multi-centered prospective study conducting in three major teaching hospitals in Changhua County in west-central Taiwan. Child pillions who were aged 14 or less and visiting above emergency departments after a motorcycle crash were included. Injury information was obtained from the medical records, and the child’s riding behaviors along with the motorcycle driver’s characteristics were collected from a follow-up telephone interview to the parents. Validation process was done by using previous research results of direct roadside observation. A total of 305 children were analyzed, and they accounted for 4.3% of pediatric trauma visits in emergency departments. Multiple logistic regressions for injuries of different body regions demonstrated preschool-aged children (< 7 years old) were more likely to sustain head injury (adjusted OR: 2.87, 95% CI: 1.36-6.07) than school-aged children (between 7 and 14 years old), while school-aged children were more likely to sustain extremity injury (adjusted OR: 5.18, 95% CI: 1.80-14.93). The motorcycle helmet had a great effect of 74% risk reduction for head injury (adjusted OR: 0.26, 95% CI: 0.13-0.51). Child pillions positioned in front of the motorcycle drivers had a higher risk for facial injury (adjusted OR: 3.09, 95% CI: 1.50-6.34) than those positioned in the back. The independent risk/protective factors for severe injury were preschool-aged children (adjusted OR: 38.19, 95% CI: 1.45-1006.13), wearing a helmet (adjusted OR: 0.08, 95% CI: 0.01-0.93), and faster speed (km/h, adjusted OR: 1.08, 95% CI: 1.00-1.17). Motorcycle child pillions are vulnerable and at a great risk on the road. Risky riding behaviors may be associated with various injuries. Wearing motorcycle helmets should keep promotion in children. Limits for minimum age in child pillions and maximum speed when riding with a child may be required by laws. More research and efforts are in pressing need to develop prevention strategies to reduce pediatric motorcycle injuries on the road.

Theme: Road and transport safety, Presentation Type: Oral
A novel approach to measurement: Examining physical violence ambulance attendances involving alcohol and other drugs across Victoria, Agatha Faulkner

Turning Point Alcohol and Drug Centre

Authors:

A FAULKNER1,2, D SCOTT1,2, B LLOYD1,2, J KILLIAN1,2, S MATTHEWS1,2, K SMITH2,3

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Background:

Recent media portrayals of the ‘ice’ (crystal methamphetamine) epidemic and its relationship to violent behaviour has captured public concern. Currently there is limited objective measures to show the prevalence of alcohol and other licit or illicit drugs, including crystal methamphetamine, involved in violence related incidents.

The Ambo Project utilizes detailed records of ambulance attendances across Victoria, providing a novel approach to measuring the relative impact of alcohol and other drugs in violence-related incidents in the community. Paramedics are often the first and only responders to violent incidents so are key sources of information.

Aims:

The aim of this study is to describe recent patterns of alcohol and other drug involvement in violence related ambulance attendances in Victoria. Age, sex and relationship to the perpetrators and victims will be examined for attendances occurring in Metropolitan Melbourne and regional Victoria.

Methods:

Secondary analysis is conducted using the Ambo Project data. Metropolitan and regional Victoria AOD violence-related data is utilised. 2016-17 data will included to reflect most recent trends.

Results:

Preliminary findings from Victoria during July and December 2016 show there were 1,218 physical violence related ambulance attendances that involved alcohol or other drugs. Males comprised the majority (71%, n=863) of these attendances and a similarly high proportion of attendances occurred in metropolitan Victoria (72%, n=876). The average age of males and females among this group was 33 and 34 years respectively. Among females, 28% were the perpetrators of physical violence that involve alcohol or other drugs compared to 20% of males.

The most common drugs involved in alcohol and other drug related physical violence cases were similar among males and females: alcohol intoxication (males 59%, females 49%), cannabis (males 6%, females 11%), meth/amphetamines (males 5%, females 9%) and crystal methamphetamine (males 4%, females 8%).

Discussion and conclusions:

Current data reflects preliminary findings from a novel study examining the involvement of alcohol and other drugs in physical violence related attendances in Victoria, Australia. Understanding the impact of a range of substances and
associated harms for a different groups in the community is essential in the development of evidence-based public education and promotion priorities and the targeted policy and services across health and other sectors.

*Theme: Alcohol and drugs related injury, Presentation Type: Oral*
Sports Injury in Victoria, Australia 2012/13 to 2014/15: evidence from Emergency Department records, 

Dasamal Fernando
Monash University

Background & Aims

The health benefits of physical activity are widely promoted, whereas the injury risks associated with these activities receive less attention. There has, however, been a significant increase in the number of hospital-treated sports and recreation activity related injuries in Victoria. This study aims to describe the incidence of such injuries presenting to hospital Emergency Departments (EDs) in the state of Victoria, identifying activities with the highest risk of injury and factors associated with subsequent hospital admission.

Methods

This is a retrospective study of ED presentation records of 39 hospitals in Victoria between 2012/13 to 2014/15. A combination of coded data analysis and text searching was conducted to identify sports and recreation activity related injuries. Sports participation data from the Australian Bureau of Statistics was used to calculate injury rates and to identify sports with higher injury risks. Regression models were used to generate odds ratios (ORs) to assess the impact of sports type and demographics on the risk of subsequent hospital admission.

Results

Of the twenty most popular sports analysed, Australian football (AF) had the highest annual incidence of injury with a mean of 133 injury ED presentations per 100,000 population. It accounted for 26% of the top 20 sports related injuries and cost Victoria about $ 4.2 million annually in ED costs. The highest injury rates per participant were for motor sports, rugby league, and skateboarding/inline hockey/roller sports, respectively. Among sports injury ED presentations, the highest likelihood of subsequent hospital admission were observed for motor sports (males: OR=3.9, 95% CI 3.6-4.3 & females: OR=12.6, 95% CI 8.8-18.0) and horse riding injuries (males: OR=3.9, 95% CI 2.8-5.4 & females: OR=18.3, 95% CI 13.5-24.8); comparison groups were AF for men and netball for women. Compared with persons aged 15-24 years, those age 45 years and above were four times more likely to be admitted to hospital among both men and women.

Discussion and conclusion

The incidence of sports injury ED presentations varies across age groups, gender and type of sport activity. The sports injuries most frequently encountered in the ED do not necessarily indicate which sports have the highest injury risk on a per participant basis. Motor sports and rugby league have the highest injury rate per participant, while motor sports and horse-riding injury ED presentations are most likely to result in hospital admission.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
School students’ designs aimed at reducing injury potential at pedestrian level crossings: The TrackSAFE Education High Schools STEM Competition, Janine Ferris

TrackSAFE Foundation

Context

According to the Australian Institute of Health and Wellbeing, young people aged 0 to 14 represent eight percent of pedestrian serious injuries at level crossings in Australia, jumping to thirty one percent for the 15 to 24 years cohort (Henley & Harrison, 2009). Young Australians have the potential to contribute innovative ideas to help reduce these statistics, yet are not often considered as a safety design stakeholder. To address this, the TrackSAFE Foundation (TrackSAFE) issued a challenge to Year 7 to 10 students to enter the inaugural TrackSAFE Education Rail Safety Competition for High Schools: to use design thinking to create an innovative solution to make pedestrian level crossings safer using science, technology, engineering and mathematics (STEM) principles.

Objectives

TrackSAFE Education aimed to get students to think laterally about rail safety in their community and engage high schools through an authentic STEM task related to rail safety. The competition aligned with the Australian Government’s National Innovation and Science Agenda to improve student participation in STEM (Department of Education and Training, n.d.).

Key messages

Students were asked to investigate a pedestrian level crossing safety issue in their community and, working in teams, apply ‘design thinking’ (Empathise/Define/Ideate/Prototype/Test) to help their ideas come to life. They were then tasked with creating a three minute video pitch to explain how they used design thinking to create their idea; describe the safety issues and why they think they are important to address; explain the science behind their idea; and justify why they think their idea will help improve safety.

Discussion and conclusions

The competition ran between March and June. Entries were shortlisted to the top five in two age categories, and judged by an expert panel from engineering, human factors and safety standards backgrounds from TrackSAFE’s rail industry partners, plus the public via a People’s Choice Award. Whilst prizes were awarded to the winning teams, schools and teachers, the real value of this competition was the opportunity for students to make a difference to injury prevention, for a genuine purpose beyond their classroom walls.

References


Theme: Road and transport safety, Presentation Type: Oral
The Prevention of Back over Collisions, Brian Fildes  
*Monash University*

Collisions involving a reversing passenger vehicle and a pedestrian or another vulnerable road user are not particularly common in Western countries. There is a need to examine the extent of backover collisions worldwide to find solutions to these injurious collisions to vulnerable road users.

Research Objective

This study set out to examine the extent of backover collisions internationally and what can be done avoiding these relatively rare but injurious collisions in Australasia.

Methods and Data Sources

National crash data on backover collisions from the USA, Britain, Germany and four Australian States were used to examine the extent of injury in these regions. The types of reversing collisions into pedestrians were also examined from in-depth crash data provided by the UK and Germany. Furthermore, an analysis of backover collisions in Australasia between 2010 and 2013 was undertaken to estimate the effectiveness of reversing cameras in this region. Finally, the need for legislation and other commercial technological solutions currently under development, was also examined to show further benefits in reduced collisions and injury severity.

Results

Ten percent of reported pedestrian injuries involved a backover collision of which 7.4% of these involved a fatal outcome (for the pedestrian) and > 90% involved fatal and non-fatal injury. There was reasonable consistency across the five countries analysed. Moreover, they are highly under-reported as many occur on private roadways and pathways. Vehicles fitted with a reversing camera had a significantly lower risk of back over collision involvement than those without. Analysing the in-depth data showed 11-potential collision scenarios and police data in the UK revealed that the most common codes assigned by the police for backover collisions were “failed to look” for both drivers and pedestrians (42%). Some promising new technologies offer improvement in both the number of collisions and their severity of injury to those involved.

Discussion and Limitations

These findings are to the authors’ knowledge the first to show the extent of backover collisions in several western countries as well as an assessment of the effectiveness of rear-mounted cameras using real-world crash data. It is likely that the benefits could be further improved with additional sensory technologies.

Conclusion and Relevance

These new findings demonstrate the extent of backover collisions and the benefits of rear-mounted cameras for reducing backover collisions. As much of this trauma occurs to vulnerable road users, especially the elderly and young children, they confirm the need for widespread fitment of these devices as a valuable intervention in helping reduce this level of unacceptable road trauma.

*Theme: Injury in vulnerable populations, Presentation Type: Oral*
Influence of the Australian Sports Injury Data Dictionary and dissemination of its associated forms through Sports Medicine Australia, Caroline Finch
Federation University Australia

Aim: Injury prevention requires information about how, why, where and when injuries occur. The Australian Sports Injury Data Dictionary was an initiative developed in the mid-1990s to provide important guidance for sports injury data collection and reporting in Australia, for the first time. Subsequently, the peak national sports medicine authority, Sports Medicine Australia, developed and disseminated associated data collection forms through their website and sports trainer education courses to practitioners and the sports community (including peak sports bodies, local clubs and schools). This aim of this talk is to summarise and demonstrated the long-term value, usefulness and relevance of the Australian Sports Injury Data Dictionary and associated Sports Medicine Australia resources for injury surveillance activities.

Methods: A systematic search strategy identified both peer-reviewed and grey literature that used the Australian Sports Injury Data Dictionary and/or the Sports Medicine Australia resources, during 1997-2016. A text-based search was conducted within ten electronic databases, and image searches were made using Google Image search. Documents were categorised according to Australian Sports Injury Data Dictionary use as: a) collected injury data (commonly via the Sports Medicine Australia resources); b) informed data coding; c) developed an injury data collection tool; and/or d) reference only.

Results: Of the 36 peer-review articles, 92% directly referred to Australian Sports Injury Data Dictionary and 8% mentioned Sports Medicine Australia resources. The Australian Sports Injury Data Dictionary was mainly used for data coding (46%), reference (37%), data collection (17%) and for resource development (14%). In contrast, 86% of the 66 grey literature sources referenced, used, or modified the Sports Medicine Australia data collection forms. Very few grey literature items referenced the Australian Sports Injury Data Dictionary that underpinned those forms.

Discussion and Conclusions: This review demonstrates that the Australian Sports Injury Data Dictionary boasts a long history of use and relevance, especially by researchers. Its ongoing influence and use by practitioners has been facilitated by the ready availability and adaptability of the Sports Medicine Australia data collection forms. Injury prevention practitioners can be strongly engaged in injury surveillance activities when formal guidance is supported by user-friendly tools directly relevant to their settings and practice.

Theme: Translating research into practice and policy, Presentation Type: Oral
KEEPING DUCKY SAFE: How does upstream downstream approaches to injury prevention inform outcomes., Monica Finch
Ballarat Art Therapies

Context: Workshop participants prompted to think about and include victim/witness individual awareness, community response, education campaigns, risks and vulnerabilities, environmental factors and influences, social policies, treatment etc.

Objective: Explore vulnerably as a risk to injury, use symbolism and metaphor to explore risk and opportunities for prevention, discuss how preventative strategies differ as an up or down stream strategy.

Key messages: Keeping Rubber Ducky Safe

4 to 6 tables of 8 to 10 participants:

Case studies are placed on each table and read out or each person reads it quietly. Each table has a different case study or a different perspective of the same issue. For example:

Table 1; Case Study: Family Violence NO physical injury reported/physical injury reported.
Participants choose a person in the case study that they think is most vulnerable. They reflect on the prevention of injury to that person through the metaphor of the vulnerable duck. What does ducky need to stay safe?

Table 2; Case Study: Sporting activity with risks, no physical injury reported/physical injury reported. Participants think of a key figure in the case study and reflect on preventing injury through the metaphor of the vulnerable duck. What does duck need to stay safe?

Table 3; Case Study: A workplace incident with no physical injury reported/physical injury reported. Participants choose a figure in the case study and reflect on preventing injury through the metaphor of the vulnerable duck. What does ducky need to stay safe?

Discussion and conclusions: When art making is complete tables discuss what they have made, why they chose that person in the case scenario and what they have represented with the materials provided.

Then tables 1 & 2, 3 pair up and discuss if response to injury prevention shows different results to before or after an event. How does this inform our practice/ knowledge in our field?

Theme: Translating research into practice and policy, Presentation Type: Oral
Cracked Pots., Monica Finch  
Ballarat Art Therapies  

Context: Scientists, researchers and policy makers will come together in small groups. Working collaboratively groups we will reflect on our own practice and how this can influence how other sectors.

Objective: Using a pot/bowl as a symbol for wholeness, explore how 3 different sectors can work together to a unified approach in injury prevention.

Key messages: In this workshop, participants will work in groups of 3. Triads be given a ceramic bowl and will discuss that the bowl represents health and wholeness. The bowl/pot is unaware of an approaching injury, it’s just being a bowl, doing what bowls do! Group discuss the bowls uses, what attributes and values it has.

Working together decide to what are important aspects to injury prevention. List these on paper. When list is complete write it out in agreed order of priority.

Place bowl/pot in bag and smash it with a hammer. Empty contents (shards) onto a tray.

Using the materials provided, write chosen words from your list or make symbols of them on all the broken pieces (on both sides of the shards). When this is done work together glue the bowl/pot back together again.

Discussion & conclusions: Reflect on the process (going through wholeness- accident- repair- altered whole) with partner/s and then at tables. What was it like for you? What was it like working directly with the other sectors? Did the process inform you in a different way to cognitive approaches? Can art based activities inform science/ research and policies?

Theme: Translating research into practice and policy, Presentation Type: Workshop
Identifying opportunities for the prevention of fatalities relating to sport and recreation in Australia, 

Lauren Fortington
Federation University Australia

Background: In Australia, a lack of published data has limited understanding of the number and types of deaths associated with different sports and participation settings. There is demonstrable evidence from other injury settings that fatality data can be used to inform the development and implementation of safety measures for prevention.

Aims: The aim of this study was to identify the number and leading causes of deaths across different sport/recreation activities in Australia.

Methods: A case-series analysis using data from the Australian National Coronal Information System (NCIS). Cases included were ‘closed’ (i.e. with completed coronial investigation) in people of all ages who died between 2001–2015 inclusive, while participating in sport/recreation. The incidence rate (using population data from the Australian Bureau of Statistics), sport and broad cause of death were explored.

Results: There were 4791 fatalities, averaging 319 deaths per year. The incidence rate was 0.75 (0.73: 0.77) per 100,000 population per year. Most (88%) fatalities were in males, with a sex-specific incidence of 1.33 (1.29: 1.37) per 100,000 male-population per year. The cause of fatalities were most frequently cardiac-related (n=1858), drowning (n=1426) and blunt force trauma (n=925), though some overlapping causes (e.g. drowning and cardiac) need further investigation. Water-based locations (large area (e.g. lake), river/streams and beach/shoreline) were the main site of fatalities, with a substantial number of also occurring at sports-areas (outdoor and indoor), roads, houses and public areas. Almost half (47%) of all fatalities were in major cities and one quarter (25%) were in inner regional areas. The remaining fatalities occurred in outer regional areas (18%), with a small number in remote (4%) or very remote (4%) regions.

Discussion and conclusions: These results provide a first understanding of the people and activities most often associated with fatalities in sport/recreation across Australia. Clearly, drowning is a major problem, both with and without a cardiac contribution, and this is reflected by the promotion of water safety programmes nationally. However, there are also a substantial number of fatalities in non-water based activities and in organised sports settings (e.g. outdoor grounds, indoor centres), that warrant detailed investigation, working towards their prevention.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
Development of a search strategy for monitoring the media for football-related fatalities in Australia,  
Lauren Forthington  
Federation University Australia

Background. Fatalities in football are considered to be rare but they do occur. Documenting the occurrence of these fatalities is necessary to develop an understanding of the number of deaths, the people most at risk, and to identify opportunities for prevention. In Australia, there is currently exists no routine reporting of data of this nature. Media reports offer an opportunity for identifying the initial occurrence of a football-related fatality, as there is often strong community interest in these incidents. Before this can occur, detailed understanding of the terminology used in the media to report these fatalities is required.

Aim. The aim of this study was to identify the terminology most frequently used in online Australian news media coverage of football-related deaths.

Methods. Three databases were searched for online news media reports of people who died while participating in football (any code) in Australia between 2010-2016. Search terms included researcher-generated words and phrases that might relate to the death of a person participating in sport, including football codes (‘football’, ‘footy’, ‘rugby’ etc), the person (‘player’, ‘athlete’, etc), the incident (‘accident’, ‘tragedy’, etc), and the outcome (‘die*’, ‘death’, etc). A descriptive analysis of the terminology was undertaken to identify common language used.

Results. Thirty-four football-related fatalities in Australia were identified in 149 separate articles. The most frequent terms used in the reports were: Family; Club; Rugby; Football; Player; League; Died; Game; Death; Life; Loved; Hospital; Match; Young; Community; Playing; Friends; Sport; Heart; AFL [Australian Football League].

Discussion and conclusions. This study identifies common terminology used to report football-related fatalities in Australia. Numerous articles were identified on the basis of the term ‘death’ and its synonyms. However, these articles were not included as the term was most often used as a metaphor for other sport-situations (e.g. close matches being a ‘fight to the death.’) In contrast, the included studies frequently featured positive elements, in celebration of the ‘life’ of the deceased player. The findings suggest that a reliance on researcher-generated terminology alone will be insufficient to reflect media discourse, and lacking in specificity for prospective monitoring of football deaths for surveillance. The results provide an initial set of terms that can be used to optimise future media search strategies.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Rapid Oral Presentation (e-Poster)
Quad-bike related aeromedical retrievals in Queensland 2010 -2014, Richard Franklin
James Cook University

Background: Previous research highlights that injury rates increase with rurality in the state of Queensland. Furthermore, the type of injury and presentations differ from their urban counterparts. Quad-bikes are commonly used for agriculture work and recreation in rural and remote locations. Quad-bike accidents also represent a leading cause of unintentional deaths on farms. Of the 81 quad-bike related deaths that occurred in Australia between 2010 and 2014, 26 (32%) occurred in Queensland.

Aims: This research reviewed Queensland aeromedical data from 2010 to 2014 to explore the rate of quad-bike related aeromedical retrievals in the state. This process was facilitated by the development of a centralized coordination centre in 2006, which organises all aeromedical retrievals.

Methods: The overall aeromedical retrievals dataset was reviewed for cases relating to quad-bikes using the search terms – All Terrain Vehicles (ATV), quad and 4-wheel. Cases which included these terms in the clinical information were reviewed and all that related to quad-bike incidents were input into a separate SPSS dataset. Appropriate data custodian, Public Health Act and ethics approval have been obtained for use of data.

Results: Of the 93,185 aeromedical retrievals undertaken between 2010 and 2014, 11,576 were trauma-related (12.4%) and 277 were quad-bike related. This figure represents 0.3% of total aeromedical retrievals in the state. Males (79.3%) and those of working age (19-39 and 40-65 years, 33.2% and 29.6% respectively) were the most common patient groups requiring quad-bike related aeromedical retrievals. The majority of quad-bike related aeromedical retrievals were undertaken in outer regional locations (41.8%), followed by very remote (25.3%), inner regional (17.2%) and remote (13.2%). Half of all retrievals were: retrieved by fixed wing (52.7%), and primary retrievals (50.2%). Information regarding helmet use was only noted in 35 (13%) of the cases. Quad-bike roll overs and falls from quad-bikes were the main mechanisms noted when tasking quad-bike related aeromedical retrievals.

Discussion and Conclusions:

This data offers some preliminary insights into the characteristics of quad-bike related aeromedical retrieval undertaken in Queensland. This is only a small component of the overall quad-bike related medical cases. The data lacks some fidelity with regard to the situation that precedes the need for aeromedical retrieval; however from what is outlined the use of existing quad-bike trauma and riding injury prevention stratagems are warranted, for example, the use of helmets, age restrictions for riders, crush protection devices and communicating with others regarding destination.

Theme: Rural and remote injury prevention, Presentation Type: Oral
Exploring injury-related fatalities in Australia by remoteness, Richard Franklin
James Cook University

Background and Aims:

Remoteness of residence influences health. There is a need to develop appropriate strategies to prevent future injuries in rural and remote Australia and to also minimize the impact should they occur. Rural and remote areas have different industries, larger distances to transverse, dispersed populations, limited availability of medical facility infrastructure and associated emergency responding, thus making prevention challenging. The purpose of this epidemiological study was to examine the incidence and patterns of injury in Australia by remoteness area, as well as trends over time, in order to inform targeted injury prevention strategies.

Methods:

Cause of Death data from the Australian Bureau of Statistics (ABS) for the period 2006-2014 were obtained. Injury deaths were defined using the ICD-10-AM with an external cause coding between V00 to Y34. Remoteness of residence was determined using the Australian Standard Geographical Classification (ASGC) and Australian Standard Geographical Standard (ASGS) for data 2006 to 2008 and 2009-2014 respectively. Remoteness areas were classified as: Major Cities (MC), Inner Regional (IR), Outer Regional (OR), Remote (R) and Very Remote (VR). Estimated Resident Population data for each year of the study were obtained from the ABS. Cause-specific, age-standardised rates were calculated, as well as age-, gender- and cause-specific rates. Descriptive analyses were completed using SPSS; trends over time were analysed using STATA. Ethics approval was obtained (JCU HREC Approval # H6136).

Results:

There were 1,295,060 fatalities recorded; 77,615 (6%) were injury-related (crude rate: 38.58/100,000 pa). The majority of injury fatalities occurred in major cities (n=47699, 61.6%), but there were differences by remoteness; as remoteness increased, the crude injury fatality rate increased with remoteness (e.g. 68.8/ 100,000 pa VR). Pattern of injury varies with remoteness. For R and VR locations the leading and 2nd leading cause of injury fatality were: transport incidents (R: 18.2/100,000 pa; VR: 25.3/100,000 pa) and intentional self-harm (17.3/100,000 and 20.4/100,000 pa). In contrast, intentional self-harm accounted for the highest burden in MC (10.1/100,000), IR (12.2/100,000 pa) and OR (13.51/100,000 pa) areas.

Discussion and Conclusions:

Remote residents are more likely to die as a result of external injury mechanisms than their urban counterparts and have different pattern of injury. Evidence-based strategies that target higher risk groups of remote dwelling residents as well as the causes of injury are required. This research further substantiates the need for action and research to prevent injury-related mortality and improve the general safety for those living in remote Australia.

Theme: Rural and remote injury prevention, Presentation Type: Oral
Burn injury models of care: a review of quality and cultural safety for care of Indigenous children, Sarah Fraser
Flinders University

Background

Safety and quality, including cultural safety, in the systematic management of burn care is important to ensure optimal outcomes. It is not clear if or how burn injury models of care uphold these qualities, or if they provide a space for culturally safe healthcare for Indigenous peoples, especially for children.

Aim

The aim of this review was to critique the existing Australian and international publically available models of care analysing their ability to facilitate safe, high-quality burn care for Indigenous children.

Methods

Models of care were identified and mapped against cultural safety principles in healthcare, and against the National Health and Medical Research Council standard for clinical practice guidelines. An initial search and appraisal of tools was conducted to assess suitability of the tools in providing a mechanism to address quality and cultural safety.

Results

From the 53 documents found, 6 were eligible for review. Aspects of cultural safety were addressed in the models, but not explicitly, and were recorded very differently across all models. There was also limited or no cultural consultation documented in the models of care reviewed. Quality in the documents against National Health and Medical Research Council guidelines was evident; however, description or application of quality measures was inconsistent and incomplete.

Discussion

Gaps concerning safety and quality in the documented care pathways for Indigenous peoples’ who sustain a burn injury and require burn care highlight the need for investigation and reform of current practices.

Theme: Indigenous health and injury prevention, Presentation Type: Oral
Burn care for Aboriginal and Torres Strait Islander children in Australia – guidance and enactment of care, Sarah Fraser
Flinders University

Background

Burn injury is a significant burden for children across Australia; especially for Aboriginal and Torres Strait Islander children. Gaps concerning the safety and quality of existing models of care that prescribe best practice are evident. Furthermore, it is not clear if there are standardised guidelines to inform practice, nor whether these are relevant and appropriate for the care of Aboriginal and Torres Strait Islander children.

Aim

This study aimed to explore and describe whether clinicians in multidisciplinary paediatric burn teams around Australia use guidance documents and if so whether they are appropriate and useful for care of Aboriginal and Torres Strait Islander children.

Methods

Interface research methodology incorporating both Indigenous and Western biomedical research approaches was used to guide this research. Semi-structured interviews we conducted with eighty clinicians from multidisciplinary paediatric burn teams across six sites in Australia. Interviews were audio recorded and transcribed verbatim. Data were thematically analysed by Aboriginal and non-Indigenous researchers.

Results

Results revealed significant diversity in use of guidance documents, with some clinicians reporting their practice is informed by formal guidelines while others report being guided by their personal clinical experiences. For particular disciplines, for example social workers, burn care provision was guided by theoretical frameworks. In some burn services, burn care for Aboriginal and Torres Strait Islander children was guided by overarching policy documents that reportedly made provision of culturally competent care easier. This was not the case for all services. Differences exist in awareness of applicable jurisdictional or service models of care, and some clinicians recognised the need for the development of an overarching model of care.

Discussion

The findings demonstrate the need for clarification on what constitutes best practice guidance for burn care and development of clear clinical models of care or guidelines. Attributing importance to cultural competence with explicit guidance in the documents that do guide burn care may help facilitate service and clinician cultural competence.

Theme: Indigenous health and injury prevention, Presentation Type: Oral
Burn injury models of care: a review of quality and cultural safety for care of Indigenous children, Sarah Fraser
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Background

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Discussion

Gaps concerning safety and quality in the documented care pathways for Indigenous peoples’ who sustain a burn injury and require burn care highlight the need for investigation and reform of current practices.

Theme: Burns prevention and treatment, Presentation Type: Oral
Burn care for Aboriginal and Torres Strait Islander children in Australia – guidance and enactment of care, Sarah Fraser
Flinders University

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Burn injury is a significant burden for children across Australia; especially for Aboriginal and Torres Strait Islander children. Gaps concerning the safety and quality of existing models of care that prescribe best practice are evident. Furthermore, it is not clear if there are standardised guidelines to inform practice, nor whether these are relevant and appropriate for the care of Aboriginal and Torres Strait Islander children.

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The findings demonstrate the need for clarification on what constitutes best practice guidance for burn care and development of clear clinical models of care or guidelines. Attributing importance to cultural competence with explicit guidance in the documents that do guide burn care may help facilitate service and clinician cultural competence.

Theme: Indigenous health and injury prevention, Presentation Type: Oral
Elder and youth perspectives on unintentional injuries and culturally-specific interventions in a Western Canadian context, Tracy L Friedel
University of British Columbia

Background

This community-based participatory study focuses on the serious public health challenge of Indigenous unintentional injuries, the leading cause of death for Indigenous children, youth and young adults in Canada. Exploring how unintentional injuries are understood in a particular Indigenous context from the perspective of youth and Elders is crucial to supporting communities to envision culturally relevant interventions. This is in keeping with O’Neill’s (2016) notion of “safety risk intelligence”, a focus on culturally and historically informed educational initiatives that seek to involve youth as active participants.

Aims

Through the practices of storytelling nehiyaw [Cree] Elders and youth explore terms such as ‘injury’, ‘risk’, ‘safety’, etc. Inherent within the meanings and experiences that Elders and youth associate with these terms are the structural and processual underpinnings of historical dispossession, e.g. poverty, as well as the potentialities of restorative cultural practices that can form the basis of locally-driven health interventions.

Methods

Sharing circles and oral histories each are effective approaches for uncovering layered understandings of health-related phenomena. Youth have been trained in interviewing techniques and filming practices. In keeping with the notion of strength-based research, this study aims to enhance the resources and skills already present within communities to build individual and collective resiliency.

Results

By focusing on individual memories across generations, a more complete conceptualization of the nature of unintentional injuries as it concerns Indigenous youth is rendered. Additionally, there is increased awareness on the part of young people regarding the challenges faced by Elders (past and present). Links between personal experience and institutional and systemic issues are raised (e.g. racism) along with evidence of individual and community resilience in the face of oppressive conditions.

Discussion and conclusions

The process of sharing stories across generations is vital to community well being given the important exchange of wisdom and experience, and for how this serves to cultivate empathy and an ethic of care in young people. Important in the exchange of knowledge between Elders and youth are key place- and land-based understandings, or what we might think of as a participatory practice that is spatially embedded (Kesby, 2005). In stories told by nehiyaw Elders, place is the lens through which all relationships are understood – among other things, it is where the nehiyaw language emerges from, where stories of life and death are held, and the context from which important teachings are derived. These foundational teachings offer a way to think through injury prevention in culturally specific ways.
Theme: Indigenous health and injury prevention, Presentation Type: Oral
Background: There is a worldwide shortage of population data about non-fatal injury burden. The aim of this population-based, longitudinal study was to quantify patient outcomes in the first 5 years after injury.

Methods: 2757 adult (>17 years), major trauma patients registered by the population-based Victorian State Trauma Registry, injured between July 2011 and June 2012, were followed up by telephone at 6-months and 1, 2, 3, 4 and 5 years post-injury to collect patient-reported outcome measures including health status (EQ-5D), and return to work.

Results: 333 died in-hospital and a further 250 patients had died by 4-years. The mean (SD) age of participants was 41 (21) years, 73% were male, 89% were unintentional cases, and median (IQR) ISS was 17 (14-22). Road traffic injury (37%) and falls (32%) were common causes. At 4-years, 70% of those working/studying before injury had resumed work/study. Prevalence of problems on the EQ-5D items varied; 38% for mobility, 26% for personal care, 53% for usual activities, 46% for pain/discomfort and 35% for anxiety/depression. The adjusted relative risk of reporting problems at each follow-up time point differed with each item of the EQ-5D. Improvement to 2-years was evident for most outcomes, while improvement on the usual activities item was observed until 3-years. Anxiety and depression outcomes and pain outcomes showed improvement from 3 to 4-years post-injury.

Conclusions At 4-years post-injury, ongoing problems were prevalent. The data confirms the prolonged time course for recovery and supports the need to invest in interventions to prevent injury and to reduce long term burden.

Theme: Rehabilitation and trauma care, Presentation Type: Oral
Perceived injury risk among junior cricketers in Sri Lanka: a cross sectional survey, Prasanna Gamage
School of Health Sciences and Psychology, Faculty of Health, Federation University Australia

Background: Understanding injury risk perceptions among junior sports participants is an important element in shaping the development of appropriate safety behaviours from early stages. Previous work in Australian junior sport has shown that a perceived low risk of injury has an association with higher actual risk.

Aims: To investigate how Sri Lankan junior cricketers perceive their risk of injury when playing cricket.

Methods: A questionnaire based self-report cross-sectional survey was conducted among 48 district teams playing in the under-13 age category from across Sri Lanka. A previously validated questionnaire from Australia, was translated to Sinhala and Tamil languages and tested for content and face validity. Injury risk perceptions associated with: 1) playing cricket and other sports, 2) engaging in different cricket tasks by player position, and 3) playing in different ground conditions were assessed based on a 3-point Likert scale (‘no chance’, ‘a small chance’, ‘a high chance’).

Results: 365 players (age = 12.9±0.9 years) completed the questionnaire (response rate = 51%). The injury risk when playing cricket was perceived as: 4.9% ‘no chance’, 49.7% ‘a small chance’, 26.9% ‘a high chance’, and 18.4% ‘don’t know’. Injury risk when playing cricket (29.9%) was perceived to be greater than that for basketball (25.9%) and cycling (26.6%), but lower than that for soccer (58.8%) and rugby (72.6%). Fast-bowlers (43.3% high chance) and batsmen facing the fast-bowlers (59.9% high chance) were considered to have a greater injury risk than did spin bowlers or batsmen facing spin bowlers. Fielding in the closed-infield (54.4% high chance) was perceived as greater than fielding in the outfield (11.6% high chance). Playing on hard (74.2%), bumpy (76.6%) and wet (54.7%) ground conditions were more commonly identified as having high risk than playing on a grass field (7.1%).

Discussion and conclusion: This study provides insight to injury risk perception of Sri Lankan junior cricketers, a socio-economically different cricket population than has previously been investigated. The overall risk perception ratings made by Sri Lankan junior cricketers were logical and consistent with previous data from Australian junior cricketers. Comparative risk appraisals in different fielding tasks were not supported by evidence on injury mechanisms underlying fielding injuries. There is a need to educate junior cricketers as a means of modifying their incorrect perceived risk attitudes and beliefs.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
Developing Sinhala and Tamil language versions of the ‘Juniors Enjoying Cricket Safely’ injury risk perception questionnaire, Prasanna Gamage  
*School of Health Sciences and Psychology, Faculty of Health, Federation University Australia*

**Background:** Cricket is the most popular participation sport in Sri Lanka. Currently, there is limited knowledge about, and strategies for, injury prevention in this sport especially at the junior level. The Juniors Enjoying Cricket Safely (JECS) questionnaire was developed, validated and tested in an Australian junior cricket population to identify perceptions of cricket injuries and injury risks.

**Aims:** To cross-culturally adapt the original JECS injury risk perception questionnaire to the Sri Lankan context by translating it into Sinhala and Tamil languages (two main languages in Sri Lanka), and to test its validity and reliability.

**Methods:** The original JECS questionnaire was adapted to suit the Sri Lankan context and conditions. Standard forward- and back-translation to Sinhala/Tamil was carried out by two bilingual accredited translators and two final-year medical students, respectively. The back-translated English versions were examined to identify discrepancies with the original questionnaire, with Sinhala/Tamil questionnaires revised until agreement reached. The Sinhala/Tamil questionnaires were examined for face validity (language accuracy, clarity and age-appropriateness) by two language school teachers. The questionnaires were then tested twice, two weeks apart among a group of Sinhala (n=24) and Tamil (n=30) junior cricketers to examine the reliability using test-retest methods (age = 11-15 years). Test-retest consistency was calculated using Cohen’s Kappa (κ) statistical method.

**Results:** Back-translation identified several words and phrases that were difficult to translate with language accuracy (e.g. slip fielder, boundary line). Several areas were identified and adjusted following concerns with clarity and age-appropriateness (e.g. cricket rules). In the test-retest, both Sinhala and Tamil questionnaires showed 100% agreement in demographic data questions, and 88-100% agreement in questions related to participation in cricket and injury history. Test-retest reliability results showed 76% of Sinhala and 84% of Tamil injury risk perception questions had substantial (κ = 0.61-0.8) and almost perfect (κ = 0.81-1.0) agreement. Only 2 questions (5%) in the Sinhala questionnaire had low test-retest reliability (κ <0.4) and were reconsidered for modification.

**Discussion and conclusion:** Two conceptually equivalent and cross-culturally adapted versions of the JECS survey questionnaire, in Sinhala and Tamil languages, were produced. Psychometric evaluation revealed an acceptable agreement and reliability of most injury risk perception questions. These questionnaires will be used in Sri Lanka, for the first time looking at injuries in junior cricketers nationwide.

**Theme:** Sports injury prevention and rehabilitation, **Presentation Type:** Rapid Oral Presentation (e-Poster)
Policies and guidelines for the prevention of exertional heat injury published by sports organisations in Victoria, Australia: a qualitative content analysis, Prasanna Gamage
School of Health Sciences and Psychology, Faculty of Health, Federation University Australia

Background: Exertional heat injuries (EHI) pose important health risks among Australian sports participants, particularly during the summer months. Consequently, sports organisations have a responsibility to educate and implement appropriate preventive measures to ensure safety of their participants.

Aims: The objective of this study was to conduct a document and content analysis of heat injury related documents published by peak sports organisations in Victoria, Australia, in order to determine their scope and evidence base against current best practice recommendations.

Methods: Official documents relating to EHI were identified through a search of 21 Victorian sports organisation websites, supplemented by a general internet search. The content was evaluated against current best practice recommendations presented in two very recent international position statements on prevention and management of EHI in five consensus areas: 1) definitions, signs and symptoms; 2) risk factors; 3) preventive recommendations; 4) event organisation; 5) first aid and treatment.

Results: A range of document types addressing EHI were identified (n=25), including specific heat policies, match-day guides, and rules and regulations. Recommendations about prevention measures were the most common information presented. Most documents provided information on hydration as a preventive measure, but the emphasis on the importance of cooling strategies and heat acclimatisation were inadequate. Most documents recommended one or more strategies for event modification and cancellation on days of extreme heat, but the decisions were generally based on variable ambient temperature cut-off points. Details on EHI, including a definition, symptoms/signs to look out for, and common risk factors (beyond humidity/high temperatures) were lacking in most documents.

Discussion and conclusion: There is considerable variation in sport organisations’ formal heat-related documents with regard to their content and quality of information, and recommended modification or countermeasure strategies to prevent EHI. Projected ongoing climate changes in Australia, with the potential for adverse health impacts on sports participants, requires a stronger and more consistent approach to EHI prevention that is better reflective of the current evidence. The highlighted limitations and gaps in EHI documents will provide a guide to revise and improve these resources to match the current evidence based recommendations. The present analysis highlights the necessity of a comprehensive and updated guideline that can be adapted by community sports organisations to suit their sport and playing context for development of EHI policies and guidelines.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
Safer Summer - public perceptions and efficacy of a 3-year enhanced speed enforcement programme,
Robyn Gardener
Accident Compensation Corporation

Safer Summer is a social marketing and enforcement partnership between New Zealand Police (Police), Accident Compensation Corporation (ACC) and the New Zealand Transport Agency (NZTA).

The Safer Summer programme began with a pilot campaign in 2014. Three campaigns followed from 2015 to 2017, each evaluated and each building on the findings from the previous summer’s campaign. This paper reviews the programme from the pilot through to the end of the final campaign after Christmas 2017.

Safer Summer was designed to provide a tactical social marketing programme which sat alongside Police’s targeted summer holiday enforcement campaigns. The purpose was to let the public know of Police intentions to enforce a lower threshold for speeding over the busy public holidays during the summer and to encourage reduced driving speeds when traffic was heavy over the busy summer holiday season. Lower speeds were expected to result in safer travel with reduced numbers of crashes and fewer fatal and serious injuries.

The right messaging was crucial as the Safer Summer programme sat below the national strategic behaviour change programme managed by NZTA. To make sure Safer Summer was complementary to the national campaign messaging, the same advertising consultants (Clemenger/BBDO Touchcast) were commissioned and the team worked closely with Police, ACC and NZTA.

Evaluating each campaign year-by-year provides up-to-date information on what is working and what isn’t. These learnings enabled the team to make changes as the programme progressed to make sure that what was delivered resonated with our customers and delivered results.

This presentation is the review of Safe Summer 2014-17, following the progress from the pilot to the final campaign in 2017. We follow a variety of methods of engaging with the driving public; from a major public launch in 2014, billboards, social media, advertising, in-car children’s games, contributions by Z-Energy, IAG Insurance and TR Group, through to the final 2017 Holiday Haiku initiative bringing poetry and iconic New Zealand poet Sam Hunt on-board to spread the safer speeds message.

We will discuss the shift in public perceptions from “enforcement as revenue-gathering” to “enforcing for safety”. We will investigate a segmentation of the driving public to understand the messages, channels and touch points for each different group of drivers.

Share the journey and take the learnings from this programme using social marketing, advertising, children and poetry to engage the public with Police enforcement.

Theme: Road and transport safety, Presentation Type: Oral
Comparing work-related injury hospitalisations and workers’ compensation claims in Queensland,
Caroline Gillespie
Centre for Accident Research and Road Safety - Queensland (CARRS-Q), Queensland University of Technology

Background

The burden of work-related injury in Australia is high, and quality data are required to inform effective prevention strategies and evaluate intervention programs. Declining trends in work-related injuries have been reported in various jurisdictions, however questions have been raised about source data accuracy due to increasing barriers to complete surveillance. Workers’ compensation data are the principal source of data for work-related injury surveillance in Australia. However, trends in workers’ compensation claims are influenced by trends in employment practices and workers’ compensation coverage. Furthermore, trends determined by workers’ compensation data may also restrict identification of minor injuries relative to severe injuries.

Aims

The aims of this study were to identify work-related injury patterns and trends in hospitalised data in Queensland, and compare the identified patterns and trends with those recorded in the Queensland Workers’ Compensation Data Collection (QWCDC).

Methods

Retrospective analyses of data from the Queensland Hospital Admitted Patient Data Collection (QHAPDC) and the QWCDC were completed for a six-year period, from 2010 to 2015, inclusive. Cases coded with a ‘Workers compensation’ funding source, and/or ‘Working for income’ ICD-10 activity code were included in the analysis. Hospitalised injury and workers’ compensation claim patterns and trends were identified.

Results

Work-related injuries accounted for 7% (N=54683) of all hospitalised injuries (N=759717). Workers’ compensation was the funding source for 73% of the work-related injuries. The work-related hospitalised injury frequency rate per 100 000 population increased from 180 in 2010 to 209 in 2015. In contrast, the workers’ compensation claim frequency rate declined, from 1699 in 2010 to 1240 in 2015. Increasing injury rates per 1000 industry employed persons were consistent in the agriculture, fishing and forestry industry in both datasets. Decreasing injury rates were observed in the mining industry according to both datasets. In contrast, injury rates in all other industries declined in the workers’ compensation claim rate, but stable or increasing trends were observed for work-related hospitalisations. Mechanisms of work-related hospitalised injury that increased over the time included falls, transport, cut/pierce, and machinery.

Conclusions

Hospitalised injury data present a different historical picture of injury patterns to workers’ compensation data in Queensland. Admitted patient hospital data can be used to complement workers’ compensation claim data in Queensland to provide a more complete surveillance of work-related injury. Use of data with accuracy that is less
likely impaired by employment contracting and insurance coverage trends could better inform program evaluation, injury prevention strategies and policy.

*Theme: Workplace injury and safety, Presentation Type: Oral*
Regional variation in treated mental health conditions and persistent pain after transport injury across rural and metropolitan Victoria, Melita Giummarra
Monash University

Background: Injury is a leading cause of disability in Australia, and 15 to 25 percent of persons develop chronic, disabling pain, and/or secondary mental health conditions. Understanding regional variations in access to treatments and services has gained momentum in population health research; however, use of these methods to understand treated persistent pain or mental health conditions has received little attention.

Aims: This study aimed to identify and understand variations in treated persistent pain and mental health conditions after transport injury. The study adopted Andersen’s Behavioral Model of Health Service Use, which emphasises that predisposing (e.g., age, sex, attitudes towards treatment), enabling (e.g., residential region, financial resources) and need factors (e.g., trauma and injury-related characteristics) impact on access to health services.

Methods: Transport injury claimants with the Victorian Transport Accident Commission (TAC, n=78,624), injured 2008 and 2013 were included. TAC is a no-fault system that pays for income replacement, clinical and domestic services to support recovery and independence, and lump sum compensation after transport injury. Data included client demographics, injury, hospital admission, and payments for income replacement and medical and health services and treatments. Treated mental health conditions and persistent pain, between 3 and 24 months post-injury, were identified from payment records in accordance with recommendations from an expert advisory group. Analyses examined (a) factors associated with treated mental health conditions or persistent pain, and (b) regional variation in incidence of treated conditions across local government areas (LGAs).

Results: The incidence of treated mental health conditions was 3.5%, and persistent pain was 7.2%. Incidence of both conditions was markedly lower in rural versus metropolitan regions (Mental health: 95% CI: 0.59, 0.72; Persistent pain: 95% CI: 0.51, 0.59). In rural LGAs (n=20,730) regions that consistently had higher incidence of treated secondary conditions all had moderate-high socioeconomic advantage, whereas metropolitan LGAs (n=57,069) that had higher incidence all had low to moderate socioeconomic advantage.

Discussion: There is marked regional variation in treated mental health conditions and persistent pain after transport injury. We speculate that differences in health literacy and service availability, claim lodge behaviour, individual financial resources and attitudes towards seeking treatment across rural and metropolitan Victoria play a major role in access to treatment for mental health and pain. Ultimately, in order to attenuate the negative psychological, occupational and social impacts of injury further research is required to understand and address the factors impacting on access to health services after injury.

Theme: Rehabilitation and trauma care, Presentation Type: Oral
The nature and burden of occupational injury among first responder occupations: A retrospective cohort study in Australian workers., Shannon Gray
Monash University

Background: Workers in first responder (FR) occupations are at a heightened risk for workplace injury given their high exposure to physical and psychological hazards. These include heavy lifting, vehicle accidents, physical altercations, and exposure to drug or alcohol-affected people, extreme temperatures, communicable diseases, chemicals, trauma, and violence.

Aims: This study sought to (1) characterise the occupational risk of injury; (2) determine factors associated with injury; and (3) characterise the burden of disability arising from injury in police, ambulance officers, fire and emergency workers compared with other occupations.

Methods: A retrospective cohort of 2,439,624 claims (including 65,003 from first responders) occurring in a nine-year time series (July 2003 to June 2012) were extracted from the Australian National Dataset for Compensation-Based Statistics. Cases aged 16-75 years working 1-100 hours per week pre-injury were included. To determine risk of making a workers' compensation (WC) claim, regression models were generated by age, gender, occupation and injury type. Burden of injury was calculated using number of claims, duration of time lost and the number of covered workers.

Results: The risk of making a WC claim among FR occupations was more than 3 times higher than other occupations. Risk of claiming was highest among female FRs and those aged 35-44 years. Ambulance officers had the greatest risk of upper-body MSK injuries and fire and emergency workers the greatest risk of lower-body MSK injuries. The risk of psychological injury was elevated for all FR occupations but highest among police officers. The total burden of injury expressed as working weeks lost per 1000 workers was also highest amongst police.

Discussion and conclusions: First responders record significantly higher rates of occupational injury claims than workers in other occupations. There is a differential pattern of injury among FR occupations. Injury prevention efforts should reflect these differences and be targeted to occupation specific patterns of injury.

Theme: Workplace injury and safety, Presentation Type: Oral
Using Interactive Augmented Reality to Demonstrate Injury Risk to Children in Simulated Road Environments, David Gribble
Constable Care Child Safety Foundation

Road trauma is the leading cause of death for children in WA, and the second leading cause of hospitalisation for serious injury. As an innovative strategy to address this issue, Constable Care Child Safety Foundation (CCCSF) developed an experiential early-intervention centre designed to help children become more aware of their travel surroundings and other road users, and to assist them in developing safer transport-related behaviours.

Based on the best-practice early education principles of learning through play and simulation, CCCSF, the WA Department of Education and key community and corporate partners, built WA’s only road Safety School, where children aged 4-11 years can practice road and public transport safety skills in a simulated urban environment that links WA classroom curriculum resources to practical skills training outcomes.

The 4,000 square metre $1.7 million Safety School includes a classroom, railway station, train and bus models, fully functional road layout, including working traffic lights, rail crossing boom gates and pedestrian maze, push-button pedestrian crossings, school zone, bus stop, roundabout, road signage and shared use bike path layouts. School groups of up to 60 students attend twice daily undertaking practical cycling education and augmented reality-enhanced pedestrian risk experiences.

A tablet-based app was developed that allows children to see augmented reality characters involved in travel-related risk situations using the tablet camera at custom Wi-Fi enabled bollards located throughout the site. The app was initially developed to provide a goal-focused reason for pedestrian movement around the centre, but then became a key teaching and learning vehicle through the inclusion of interactive decision-making in relation to portrayed risks such as road crossing, school zone, bus stop and rail platform safety. A “gamification” approach was taken as a motivation strategy to reward students for correctly identifying risk. Separate experiences tailored to younger (4 to 7 years) and older (8 to 11 years) children were developed, offering different risks appropriate for their stage of travel independence. Teachers control the experience for their students, monitoring which students have successfully completed the learning exercises and accessing additional context-specific teaching notes to allow them to enhance the experience further for their class.

Visiting school groups complete tailored exercises in-class from the SDERA road safety resources before the excursion, and additional exercises after they return to school, to allow the excursion to promote and reinforce curriculum theory learning. Pre and post measurement of student knowledge, attitude and intent-to-behave is undertaken to measure excursion impact.

Theme: Road and transport safety, Presentation Type: Oral
Hugely popular in the early 1980’s, the Your Call program re-imagines the engaging "choose your own adventure" books as a series of interactive films for a new online audience of young people. Focusing on youth issues such as alcohol and drug abuse, violence, car theft and joyriding, each film is designed to be an immersive short story that allows the viewer as the "point of view" participant, to make decisions throughout that change the way the film plays out, resulting in a range of different endings.

Video annotations technology is used to create seamless transitions from decision to decision, with the aim being to deliver a continuous and uninterrupted sense of narrative. Seeing “what would have happened” if you’d done something differently is a key aspect of these films, with each film designed to allow the viewer to go back through the story and make different decisions to see the outcome.

The Your Call project is youth driven, with each new story idea identified through a secondary school competition that allows young aspiring film makers to work with WA Screen Academy professionals to turn their story concept into a professional interactive product. Resulting films are promoted strongly via social media campaigns to a youth audience, with reach and views captured for evaluation purposes.

Four films have been released to date since 2015, with a fifth school-based competition in 2017 currently underway and expected to result in the first virtual reality film in the series, due for release early in 2018. The Your Call program is an extension of the organisation’s Theatrical Response Group live interactive theatre approach in secondary schools, which uses improvisational theatre to allow students to explore youth risk scenarios and make decisions to improve adverse outcomes.

Theme: Youth and substance related injury, Presentation Type: Oral
Theatrical Response Group: Using Forum Theatre to Empower Secondary School Communities to Discuss Risk and Safety Issues, David Gribble
Constable Care Child Safety Foundation

Using internationally recognised Forum Theatre as a best practice approach, and taking place within secondary schools over a 10-week term, the objective of the TRG program is the empowerment of young people to creatively explore safety, crime prevention or mental health concerns, identifying strategies for addressing them and practicing constructive ways to resolve them within their wider community. Issues addressed are those currently facing the school, which ensures interest and commitment from students and teachers, and to date has included topics such as alcohol abuse, cyberbullying, domestic violence, cultural intolerance, methamphetamine use, bias experienced by LGBTI students, and healthy versus unhealthy relationships.

Focusing on the creative process, the facilitator leads a core group of students in a process of collaborative inquiry, and then explores with them how their experiences can be represented in performance scenarios. The participants and TRG facilitator work together to construct scenarios that illustrate the issue, culminating in performances for the students’ peers, parents and siblings. Working outwards in this way from the core student group involved, to a wider student peer group, to a whole-of-community performance, TRG programs assist in creating a ‘ripple effect’ that triggers meaningful discussion about the issue across the school’s broader community. Piloted in 2014 with 100 students from three secondary schools, TRG programs are now undertaken with 10 or more schools each year across the wider Perth metropolitan area.

An aspect of the international movement known as Theatre of the Oppressed, Forum Theatre is an approach that turns passive audiences into active participants in order to explore difficult community issues in a safe environment. Presenting a short scenario that ends with an adverse outcome, the facilitator and actors work with the audience to revisit the decisions made and actions taken by the characters in an attempt to identify alternatives that would lead to a better result. The audience can propose different dialogue and behaviours which the actors then improvise, or audience members can take over and act out their ideas themselves. First conceived in Brazil, Forum Theatre has been shown in numerous studies to have a positive influence on real-world behaviours.

An Edith Cowan University study of the program in 2014 found that the benefits for students, and schools who took part were many, including changes in knowledge, attitude and behaviour, and improvements in peer and teacher-relationships. Subsequent data gathered from further intensive processes has reinforced these initial findings.

Theme: Other, Presentation Type: Workshop
Effectiveness of OPDs in Preventing Serious Chest and Other Injuries In Quad Bike Rollovers, Raphael Grzebieta
University of New South Wales

Background: Around 15 to 20 riders killed with around 1200 hospital presentations annually resulting from Quad bike riding in Australia. A number of safety stakeholders have called for the fitting of Operator Protective Devices (OPDs) and two states have provided a rebate for the purchase of OPDs in order to reduce chest injury and asphyxiation deaths as well as serious injuries occurring in rollovers that make up 70% of crashes.

As a result, TARS UNSW sponsored by SafeWork NSW have carried out an independent epidemiological based survey of the safety experience of Australian and New Zealand (NZ) Quad bike riders and the safety performance of Quad bikes fitted with and without an Operator Protective Device (OPD) in the event of a rollover crash in the workplace.

Aims: The main objective of this survey was to identify operational characteristics and assess the risk factors and benefits associated with the use of Quad bikes and OPDs when used in a typical workplace environment. Quad bikes both fitted and not fitted with an OPD were studied, and in particular the in-field performance of the QuadbarTM or ATV LifeguardTM OPDs were assessed.

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

i) survey of operations managers and collection of 20 years of event data, ten years pre and post installation of OPDs, from a major ‘Quad Bike Tour Company’ in Australia operating 100 Quad bikes servicing around 25,000 recreational patrons annually;

ii) ‘Fleet Managers Survey’ of 12 Australian and 4 NZ company Quad bike fleet managers operating a total of 436 Quad bikes with and without OPDs;

iii) Individual Workplace Rider Survey of Quad bike riders, with responses from 1546 riders (712 Australian and 827 NZ).

Results: Quad Bike Tour Company survey indicates major reduction in injuries pre and post 2005 installation. Fleet Managers Survey indicates riders were almost six times more likely to be more seriously injured and almost 1.5 times more likely to be hospitalised riding without an OPD. Individual Workplace Rider Survey indicates fitting a Quadbar or Lifeguard OPD to the Quad bike reduces risk of being hospitalised by 4 times with increasing severity of a chest related rollover crash.

Discussion and Conclusions: From all the in-field data collected for sub-surveys (i), (ii) and (iii) on balance OPD’s appear to be effective in regards to reducing serious chest injuries as well as rollover related serious injuries.

Theme: Workplace injury and safety, Presentation Type: Oral
WHAT COULD A ROAD SAFETY STRATEGY FOR VICTORIAN MUNICIPAL ROADS LOOK LIKE?, Ken Hall
KBHALL Pty Ltd

In Victoria between 2006 and 2015 fatal and serious injury crashes on municipal roads reduced by only 23% while those on arterial roads reduced by 32%. Over this period the majority of state funds for infrastructure treatments have been spent on arterial roads as the higher volumes and relatively low kilometres compared to municipal roads meant that the concentration of crashes (crashes per kilometre) is more likely lead to cost-effective treatments. Current crashes on municipal roads, the potential areas of growth of crashes and existing approaches by municipalities were analysed to investigate the possibility of a strategy for municipal roads that could be cost effective, conforms to Safe System principals (aiming to eliminate or dramatically reduce fatal and serious injury crashes for the target group/location) and is consistent with municipalities' other strategies to improve liveability for their residents. It was found that potential major target areas on municipal roads of pedestrian, bicycle, crashes on residential streets, crashes on 60km/h urban municipal roads, motorcycle crashes (particularly on unsealed rural roads) and run-off-the-road on curve crashes in rural areas are often confined to a limited number of municipalities and possibly limited road lengths. Possible infrastructure, speed, vehicle and behavioural programs that could be consistent with other municipal objectives and Safe System principles were investigated for their potential cost-effectiveness and examples of current approaches that have been employed by various municipalities identified.

Theme: Road and transport safety, Presentation Type: Oral
The six thinking hats of evidence based community Injury Prevention and Safety Promotion Programs,

*Dale Hanson*

*James Cook University*

Context

Six “thinking hats” provide unique insights to support the implementation of community injury prevention and safety promotion programs:

- Injury prevention
- Strategic analysis / risk assessment
- Population health
- Safe systems
- Community development.
- Safety promotion

Objectives

By discussing how the “thinking hats” of injury prevention and safety promotion inform the Pan Pacific Safe Community indicators, the authors aim to promote better understanding of how communities can apply best evidence in their community programs.

Key messages

To deliver measurable population health outcomes community safety promotion coalitions and researchers require shared understanding of why and how evidence based population health and community development practice is best applied in community safety promotion programs.

Discussion and conclusions

The Safe Communities model utilises specific criteria, a process of peer review and designation to focus the attention of community coalitions on critical elements of effective practice. However, this assumes communities and researchers have a clear and practical understanding of how evidence based community development and population health practice can be strategically combined to design effective community safety promotion programs capable of delivering population health outcomes that can be implemented under real world conditions.

The Pan Pacific Safe Communities Network identifies two indicators of best practices in community development;

- Indictor 1 - Community leadership and participation;
- Indictor 6 - Communication and networking;

and four indicators of best practices in population health;
• Indicator 2 - Comprehensive programs providing sufficient reach to the target population;
• Indicator 3 - Evidence-based, pragmatic, risk analysis and priority setting;
• Indicator 4 - Informative data systems;
• Indicator 5 - Program evaluation.

Applying the “thinking hats” of injury prevention and safety promotion to the Pan Pacific Safe Communities Network indicators may help communities and researchers develop a shared understanding of how evidence based public health practice and community development practice inform the development of community injury prevention and safety promotion programs capable of reducing physical and social harms related to injuries in real world conditions.

Theme: Translating research into practice and policy, Presentation Type: Workshop
John Snow’s investigation of the 1854 cholera outbreak in London is portrayed as a classic example of epidemiology informing real world implementation.

The public discourse regarding cholera in Victorian London was more fraught than is generally appreciated today.

Snow suspected that cholera was transmitted by contaminated water. At a time when disease was believed to be spread by miasma (foul air), Snow’s views were revolutionary.

Snow’s story will be retold in the person of his friend and colleague Rev Henry Whitehead. 600 of Whitehead’s parishioners died in the epidemic. Though initially skeptical of Snow’s theories, he investigated the outbreak using his strong network of relationships with the people of Soho, identifying the sentinel case and source of contamination of the Broad Street Well.

Snow had died when cholera returned to London in 1865/66, leaving Whitehead the main authority on the Broad Street outbreak. Whitehead worked with the Government Statistician William Farr’s staff to identify the source of the outbreak. This time Farr was convinced and took up the cause.

Arguably, the real driver for reform may have been political. It was not until the “big stink,” when the heavily contaminated Thames became so disgusting that it threatened to close the newly opened House of Commons, that politicians found the motivation to pass legislation ensuring clean water.

The ferocious public discussion regarding cholera in Victorian England has many parallels with contemporary public health debates. While Snow’s theories have subsequently been proven, he did not win the argument. Others who were more politically savvy and socially better connected did that.

“Dr Snow’s views on cholera,” said a medical friend to me in 1855, “are generally regarded in the profession as very unsound. If that be the case,” I replied, “then heresy may be as good a thing in your profession as some of you are apt to suppose it is in mine.” Reverend Henry Whitehead (1825-1896).

Theme: Translating research into practice and policy, Presentation Type: Student Program Presentation
A preliminary investigation into field hockey face and head protection systems, Gabrielle Harradine
University of Technology Sydney

Background: Field hockey is a sport that is very familiar with injuries to the head and face, sustained through contact with either the ball or a stick. The death of Australian cricketer Phillip Hughes marked a turning point for Australian cricket, as an inquiry into his death was launched and subsequent changes to the helmets worn by batsmen were made. Many field hockey players have died from head injuries sustained during the game, as well as countless studies conducted into these incidents and non-fatal injuries, however the global hockey community is yet to make changes to better protect players.

Aims: This project investigated current interventions which reduce the likelihood and severity of facial and head injuries suffered during a field hockey match. The project also explored new alternatives to further reduce the chance of serious injury and the impact of contact on the face and head, such as re-designing the face masks which are currently worn on penalty corners. It is hoped that the findings of this report will assist the hockey community in ensuring player safety for the future of the game.

Methods: A test rig was developed using an automated hockey ball firing machine which shot balls at the mask whilst it was attached to a test dummy head. High speed cameras tracked the speed of the ball and other sensors collected other useful data such as the acceleration of the head. Initial testing was performed on face masks currently available on the market. The data from these tests was compared to that from secondary testing which was conducted on a new mask design, generated as a part of this project.

Results: The investigation showed that the masks performed in a manner not adequate for face and head protection from hockey balls travelling at high speeds, as associated with penalty corners. The deformation of masks currently available on the market and the potential for injury to the face under this impact was surprising and concerning.

Discussion and conclusions: The findings from this investigation suggest that the generation of an Australian standard for face masks is a crucial step that needs to be made, in order to improve player safety in field hockey. Field hockey must follow the lead of other sports by conducting further investigations into their equipment. A balance between an ergonomic design that protects the wearer but is not greatly detrimental

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
Injury in older people with mild cognitive impairment, Lara Harvey
Neuroscience Research Australia

Background

Mild cognitive impairment (MCI) is conceptualised as an intermediate state between normal cognitive ageing and dementia. In Australia, there are currently over 400,000 people living with dementia, and the estimated number of individuals with MCI far exceeds the number with dementia. Previous research has shown that people with dementia have almost double the rate of injury-related hospitalisations and poorer health outcomes than their age-matched cognitively intact peers. No research to date has explored injury-related hospitalisations in people with MCI.

Aims

To describe the injury profile, hospitalisation rates, and health outcomes for older people with MCI, and determine whether these differ from those with normal cognition and those with dementia.

Methods

Participants were 867 English-speaking community-dwelling 70-90 year old individuals enrolled in the longitudinal population-based Sydney Memory and Ageing Study (MAS), who underwent comprehensive neuropsychological assessments at baseline, and at 2, 4 and 6 years’ follow-up. Cognitive status was classified into normal cognition, MCI and dementia at each assessment. MAS records were linked to hospital and death records to identify injury-related hospitalisations and outcomes for the 2-year period following each assessment.

Results

There were 335 injury-related hospitalisations for participants over the study period; 222 (25.6%) participants had at least one injury-related hospitalisation. The injury-related hospitalisation rate for participants with MCI (63.0 [95%CI 51.6-74.4] per 1000 person-years) was higher than for people with normal cognition (39.3 [95%CI 32.4-46.1] per 1000 person-years) but lower than people with dementia (137.1 [95%CI 87.2-186.9] per 1000 person-years). Of the 117 hospitalisations for people with MCI, the majority (93, 79.5%) were as a result of falls; 8 (6.9%) resulted from transport accidents. Non-fracture injuries of the head (31, 26.5%), forearm fractures (12, 10.3%), hip fractures (10, 8.6%) and lumbar vertebra fractures (10, 8.6%) were the most common types of injury. There were no differences in type of injury between people with normal cognition and those with MCI; people with dementia had higher proportion of hospitalisations for hip fracture (19.2%, p=0.0297). There was no difference in injury-related 30-day mortality between people with MCI, normal cognition and dementia (2.6%, 3.9%, 3.5% respectively, p=0.4677).

Discussion and conclusions

These findings suggest that older people with objectively defined MCI are at higher risk of injury-related hospitalisation than their cognitively intact peers, but lower risk than people with dementia. Further research is required to determine which cognitive domains (attention, language, executive function and memory) contribute to this increased risk.

Theme: Injury in vulnerable populations, Presentation Type: Oral
The impact of a pre-injury cancer diagnosis on the cost of work-related injury claims, Jane Hayman
Victorian Injury Surveillance Unit

Background: A cancer diagnosis can affect many age groups in the workforce, but as the risk of cancer increases with age the impact of this disease on work-related injury claims is particularly relevant in the context of the ageing working population in Australia. This study was part of a Victorian data linkage study of hospital admission data and work-related injury claims records; the overall purpose was to establish the impact of pre-injury physical health and health service use on injury and claim outcomes.

Aims: The current study aims to investigate the impact of pre-existing cancer on the direct cost of recovery, in terms of income compensation, hospital stay, medical and paramedical treatment cost and legal service utilisation. A further aim is to investigate whether potential differences in costs of claims between those with pre-existing cancer and other claimants can be explained by injury type, demographics, employer characteristics or other factors.

Methods: Analysis will be undertaken of a Worksafe Victoria data set of workers compensation claims for injuries that occurred in 2008/09: 49,203 claims were made by 45,957 injured workers. Claims data were linked with Victorian Admitted Episodes Dataset (VAED) hospital admissions data for the five year period prior to occurrence of the work-related injury: there were 33,760 admissions in the pre-injury period. Pre-existing cancer was defined as having a cancer-related illness recorded anywhere in the ICD-10-AM coded diagnosis codes contained in the linked hospital admissions data. Analyses will compare the injury rehabilitation cost of injured workers with and without cancer using regression models.

Results: There were 1856 injured workers with pre-existing cancer. Analysis is ongoing but preliminary results show that compared to other claimants, those with pre-existing cancer were more likely to be employed as Managers (16% cf 6%) and they were more likely to claim for a Mental disease (13% cf 7%). Total costs of claims for those with pre-existing cancer were significantly lower than for other claimants, particularly in relation to costs of legal services.

Conclusions: It is hoped that the results will demonstrate the utility of knowledge about pre-existing medical conditions in terms of predicting claim outcomes among those with a particular chronic disease. This will provide a knowledge base for the development of interventions and service provision to injured workers that will result in better injury outcomes.

Theme: Workplace injury and safety, Presentation Type: Oral
Nipper’s perception of their surf swimming competence. 

Amanda Higgerson
Federation University Australia

Abstract for Oral Presentation:

Background:

Death by drowning is recognised as a serious problem which is challenging to address as factors contributing to drowning are varied and contextual. The Australian Water Safety Council recommends a life-stage approach to prevention and identifies children aged 0-14 years as one target group. Enhancement of swimming competency and water safety knowledge has been identified as one possible preventative strategy to reduce drowning risk for some in this group, and is particularly relevant for school aged children. Surf Life Saving Australia’s (SLSA) Nippers program is an example of a program with this aim.

Aim:

To explore the relationship between exposure to SLSA’s Nippers program and self-reported perceived competence for children aged 8-13 years; and to compare and contrast factors affecting younger and older children with regard to their participation and perceived safety at beach settings.

Methods:

Children aged 8–13 years, registered with a surf club on the Mid North Coast of New South Wales during the 2014/15 summer were invited to complete a validated self-report questionnaire addressing demographic information, self-reported competency, and perceived enablers and barriers to participation in the Nippers program. Completion of the 15-question survey took place at the child’s own surf club, supervised by the primary researcher. This presentation compares the findings of younger (age 8-10) and older (age 11-13) children in the group. Analysis included descriptive statistics and Pearson chi-square tests for independence (categorical variables) for age group comparisons.

Results:

A total of 341 children completed the survey 182 and 159, in the under 8-10 and under 11-13, respectively, and differences were found between age groups. For example, there was no significant difference between age groups in self-reported competence to swim in small waves ($\chi^2 =1.52, df=2, p=0.469$), however significant differences were observed for the ability to swim in medium waves ($\chi^2 =7.75, df=2, p=0.021$) and large waves ($\chi^2 =15.78, df=2, p<0.001$), with older children more likely than expected to report their ability was very good in both these situations.

Discussion and conclusions:

These findings indicate that improvements in self-reported skill with surf

Theme: Water safety (including drowning), Presentation Type: Rapid Oral Presentation (e-Poster)
Exploring the comprehension of child restraint instruction manuals and errors in installation, Catherine Ho
Neuroscience Research Australia (NeuRA)

Background: Incorrect restraint use is a widespread problem. To correctly restrain a child, parents/carers need to have the knowledge to correctly use their child restraint. Parents identify instructions supplied by manufacturers as a common source of information, but also report that they find them difficult to use and understand. Research in North America has demonstrated instruction manuals for child restraints are written at too high a literacy level. However, there has been no study examining how well instruction manuals are being understood.

Aim: To examine comprehension of child restraint instruction manuals among Australian adults and the relationship between comprehension and correct use.

Method: We conducted a laboratory trial where comprehension was measured, and errors in use observed following an installation trial using an instruction manual supplied with a child restraint. Participants aged 18 years and over were recruited from NeuRA’s Research Volunteer Registry and study advertisements were posted on community noticeboards.

Participants were required to perform an installation trial using the instruction manual and child restraint and then complete a comprehension test post-installation. The installation trial was assessed using a correct use checklist containing twenty items. The comprehension test consisted of ten items delivered verbally. Each item required the participant to locate a piece of information critical to the correct use of the child restraint, and then to apply/interpret this information. This method of assessing comprehension has been used previously in research studies aimed at improving comprehension of patient information leaflets.

Results: We tested 16 participants ranging from 18-65 years old. Just over half were females (n=9) and less than half of the participants (n=6) spoke a language other than English at home. Majority of participants (n=14) reported little to no prior experience with using a child restraint. Errors in comprehension ranged from 0%-69% while errors in installation ranged from 0%-81%. Most errors in comprehension were related to harness height (69%) and tightness (63%) and similarly errors in installation were observed in these areas. There was a significant relationship between a person’s comprehension of the instruction manual and installation errors (F(1,15)=7.576, p<.015), R2.336. As the percentage of comprehension error increased by 10%, installation error increased by 5%.

Discussion and Conclusions: Our results indicate that comprehension of current manufacturer’s materials is sub-optimal and impacts a person’s ability to install a child restraint correctly. Our findings demonstrate the need to improve the comprehensibility of instruction manuals supplied with child restraint systems to reduce errors in use.

Theme: Falls prevention and rehabilitation, Presentation Type: Oral
Exploring the comprehension of child restraint instruction manuals and errors in installation, Catherine Ho
Neuroscience Research Australia (NeuRA)

Background: Incorrect restraint use is a widespread problem. To correctly restrain a child, parents/carers need to have the knowledge to correctly use their child restraint. Parents identify instructions supplied by manufacturers as a common source of information, but also report that they find them difficult to use and understand. Research in North America has demonstrated instruction manuals for child restraints are written at too high a literacy level. However, there has been no study examining how well instruction manuals are being understood.

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Discussion and Conclusions: Our results indicate that comprehension of current manufacturer’s materials is sub-optimal and impacts a person’s ability to install a child restraint correctly. Our findings demonstrate the need to improve the comprehensibility of instruction manuals supplied with child restraint systems to reduce errors in use.

Theme: Road and transport safety, Presentation Type: Rapid Oral Presentation (e-Poster)
Sports Concussion: A Systems Model of the Barriers to Concussion Management in Amateur Rugby Union, Glenn Holmes
University of the Sunshine Coast

Background. In high speed, contact sports, such as rugby union (rugby), sports concussion has been attracting increasing concern both in Australia and internationally. Most symptoms and signs of concussion resolve naturally, however long-term complications can occur if the injury is not managed appropriately (e.g., McCrory et al., 2013; Partridge & Hall, 2014). The existing guidelines predominantly used for management of sports concussions remain largely consensus based (e.g., McCrory et al., 2004, 2008, 2013). Although these consensus statements do present valuable recommendations, numerous studies have identified a lack of consistency and confidence in concussion-related knowledge (e.g., coaches, athletes, medical professionals; see Donaldson et al., 2014). This is especially a concern in amateur grades of sport, where it is unclear how consistently a strict concussion management plan is enforced (Hollis et al., 2012; Shuttleworth-Edwards et al., 2008). Concussion effects athletes at all levels of sport, from the part-time recreational athlete to the full-time professional (Makdissi, Davis, & McCrory, 2014). For improvements to be made to the management of concussion in amateur rugby the factors influencing and interacting within individual sport systems need to be understood.

Aims. The aim of this research was to use human factors methods to identify the system-wide control structures and performance constraints influencing the management of sport-related concussion in amateur rugby union.

Method. Using Leveson’s (2004) Systems-Theoretic Accident Model and Process (STAMP), a STAMP model was developed to identify the actors, management control structures, and interacting factors influencing the management of sport-related concussion in amateur rugby. The STAMP model was then sent to Subject Matter Experts (SMEs) for assessment in a Delphi study. The SME feedback was utilised to revise the model, which was then returned to the same SME’s for either approval or rejection.

Results. The key concussion management pathways were identified with 80% agreement with SMEs. Consistent concussion management in amateur rugby was found to have several barriers.

Conclusion. The findings of this study have practical implications for the improved management of sport-related concussion in amateur rugby in Australia. In addition, the model provides a sound framework from which sports with comparable system actors and factors may benefit (e.g., rugby league, hockey). Through the identification of the control structures and performance constraints currently impeding the effective management of sport-related concussion, this theory-driven concussion management model has the ability to drive a positive change in improving the safety of sporting participants.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
Communities’ immediate traditional practice and health seeking behavior for child drowning cases in rural Bangladesh, Md Shafkat Hossain  
Centre for Injury Prevention and Research Bangladesh

Background

Children are mostly vulnerable for drowning in Bangladesh. Barisal division situated in southern part and geographically contains various water bodies, is the most drowning prone area in Bangladesh. And significant number of fatal and non-fatal drowning occur among the children.

Aim

This study aimed to explore community’s immediate responses and health seeking behavior for post drowning cases of children.

Method

We selected three different areas to capture all drowning diversity and context, Amtoli (inland), Charpara (near river) and West-Khajura (costal area) for collecting data. The study conducted 12 In-Depth Interviews (IDIs) and 9 Focus Group Discussions (FGDs) with community people, parents, household heads, elderly people and caregivers.

Result

Community people used range of traditional methods as post drowning treatment likely using clay utensils, sand, blankets or clothes to remove water from victim’s body. Another most common technique was to hold the child on top of the head and keep spinning so that the water comes out. Moreover for the drowning treatment people also went to religious leaders and traditional healers for “holy-water” and “holy-words”. Parents also went to the religious leader for amulet as drowning protector. If the victim’s condition became worse, the community people first went to local drug seller and then set off to the hospital when it is too late. In most of the cases victims found dead before reaching to the health facilities as hospitals are in long distant and arrangement of going hospital delayed to get the treatment.

Discussion and conclusion

The community had very little knowledge and miss-perceptions on how to treat drowning child after rescuing as there is no intervention was found. Besides community dwellers also carry out various traditional practices those are not accepted scientifically and went out for hospital when it is too late to save the drowning victim.

Theme: Water safety (including drowning), Presentation Type: Oral
Communities` reaction on child drowning prevention intervention: experience from Bangladesh., Md Shafkat Hossain
Centre for Injury Prevention and Research Bangladesh

Background

Lack of swimming ability of children and lack of child supervision by caregivers are leading causes of non-fatal and fatal drowning in Bangladesh. Barisal division, southern part of Bangladesh, is a drowning prone region. In southern district, Center for Injury Prevention and Research, Bangladesh (CIPRB) introduced a low cost community based drowning prevention intervention named “Swimsafe”, in 2009.

Aims

The programme was designed to teach survival swimming skills of children aged 6 to 10 years. This study explored communities’ reaction on the intervention.

Method

A qualitative study, consisted of 20 In-Depth Interviews Parents, elderly and influential persons in the community and Community Swimming Instructors were interviewed.

Result

Mothers of children involved with intervention knew more details than fathers about the intervention. The mothers knew method of teaching survival swimming. They believed the intervention made them aware of learning swimming for their children; before the intervention, their children knew swimming a little that was not enough to save them from drowning. Now because of swimming training, their children are able to swim properly and can even rescue a drowning victim. Swimsafe intervention helped their children a lot by teaching survival swimming and rescuing skill in safe environment with trained trainers. Parents also feel their children are safer now.

The parents, who did not send their children for swimming lesson, thought children can learn the skill naturally and automatically can rescue other once they would know how to swim. They also perceived children were busy with study and could not afford extra time for swimming lesson. Community leaders, school teachers and caregivers appreciated the intervention as this was the first and a very good initiative to reduce child drowning. CSIs opined the intervention was a success, comparing at the beginning parents were reluctant to permit their kids to learn swimming and they expected economic benefit as well. Graduation ceremony and swimming competition among newly learned swimmers at the community were very encouraging for the community people and other children to be engaged to the intervention.

Discussion and conclusion

The SwimSafe program was well accepted by the community dwellers. It was a good method of teaching survival swimming and rescue skill for children. Community considered the program as a secure way of learning swimming. Easy access within the community and safe learning setting helped the program to be well accepted.

Theme: Child health and safety, Presentation Type: Oral
Oil spillage effects on health and safety among the local communities-Experience from Bangladesh, Md Shafkat Hossain
Centre for Injury Prevention and Research Bangladesh

Background: on 9th December 2014 an oil tanker collided with a cargo vessel at Sundarban, the largest mangrove forest in the world. About 350,000 liters of furnace oil spilled into the Shela River. No major oil clean-up was in placed due to lack of equipments and experiences. However, most of the local people including children came to the place without any safety measures to collect oil so that they could sell it later.

Aim: The research aimed to explore effects of oil spillage on the communities due to collecting oil from the river.

Method: Qualitative method was used to explore the situation. IDI, FGD, observation technique and relevant daily national and international newspapers were reviewed to collect the information.

Result: The disaster affected both on health and safety of the community. Primarily local people, who do not have any previous experience, were involved to collect the oil from the river and government showed interest to procure the furnace oil at a fix rate. This lead local community to start collecting oil and later on faced various health problems like diarrhea, skin diseases, abdominal pain and headache etc. A child drowning case was found due to collecting oil. Though 7-year old kid was rescued he suffered from diarrhea for four days. To get the better quality of oil community people boiled the oil so that water evaporated and quality of it became better. Females were involved in boiling oil and they faced severe headache, irritation on eyes and nose and vomiting tendency.

Discussion and Conclusion: Disaster preparedness is essential for any country like Bangladesh. Government should take necessary initiative on awareness and safety before involving local community in any disaster management especially dealing with chemicals. Community people’s safety should be the priority to avoid or reduce health effects.

Theme: Injury in vulnerable populations, Presentation Type: Oral
Communities` reaction on child drowning prevention intervention: experience from Bangladesh., *Md Shafkat Hossain*  
*Centre for Injury Prevention and Research Bangladesh*

**Background**

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The programme was designed to teach survival swimming skills of children aged 6 to 10 years. This study explored communities’ reaction on the intervention.

**Method**

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Mothers of children involved with intervention knew more details than fathers about the intervention. The mothers knew method of teaching survival swimming. They believed the intervention made them aware of learning swimming for their children; before the intervention, their children knew swimming a little that was not enough to save them from drowning. Now because of swimming training, their children are able to swim properly and can even rescue a drowning victim. Swimsafe intervention helped their children a lot by teaching survival swimming and rescuing skill in safe environment with trained trainers. Parents also feel their children are safer now.

The parents, who did not send their children for swimming lesson, thought children can learn the skill naturally and automatically can rescue other once they would know how to swim. They also perceived children were busy with study and could not afford extra time for swimming lesson. Community leaders, school teachers and caregivers appreciated the intervention as this was the first and a very good initiative to reduce child drowning. CSIs opined the intervention was a success, comparing at the beginning parents were reluctant to permit their kids to learn swimming and they expected economic benefit as well. Graduation ceremony and swimming competition among newly learned swimmers at the community were very encouraging for the community people and other children to be engaged to the intervention.

**Discussion and conclusion**

The SwimSafe program was well accepted by the community dwellers. It was a good method of teaching survival swimming and rescue skill for children. Community considered the program as a secure way of learning swimming. Easy access within the community and safe learning setting helped the program to be well accepted.

*Theme: Water safety (including drowning), Presentation Type: Rapid Oral Presentation (e-Poster)*
Communities’ immediate traditional practice and health seeking behavior for child drowning cases in rural Bangladesh, Md Shafkat Hossain
Centre for Injury Prevention and Research Bangladesh

Background

Children are mostly vulnerable for drowning in Bangladesh. Barisal division situated in southern part and geographically contains various water bodies, is the most drowning prone area in Bangladesh. And significant number of fatal and non-fatal drowning occur among the children.

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This study aimed to explore community`s immediate responses and health seeking behavior for post drowning cases of children.

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We selected three different areas to capture all drowning diversity and context, Amtoli (inland), Charpara (near river) and West-Khajura (costal area) for collecting data. The study conducted 12 In-Depth Interviews (IDIs) and 9 Focus Group Discussions (FGDs) with community people, parents, household heads, elderly people and caregivers.

Result

Community people used range of traditional methods as post drowning treatment likely using clay utensils, sand, blankets or clothes to remove water from victim`s body. Another most common technique was to hold the child on top of the head and keep spinning so that the water comes out. Moreover for the drowning treatment people also went to religious leaders and traditional healers for “holy-water” and “holy-words”. Parents also went to the religious leader for amulet as drowning protector. If the victim`s condition became worse, the community people first went to local drug seller and then set off to the hospital when it is too late. In most of the cases victims found dead before reaching to the health facilities as hospitals are in long distant and arrangement of going hospital delayed to get the treatment.

Discussion and conclusion

The community hadvery little knowledge and miss-perceptions on how to treat drowning child after rescuing as there is no intervention was found. Besides community dwellers also carry out various traditional practices those are not accepted scientifically and went out for hospital when it is too late to save the drowning victim.

Theme: Water safety (including drowning), Presentation Type: Rapid Oral Presentation (e-Poster)
Work Place Injury among the young worker in footwear factory of Bangladesh, *S.M Raduan Hossin Center for Injury Prevention and Research Bangladesh*

Background - As part of my Diploma in Social Compliance course I have conducted a study on footwear industries worker’s workplace injury and mental health condition. For this study purpose I had selected my field in DEPZT area in Savar near by Dhaka. Footwear is one of the most significant export sector of Bangladesh but workers are not aware of their accident and injury. Most of the factories aren’t maintaining social and environmental compliance, while they are focusing on profit making. Work environment, personal protection instrument are not suitable for the worker, as a result they are experiencing more accident and suffering lifelong injury.

Aim - To explore the workplace injury and health in the footwear factory in Bangladesh, focus on young worker

Method - To conduct the study, I used qualitative research methods and conducted 10 in-depth interviews, 2 FGDs, 2 observation. Select the sample purposively from footwear factories worker and observe 2 factories floor.

Result - In footwear industry of Bangladesh, mostly the young workers are working in the finishing line of the footwear using Gum (solution) without protection or using mask. This Gum contain huge harmful chemical. However, most of the young workers are unmarried and youth. According to the respondent, most of the young male worker are affected by this type of Gum and after one or two years the left their job and consequently they got addicted by drug. On the other hand, female workers are also being affected by this Gum and gradually they are losing their reproduction ability and this will lead to other problem in family life and social life.

Discussion and Conclusion – Though those factories are export oriented but they could not maintain any kind of Social Compliance issue. Most of the workers face accident frequently because of factory management did not take any injury prevention orientation, training or awareness program for worker to reduce workplace accident. Along with this, work load, unplanned overtime and lack of awareness program, risk mitigation plan also leading causes of accident. So, factory management, workers union, government, NGO's and international footwear buyers can take initiative to redact accident in workplace. In this stage, all of stakeholders need to develop a strategic policy for workplace injury and take initiative for early implementation in the policy of factory level.

*Theme: Injury in vulnerable populations, Presentation Type: Oral*
Towards a Task-Specific Model-Free Ergonomic Assessment using Low Cost Depth Sensors, Mo Hossny Deakin University

Depth sensors such as Kinect and Asus XTION have marked a new era of markerless motion capture. The affordability and efficacy of these sensors has been proven to have the potential to provide simple solutions for ergonomic monitoring and assessment. However, the success stories of these sensors are only tied to simple gaming and artistic applications. The reason for this is the persistence to extract an animatable skeleton. While this allows accommodating virtually infinite postures, it does dictate several assumptions and suffer from several challenges. Perhaps the most common assumption these sensors require is capturing the posture from a frontal angle. The most common challenge with these sensors, and the main deriver of the dictated assumption, is body-part occlusions. In order to extract an accurate animatable skeleton, these sensors rely on segmenting and localising joints and body parts. This, however, requires a minimum number of pixels per body part and, most importantly, a clear line of sight of every body part. Unfortunately, most occupationally dictated postures worth investigation are very complicated and feature many self-occluded joints and body parts. This, in return, renders the depth sensors, affordable and simple as they are, a useless solution in ergonomic monitoring and assessment.

In this talk we will introduce a novel approach to employ commercial-off-the-shelf depth sensors into ergonomic assessment. The proposed approach is not aiming to model virtually infinite postures but rather a more tailored solution for task-specific postures. This allows us to relax the frontal view assumption and, in return, not rely on a presumed virtual skeleton or joint and body part localisation. Instead, the proposed approach relies on analysing the depth images acquired by a depth sensor at once and produce ergonomic scores as an output. In this talk we will discuss the pipeline and tools to develop a tailored solution for ergonomic assessment using depth sensors. We will also discuss several applications in the domain of occupational ergonomic assessment, fall detection and assistive living.

Theme: Workplace injury and safety, Presentation Type: Oral
Towards Autonomous Vehicles with Socially-Aware Predictive Models of Vulnerable Road Users’ Behaviours and Intentions, Mo Hossny
Deakin University

Autonomous Vehicles (AVs), also known as “self-driving cars”, development have got some momentum over the recent years. AVs have a strong potential in reducing traffic accidents, increasing road capacity and providing critical mobility to the elderly and handicapped. However, one of the most critical barriers against the wide spread of AVs in the coming few years is, how they are going to interact with other road users, specifically Vulnerable Road Users (VRUs) such as: pedestrians, cyclists and motor-bikers. Interactions take place nowadays between human-driven vehicles and VRUs are based on a number of implicit cues between the two such as gestures, eye contact and behaviours of VRUs which are all signals that convey the intentions of each one to do a certain action. Thus, that level of shared intent understanding happening now between VRUs and human drivers shall be engineered in the typical AVs that will be driving on our roads in the near future. Since VRUs are not governed or constrained by the existing regulations of traffic. Therefore, the task of understanding or predicting their intended actions is quite challenging to infer or deduce. Additionally, since the first step in the intent understanding loop is the most critical one for AVs because based on it the AVs can assess/update its planning policy and convey its intent back to the VRUs.

In this talk we will discuss our proposed predictive model for highly and fully automated vehicles for making them socially aware entities that are capable of adapting with other road-sharing users especially vulnerable ones. Furthermore, in order to provide a more trusted and safer AVs as it can be perceived by VRUs, our predictive model will be relying on a number of factors such as the individual and the social behaviours of VRUs in road and urban traffic environments as well as the physical layout of the surrounding traffic environment. We will also present an initial result we got from our proposed predictive model.

*Theme: Road and transport safety, Presentation Type: Oral*
Understanding burn injuries in Aboriginal and Torres Strait Islander children: treatment, access to services and outcomes: study progress, Rebecca Ivers
The George Institute for Global Health, University of NSW

Aim/Background: There is very little research examining the impact of burns in Aboriginal and Torres Strait Islander children, or care received, despite significant burden. The objective of this study was to describe the burden of burns, access to care, and outcomes in Aboriginal and Torres Strait Islander children with serious burns.

Methods: Aboriginal and Torres Strait Islander children under 16 years of age (and their families) presenting with a burn to a tertiary paediatric burn unit from NSW, SA, NT and Queensland were recruited and followed for 2 years. Quantitative data were collected via participant interviews, clinical data from medical records and linkage to MBS/PBS records to capture outcomes and impact, including cost. Qualitative research was conducted to identify barriers to care, from the perspective of the patient, their families, and their health care providers. Systems mapping of services, exploration of existing models of care and patient journey mapping will be completed in 2017. The study is governed by an Aboriginal advisory group and uses Indigenous methodologies as a frame of reference for the methodological approach.

Results: To date, 144 participants have been recruited. In-depth interviews with 80 clinical burn team members from 5 states, and 10 study participants/carers have been conducted. Results highlight significant systemic barriers to accessing care, and significant personal and economic impact on families.

Discussion/Conclusions: A round table will be held in 2018 to synthesize results and inform development of a new model of care that explicitly considers the care of Indigenous children and achieves transformational change.

Theme: Burns prevention and treatment, Presentation Type: Oral
Cause and treatment of burn injuries in Aboriginal and Torres Strait Islander children: baseline data from a prospective study, Rebecca Ivers

The George Institute for Global Health, University of NSW

Background: Aboriginal and Torres Strait Islander children experience burns at least double the rate of other children but there is little research exploring the context of injury or care.

Aims: The objective of this study is to describe the burden of burns, access to care, and functional outcomes in Aboriginal children; this paper describes characteristics of the cohort.

Methods: A cohort of Aboriginal children under 16 years of age (and their families) presenting with a burn to a tertiary paediatric burn unit were recruited between 2015-2017 from tertiary burn units in NSW, Queensland, SA and NT. Data were collected from participant interviews and clinical data from medical records. The study is governed by an Aboriginal advisory group and uses Indigenous methodologies as a frame of reference.

Results: Of 144 children recruited by May 2017, most were male, ranging from 57% in Sydney to 83% of participants in the NT. A high proportion of participants (n=73, 50%) were inpatients. Parents reported the mechanism of burn injury was from direct contact with a hot object (n=48, 33%) a scald burn (n=47, 33%) or from flames (n=32, 26%). Most children received some first aid within five minutes of the injury (n=74, 54%) and 119 (88%) were medically assessed on the day of their injury.

Discussion: Burns sustained by children in this cohort were largely scald and contact burns in boys. Although first aid was applied in most cases, there were delays in application and in accessing medical treatment.

Theme: Burns prevention and treatment, Presentation Type: Oral
Function, health related quality of life and cost after injury in a city of North India: a multi site cohort study, Jagnoor Jagnoor
The George Institute for Global Health

Background

The burden of traumatic injury in India is high, but remains ill-defined and poorly quantified. The aim of this project was to measure the impact of traumatic injuries on functioning and health-related quality-of-life (HRQoL), economic impact and to identify predictors of poor outcomes post-injury.

Methods

A prospective observational study was conducted at three hospital sites in Chandigarh, North India in 2014-2015 for all ages admitted with an injury. Consent was sought and participants were followed at 1, 2, 4 and 12 months after injury; face to face or telephonic interviews collected data on socio-demographics, circumstances of injury, cost associated with injury, disability, function and health related quality of life. Interim analysis for 4 months is reported below, with 12 months interviews underway.

Results

2950 (90% of eligible) participants were recruited, with a follow-up rate of 74% (2180) at 4 months. Road traffic injuries (1622/55%) followed by falls (914/31%) and burns (383/13%) were the leading cause of injury; 86% were males, 79.5% were in paid employment at the time of injury. The average out of pocket expenditure per hospitalization and up to 4 months post discharge was USD 388 (95% CI: 332-441) and USD 946 (95% CI: 771-1021) respectively. The prevalence of catastrophic expenditure was 30% (95% CI 26·95–31·05), which was significantly associated with lower income quartile (OR 23·3 [95% CI 5·7–73·9]; p <0·01), inpatient stay greater than 7 days (OR 8·8 [95% CI 3·8–20·6]; p<0·01), major surgery (OR 4·9 [95% CI 2·7–8·4]; p<0·01), and occupation as wage labourers (OR 8·1 [95% CI 1·6–24·6]; p=0·01).

Conclusions

Injury has a substantial impact with a high proportion of patients sustaining catastrophic health expenditure, particularly the poor. Measures aimed at increasing public health spending for sustained prevention programs and providing financial risk protection to those injured deserve urgent priority in India.

Theme: Injury in a global perspective, Presentation Type: Oral
Factors Influencing Social and Health Outcomes after Land Transport Injury: recruitment and participant characteristics, short term health and social status, Jagnoor Jagnoor
The George Institute for Global Health

Background

There is growing evidence that health and social outcomes following motor vehicle crash injury are related to cognitive and emotional responses of the injured individual, as well as relationships between the injured individual and the compensation systems with which they interact. Investigation is therefore warranted to identify the key determinants of health and social outcomes following injury in the context of the New South Wales motor accident insurance scheme.

Methods

In this inception cohort study, 2400 participants, aged 17 years or more, injured in a motor vehicle crash in New South Wales are being identified principally though hospital emergency departments. Participants will be initially contacted through mail. Baseline interviews are conducted by telephone within 28 days of the injury and participants are followed up with at 6, 12 and 24 months post-injury. Medicare and Pharmaceutical prescription data will also be linked to the observed data.

Results

Recruitment for the study has been completed with 2017 participants in Dec 2016. Interviews for 6, 12 and 24 months interviews completed respectively. Interim analysis of first 777 participants is reported below. Over one-fourth (215; 27.3%) of the participants were born outside Australia, 67% were males, 79.5% were in paid employment at the time of injury. The data source/ hospital was significantly associated with the distribution of mode of transport injuries and major differences were observed for urban hospitals with 35.9% (232/647) of the cohort being bicyclists whilst a high proportion of motorcycle riding injuries (51.6%; 48/93) were reported from rural hospitals. At the first interview, participants had a lower health related quality of life than the general population (EQ5D a mean difference of -0.539; <0.0001); despite less than half reporting admission to hospital because of their injury. Return to work was reported by 65% whilst only 36% reported being able to return to their usual social activities. Analysis of outcome predictors related to post-injury function, disability and return-to-work are now under way.

Conclusions

The interim analysis of the cohort reported a very high proportion of bicyclists injuries. Identification of factors associated with health and social outcomes following injury, including related compensation factors will provide evidence for improved service delivery, post-injury management, and inform policy development and reforms.

Theme: Road and transport safety, Presentation Type: Rapid Oral Presentation (e-Poster)
Preserving identities: health systems approach to improving recovery in burns survivors, *Jagnoor Jagnoor*
*The George Institute for Global Health*

Background:
Burns have been described by the World Health Organization (WHO) as the ‘forgotten global public health crisis’. Little is known about burns care and rehabilitation for burns injury survivors in India.

Methods:
We report the results of a qualitative study – developing network maps to understand health system factors, inter-relations and functions for recovery in burns survivors. A focus group and 6 in-depth interviews (IDI) were conducted with burn survivors, 7 with health care providers 1 with para legal professional, 2 with non-government organisation volunteers, and 1 with policy implementer.

Results:
Multiple referrals, gaps in access to care, transportation and financing were the key challenges for burn survivors. Health professionals identified skills and lack of motivation for health professionals as major concerns for delivering care. Shortages in human resources, lack of equipment, infrastructure and supplies and the absence of evidence based guidelines on burns-rehabilitation compromised outcomes for patients. Communication on need of rehabilitation was a key challenge from both health provider and patient’s perspectives with poor understanding of recovery potential and fatalistic attitudes prevailing among patients and carers. Family support played a major role in recovery, which was reliant on sex of the survivor and type of burn, that is occupational/electric burns vs thermal domestic burns.

Conclusions:
Home and community based rehabilitation programmes, e-health, m-health are some of the potential solution to overcome the challenges reported in the current system. The National Burns Program in India is in its nascent stages. There is an opportunity to test and develop sustainable solution using health systems approach for improving recovery outcomes.

*Theme: Burns prevention and treatment, Presentation Type: Oral*
The utility and impact of coronial recommendations on improving road safety policy and practice and, preventing deaths – a theoretical framework, *Marilyn Johnson*  
*Monash University*  

**Background**  
Roads are among the most complex and risky environments that human engage in every day. Globally, road traffic crashes are the ninth leading cause of death, predicted to rise to fifth by 2030 unless urgent action is taken [1].  

Coroners have legislative powers to contribute to the reduction of preventable deaths and promote public health and community safety [2]. Since 2000, over 23,700 people have died on Australian roads [3] and coroners are required to investigate every fatality. Ideally, medico-legal death investigations, criminal penalties and/or coroners’ recommendations would form part of a feedback loop that informs public policy and have a direct impact on injury prevention. However, this pathway has not been analysed for fatal transport crashes in Australia.  

**Aim**  
This paper presents the theoretical framework that will be used in a systematic analysis of coronial investigations for fatal road crashes in Australia. The overarching aim of the study is to understand the utility and impact of coronial investigations on improving road safety policy, practice and, preventing road deaths.  

**Theoretical framework**  
The theoretical framework is based on the Public Policy approach to Injury Prevention (PPIP) [4]. Adapted from Kingdon’s streams approach to policy making [5], this approach has been used to inform injury prevention implementation [6, 7]. Designed to create and recognise windows of opportunity for policy action, PPIP requires the convergence of three key steps: problem recognition, policy development and political will. Critically, the PPIP must be underpinned by evidence-based paradigms. In this study, these are the Safe System approach and Haddon’s Matrix.  

Safe System approach: This approach informs a system-wide approach to road safety in Australia. Safe System considered four key components: people, roads and roadsides, speeds and vehicles. The approach is based on the principles that there are limits to human performance; the limits of human tolerance to violent forces; safe road use, and; creating a forgiving road-transport system. However, there are gaps in the Safe System, including crash time sequence and the social environment [8]. Augmenting the theoretical approach with Haddon’s matrix addresses these gaps.  

Haddon’s Matrix: The three-stage matrix conceptualises an injurious event accounting for factors related to the person, vector (or vehicle), physical environment and social environment [9].  

This theoretical framework is the structure for the main study that will include a retrospective population-based case series study, a review of coroners’ recommendations and impact of recommendations on policy and road safety.  

*Theme: Road and transport safety, Presentation Type: Oral*
Time of day effects hospitalization in bicycle injuries in the elder population, KIM JOOYEONG
Korea University Ansan Hospital

Background

Bicycle riding is a popular leisure activity worldwide, even to elder population. On the other hand, it requires delicate sense of balance and quickness to avoid accidents. Despite the popularity of bicycle, elders need to cautious when riding, especially at night.

Purpose

The objective of this study is to investigate effect of time of day on bike accident injuries on old aged population.

Method

Data from Emergency department based In-depth Injury Surveillance Data collected by Korean CDC were analyzed for patients 65 years or older hospitalized following bike accident during driving. Data from 2013 to 2016 were used in analysis with excluding those without hospital outcome or information on injury incident time. Main exposure was incident time which was categorized in to 4 groups, day time (9am to 6pm), dawn (6am to 9am), evening (6pm to 9pm) and night (9pm to 6am). Main outcome was hospitalization including hospital death. Secondary outcome was non-fatal injury excluding hospital deaths from hospitalized patients.

Result

Total 3,174 patients visited ED by bike accident. Among them, 1815 accidents happened at day time, 560 at evening, 476 at dawn and 302 at night. From 302 night time accidents, 132 (43.7%) were admitted and from 1815 day time accidents 665 (36.6%) patients were admitted. The odds ratio of night time accident for hospitalization in old age bike drivers were 1.4 (95% CI 1.09 – 1.79) compared to day time accidents. The odds of night time accidents for non-fatal injuries were 1.40 (95% CI 1.09 – 1.80).

Conclusion

Night time bike driving is more hazardous for old age population. Community based preventions as well as individual preventive strategy to prevent injuries during night time bike riding need to be applied. Further research is needed.

Theme: Ageing/elder safety, Presentation Type: Rapid Oral Presentation (e-Poster)
Effectiveness of bike lane on bike accidents to prevent hospitalization, KIM JOOYEONG
Korea University Ansan Hospital

Background

Bicycle riding is a popular leisure activity worldwide. But compared to other traffic participants such as drivers or motorcyclists, bicycle riders are least protected. Even a minor collision or fall can cause serious injuries for bike riders if fall on road. Well-designed bike lanes improve safety for people on bikes from collision from other vehicles and protect pedestrians.

The object of this study is to evaluate the effect of bike lane on hospitalization from bike accident injuries.

Method

Data from Emergency department based In-depth Injury Surveillance Data collected by Korean CDC were analyzed for patients hospitalized following bike accident. Data from 2013 to 2016 were used in analysis with excluding those without hospital outcome or information on injury incident time. Main exposure was injury place which was categorized in to 3 groups, traffic road, sidewalk and bike lane. Main outcome was hospitalization including hospital death.

Result

Total 26,983 patients visited ED by bike accident. Among them, 10,120 accidents happened at traffic road, 3496 at sidewalk, 4924 at bike lane and 8443 at other places. Among the bike accidents, 19.1% of traffic road accidents, 12.6% of sidewalk accidents and 11.6% of bike lane accidents were admitted. The odds ratio of traffic road accidents for hospitalization in bike drivers were 1.39 (95% CI 1.24 – 1.55), whereas odds ratio of bike lane accidents for hospitalization was 0.81 (95% CI 0.71-0.93) compared to sidewalk accidents.

Conclusion

Bike lane is safer for bike drivers compared to drive at traffic road or sidewalks. Community based preventions as well as individual preventive strategy to prevent bike accident injuries can be established by constructing bike lanes. Further research including cost-effectiveness study is needed.

Theme: Road and transport safety, Presentation Type: Rapid Oral Presentation (e-Poster)
Time of day effects hospitalization in bicycle injuries in the elder population, KIM JOOYEONG  
Korea University Ansan Hospital

Background

Bicycle riding is a popular leisure activity worldwide, even to elder population. On the other hand, it requires delicate sense of balance and quickness to avoid accidents. Despite the popularity of bicycle, elders need to cautious when riding, especially at night.

Purpose

The objective of this study is to investigate effect of time of day on bike accident injuries on old aged population.

Method

Data from Emergency department based In-depth Injury Surveillance Data collected by Korean CDC were analyzed for patients 65 years or older hospitalized following bike accident during driving. Data from 2013 to 2016 were used in analysis with excluding those without hospital outcome or information on injury incident time. Main exposure was incident time which was categorized in to 4 groups, day time (9am to 6pm), dawn (6am to 9am), evening (6pm to 9pm) and night (9pm to 6am). Main outcome was hospitalization including hospital death. Secondary outcome was non-fatal injury excluding hospital deaths from hospitalized patients.

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Conclusion

Nigh time bike driving is more hazardous for old age population. Community based preventions as well as individual preventive strategy to prevent injuries during night time bike riding need to be applied. Further research is needed.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Rapid Oral Presentation (e-Poster)
Effectiveness of bike lane on bike accidents to prevent hospitalization, KIM JOOYEONG
Korea University Ansan Hospital

Background

Bicycle riding is a popular leisure activity worldwide. But compared to other traffic participants such as drivers or motorcycles, bicycle riders are least protected. Even a minor collision or fall can cause serious injuries for bike riders if fall on road. Well-designed bike lanes improve safety for people on bikes from collision from other vehicles and protect pedestrians.

The object of this study is to evaluate the effect of bike lane on hospitalization from bike accident injuries.

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Conclusion

Bike lane is safer for bike drivers compared to drive at traffic road or sidewalks. Community based preventions as well as individual preventive strategy to prevent bike accident injuries can be established by constructing bike lanes. Further research including cost-effectiveness study is needed.

Theme: Road and transport safety, Presentation Type: Rapid Oral Presentation (e-Poster)
Background: Burn injuries are a serious public health problem with alarming high mortality and morbidity especially among children. There were not many local studies available looking at children safety due to fire and burn in the country which creates a gap that needs to fill up.

Aims: The aim of the research was to assess the prevalence and risk factors for fire and burn injuries among children age 7-12 years in Kuala Lumpur, Malaysia.

Methods: The study was a cross-sectional survey of parents of children attending standard one to standard six in primary schools in one area of Kuala Lumpur. Nine primary schools from the Education Office of Sentul, Kuala Lumpur were randomly selected from among the 58 primary schools in the sub area of Kuala Lumpur. The study was conducted for three months (March-May 2016). The nine schools were randomly selected by using random number generator. A letter was sent to each selected school requesting their permission to conduct research with their students. Once school permission was obtained, a consent form was distributed to students age 7 to 12 years in each school. A total of 1150 students took the consent form home for parent signature and completed consents were collected in class two days later. All 640 children where consent was obtained were given a questionnaire developed specifically for the study to take home to their parents (Response rate 55.6%). Completed questionnaires were collected after two days.

Results: Prevalence of fire in the past two years were 6.4% and burn injury among children is 54%. The most frequently occurring cause of burn or scald injuries reported by the 640 parents in this survey was touching hot utensils (24.4%), followed by injuries due to touching hot iron (21.7%), touching hot water heater (17.2%), touching motorcycle hot exhaust pipe (16.7%) and being burned while playing with fire crackers (14.4%). Two variables were significant in terms of predicting burn injury and they are parents with secondary school education level and with middle income earning RM3001-RM5000 (USD750-USD1250) yearly.

Discussion and Conclusions: Intervention program need to address the high prevalence of burn injuries among children in Kuala Lumpur targeting on the top five causes of burn injuries. An educational intervention could be an option engaging both children and parents to address the risk of both fire and burn at home especially among middle income parents with secondary school education level attained.

Theme: Burns prevention and treatment, Presentation Type: Oral
Background

Cataract increases fall risk in older people. Although cataract surgery can restore sight, we hypothesised that a number of factors relating to changes in visual function and the spectacle lens correction worn can influence fall risk following surgery.

Aims:

Here, we evaluate the impact of cataract surgery on the incidence of falls, and determine which components of postsurgical visual function are associated with an increased fall risk.

Methods

Data from a prospective cohort study of patients aged ≥65 years on Australian cataract surgery waiting lists were analysed. Participants underwent assessment of vision (visual acuity, contrast sensitivity, refractive error, spectacle correction), comorbidities, physical function, and exercise activity before and after cataract surgery. Residual refractive error and changes in spectacle correction following surgery were calculated using power vector analysis. Falls were self-reported prospectively using monthly calendars and modelled using negative binomial regression with log of the period of observation as an offset.

Results

We enrolled 329 participants between October 2013 and August 2015: mean age was 76 years, 55% female. By October 2016, 196 participants had undergone first eye cataract surgery and 32 had bilateral surgery. Participants’ habitual visual acuity improved from 0.29±0.21 logMAR (mean ± standard deviation) to 0.13±0.20 logMAR for unilateral surgery, and 0.04±0.11 logMAR for bilateral surgery (p<0.001). Spectacle independence increased from 48% to 63% for unilateral and 100% for bilateral surgery. The crude annual incidence of falls was 1.17 (95% confidence interval 1.04-1.32) in the pre-surgical period, 0.91 (95% CI 0.78-1.07) in the period between first and second eye surgery, and 0.87 (95% CI 0.56-1.35) for those undergoing bilateral surgery. Cataract surgery reduced falls by 33% (incidence rate ratio [IRR] 0.67, 95% CI 0.50–0.91; p=0.01), after controlling for age, sex, total comorbidities, physical function, and total medications. Following surgery, those with a change in spectacle lens total power profile of >2.25 dioptres experience a three-fold increased rate of falls (IRR 3.31, 95% CI 2.27–4.84; P<0.001).

Discussion and conclusion

These findings provide further evidence of the benefit of cataract surgery in reducing incident falls. While cataract surgery improves vision and increases spectacle independence, large changes to refractive correction following surgery increases fall risk. Timely surgery and careful management of changes to spectacles after cataract surgery is likely to minimise the risk of falls.

Theme: Falls prevention and rehabilitation, Presentation Type: Oral
A systematic review describing the epidemiology of homicide and abuse related deaths in community dwelling older adults, Briohny Kennedy
Monash University

Background

There is a need to contribute to our understanding of preventable deaths as we reach record proportions of older persons living in the community. Homicide and deaths due to abuse represent the extremes of physical abuse and neglect for this population.

This presentation will summarise key findings from a systematic review of the peer-reviewed literature describing the epidemiology of homicide and abuse related deaths in community dwelling older adults.

Method

The review examined all original research that described mortality as a result of homicide or elder abuse, including older persons aged 65 years and above that were living in the community, and excluding studies where those aged over 65 were not specified, or where residence at the time of the fatal incident was in an institution (for example a nursing home). Individual case studies, or studies that did not present information on potentially modifiable factors were also omitted.

Factors relating to the deaths were described according to a modified socio-ecological model that included incident factors and individual factors for both the victim and offender.

Results and discussion

There was little contemporary Australian research, with the majority of studies coming from U.S. Most study data were obtained from homicide surveillance systems or data from death investigation processes like coronial or medical examiner data. A large majority of homicide and abuse-related deaths are family violence-related, though patterns for victims, offenders and their relationship varies to that of younger groups. Individual and interpersonal factors related to homicide and fatal abuse are discussed, including gender, mental illness, cognitive impairments, cohabitation, victim-offender relationship, and socioeconomic variables. Some of the research suggests that older people are at an increased vulnerability to dying in the process of crime, and potential contributory factors to this phenomenon are also described.

This systematic review is the most detailed and up-to-date summary of homicide and abuse-related deaths, and the only one to summarise data according to a modified social ecological model, that we know of. Knowledge gaps and ways forward for research in this area are also identified and discussed.

Theme: Intentional injury and violence prevention, Presentation Type: Oral
iConsiderLife: An automated (self-help), crisis and suicide prevention decision-support digital health program, to assist in reducing self-reported psychological distress ratings in adults, Britt Klein Federation University Australia

Introduction

Obtaining crisis support invariably requires an individual to make contact and speak with another human being and for some people this is not an easy or palatable thing to do. Currently, we do not offer people an alternative, non-human-based, support mechanism. As a consequence, some people may not access the support they need readily. iConsiderLife has been developed to help fill this gap and provide a space where people can access crisis support information 24/7, especially when they feel unable to seek human support.

Method

iConsiderLife is a single-session program designed to provide adults who are currently distressed or experiencing a crisis with a simple, step-by-step, problem solving approach design, as a way to help reduce this distress in real time. There are six main strategy sections. The six main strategy sections include: encouraging people to consider speaking with others, exploring common thoughts distressed people can have, distress reducing activities, reflecting on reasons for living, distraction activities and increasing hope. Depending on how the person responds to the questions presented, they are provided with additional information/tools in relation to the current strategy or taken to the next strategy section.

iConsiderLife is currently be offered via a quasi-experimental open trial evaluation design to evaluate its acceptability and benefit.

Results

To reduce participant burden, the trial design and requirements have been kept as simple as possible. Participants are not required to create an account and are only asked 5 demographic questions and 1 distress self-rating question before being able to access the program. Once participants have completed their single-session, they are asked to re-rate their current distress level and provided with additional feedback. The flow (e.g., what sections people visit the most), their demographic background and their before and after distress ratings will be explored to examine the usefulness of the program.

Conclusion

The iConsiderLife program, our preliminary findings and learnings to date will be discussed. It is hoped that iConsiderLife will provide the general public with one new way to obtain timely support, help reduce distress in real time, as well as encourage people to seek human based support, where they might not has done so without having been exposed to iConsiderLife first.

Theme: Other, Presentation Type: Oral
**Cricket injury surveillance studies: A systematic review to identify knowledge gaps, Dulan Kodikara Federation University**

**Background** Cricket is generally considered a safe and low risk sport, particularly in comparison to contact sports such as rugby. The available evidence in cricket injuries largely focuses on a specific injury or target population, for example, lumbar spondylolysis in pace bowlers. Therefore, the nature and incidence of the most prevalent or severe injuries is not immediately clear. This information is vital to target evidence-based injury prevention interventions. An overview of existing cricket injury research incorporating study design considerations and common injuries reported will help to address some of the knowledge gaps in current cricket injury epidemiology.

**Aim** To identify the characteristic features of cricket injury surveillance studies, in order to identify their common strengths, limitations and areas for further research and to summarise the most commonly reported cricket injuries.

**Study Design** Systematic review

**Methods** Five databases were systematically searched up to 31 March 2017. English-language, peer-reviewed original research articles reporting cricket injury surveillance were included. The level of evidence was evaluated using the NHMRC evidence hierarchy.

**Results** 397 potential articles were identified, from which 90 met the inclusion criteria and were analysed. Among those studies included, 46% originated from Australia, 21% from the United Kingdom, 16% from South Africa and the remaining 17% from other cricket playing nations. Most of the studies either used a time-loss or medical-attention definition, with 47% not having a clear injury definition. In terms of the body part injured, 33% of studies were focused only on injuries to the lower back and trunk, 15% on chest and upper body injuries, 9% on head, neck & face, 4% on lower body injuries, 26% described all cricket injuries and 13% did not clearly define the types of injuries. A total of 34% of the studies provided evidence of either level II or above as per NHMRC hierarchy and 27% were either case studies or case series. 39% studies described elite male cricket injuries whereas only 6% of studies reported cricket injuries in female and 19% studies focused on junior cricket injuries.

**Conclusion** Most studies have focused on elite, male cricketers. There is an evidence gap in injuries sustained by community level players, as well as female and junior cricketers. This study highlights a need for high quality injury surveillance studies at all levels of play.

*Theme: Sports injury prevention and rehabilitation, Presentation Type: Rapid Oral Presentation (e-Poster)*
Alcohol and injuries in a busy New Zealand Emergency Department: what’s changed in 16 years?, Bridget Kool
University of Auckland

Background

Acute alcohol consumption, even in small amounts, has been shown to significantly increase the risk of injury with evidence of a strong dose-response relationship. Around 43% of alcohol attributable deaths in New Zealand are injury-related. Alcohol misuse is a leading risk factor for injury.

Aims

This cross-sectional study aimed to obtain a contemporary view of the prevalence of alcohol-related injuries amongst patients presenting to a busy inner city emergency department (ED) in New Zealand. The results were compared with a study using similar methodology conducted at the same hospital 16 years prior.

Methods

All patients >15 years presenting to ED within 6 hours of injury during a 4 week period (2015 and 2016) were invited to take part. Data was collected via interview administered questionnaire. Breath alcohol samples were also obtained.

Results 501 patients agreed to take part in the study (71% response rate) the majority were male (57.4 %), of New Zealand European ethnicity (43.5%), and aged 15 – 24 years (26.9 %). The most common mechanisms of injury were falling (31.9 %). Around one fifth (21%) had consumed alcohol within 6 hours of their injury. Ethnicity, general health, income, and education were associated with increased odds of an alcohol-related injury. In addition, activity being engaged in when injury occurred, whether assault was involved, the hour of day, and day of week injury occurred, were all also associated with an alcohol-related injury. When compared to the results of the similar study conducted in 2000 the findings revealed that home remains the location where alcohol related injuries most commonly occur, alcohol continues to be associated with a large proportion of violence-related injuries. Encouragingly the prevalence of acute drinking in injury presentations to ED was lower than the earlier study (21% cf. 35%), as was the proportion of alcohol related injuries that were road traffic-related (4.8% cf. 16%).

Conclusions The present study has confirmed that alcohol use continues to play a considerable role in ED injury presentations in New Zealand. Alcohol-related injuries are complex in nature and require multi-faceted public health approaches in order to improve outcomes. Continued policy, health promotion, and injury prevention efforts are required to reduce the harms associated with alcohol use in New Zealand.

Theme: Alcohol and drugs related injury, Presentation Type: Oral
Taking action on intentional self-poisoning in the population: do we have the tools?, Eeva-Katri Kumpula
University of Otago

Background: Intentional self-poisoning (ISP) is a common form of self-harm in New Zealand. While the overall case fatality rate is low, ISP is a cause of significant population morbidity and health resource usage, and some ISP injury events are covered by the national personal injury cover, Accident Compensation Corporation (ACC). Interventions to reduce ISP need to be informed by reliable data about population groups at risk of engaging in this behaviour and the substances used. Aims: This study investigated the details of ISP recorded in Ministry of Health (MOH) data, and explored their usefulness for planning prevention efforts. Methods: MOH mortality (2000-2012) and morbidity (National Minimum Dataset, NMDS, 2000-2014) data on ISP cases that corresponded to the International Statistical Classification of Diseases 10th Revision (ICD-10) codes X60-X69 (intentional poisoning) and Y10-Y19 (poisoning of undetermined intent, UDP) were extracted. Some UDP cases may be ISP and were therefore investigated. The cases were analysed by demographic groups, and the level of detail about poisoning agents was explored. Results: Men were particularly at risk of fatal ISP and UDP, while women, young people, Māori, and those living in low-decile areas were particularly at risk of non-fatal ISP and UDP. There were no details available about the poisoning agents involved in two thirds of deaths in the investigated mortality data, nor in all of the ISP public hospital presentation data, except the ICD-10 groups of the main toxicants. ICD-10 groups X60 and Y10, and X11 and Y11 were the most frequently observed groups of substances in public hospital presentations. Discussion and conclusions: There was limited information available in these datasets to investigate the impacts of individual substances as opposed to wider substance groups. The X60 and Y10 groups include for example paracetamol, while X61 and Y11 include for example antidepressants such as venlafaxine and antipsychotics such as quetiapine, which all appear frequently in overdose presentations to emergency departments in other studies. To reduce harm such as ISP by these agents, prescribing practices and over-the-counter availability may need to be addressed. Such interventions of limiting inappropriate access to ‘high ISP risk’ medications cannot be planned for whole ICD-10 groups for practical reasons. Nationwide, systematic collection of substance-level data is needed to monitor ISP trends and to inform policy planning for ISP prevention.

Theme: Intentional injury and violence prevention, Presentation Type: Oral
A prospective cohort study of the impact of return-to-work Coordinators in getting injured workers back on the job, Tyler Lane  
Monash University

Background:
Globally, 313 million missed at least four days of work in 2010 due to a work-related injury. Extended periods of work absence are costly and associated with poor health outcomes. Interventions that include return-to-work (RTW) Coordinators improve RTW outcomes, though they have often been investigated as part of a larger intervention package. We investigated whether Coordinator impact varies based on the stressfulness of interactions and whether it goes above and beyond functional aspects of their role and other workplace factors.

Methods:
A prospective cohort study of 632 workers in Victoria, Australia with more than ten days of compensation due to work-related injury. Participants rated the stressfulness of their Coordinator interactions, dichotomised into good and poor, and said whether they had a RTW plan. RTW plans are a functional responsibility of Coordinators. We analysed responses at baseline and six-month follow-up using logistic regression analyses, adjusting for demographic and workplace factors.

Results:
At baseline, RTW plans doubled odds of RTW and attenuated the impact of good Coordinator interactions, which had been associated with better RTW outcomes. At follow-up, the reverse was found: good interactions doubled odds of RTW while RTW plans were non-significant.

Conclusions:
The findings suggest that different aspects of Coordinator intervention have varied impacts on injured workers' RTW outcomes depending on their trajectory. Functional benefits improved outcomes among shorter-duration claims, while interpersonal intervention improved outcomes among longer-duration claims. There are implications for how Coordinators target and interact with injured workers and other ways of improving their effectiveness.

Theme: Workplace injury and safety, Presentation Type: Oral
Early reporting incentives to reduce time between injury and claim: A multiple baseline interrupted time series analysis of two Australian workers' compensation jurisdictions, Tyler Lane
Monash University

Background

Early access to healthcare and work rehabilitation services provided by workers' compensation is associated with faster return to work and reduced claim costs. Incentivising employers to report claims early following injury may reduce time to service access and improve injured worker outcomes. We investigated the impact of legislated early reporting incentives on claim processing time in two Australian workers' compensation jurisdictions.

Methods

A multiple baseline interrupted time series (ITS) design was used to evaluate incentive impact on claim processing time using Australian administrative workers' compensation data. We compared median days between injury and lodgement (lodgement time), lodgement and claim acceptance (decision time), and total processing time in South Australia (SA) and Tasmania (TAS).

Results

Total time was not immediately affected by incentives, though there was a significant downward trend of one-third a day per month in both jurisdictions relative to the comparator. Lodgement time decreased significantly in both jurisdictions, though the magnitude of impacts differed. A concurrent increase in decision time was observed in TAS but not in SA.

Conclusions

Our findings suggest that employer focused early reporting incentives may have long-term impacts on claim processing time. However, we also observed unanticipated effects such as increases to insurer decision making time, as well as differential impacts between jurisdictions despite identical policy intent. While co-occurring events such as other legislative changes limit causal inferences, ITS analyses provide a useful approach for investigating the impact of legislative change on policy relevant outcomes in workers' compensation systems.

Theme: Translating research into practice and policy, Presentation Type: Oral
A comparison of rates and patterns of non-fatal assault-related hospital admissions among residents of metropolitan Melbourne and regional/rural Victoria, Adrian Laughlin
Monash University

Background: According to Victoria Police, 56,523 assaults were reported in 2013/14. Furthermore, assault-related major trauma in Victoria increased over the period 2001/02-2006/07 (O’Mullane, Mikocka-Walus, Gabbe & Cameron, 2009). However, little recent work has been done to investigate assault-related admissions across Victoria. A hole also exists in research into broad geographic patterns of assault-related admissions.


Method: Data within the Victorian Admitted Episodes Dataset (VAED) were utilised for this study. Data were extracted if any ICD-10-AM assault codes (‘X85-Y09’) were present, the injury was non-fatal, sustained between 2013/14-2015/16, and the injured person was aged 15 years and over. Assault-related injury admission rates were calculated utilising ABS population data. Aggregate tables and figures are presented to provide an overview of demographic variables, nature of injury, mechanism of injury, body region injured, assault location, victim-perpetrator relationship, hospital bed days, and hospital costs.

Results: Over the period 2013/14-2015/16, assault-related hospital admission rates for residents of metropolitan Melbourne increased by 15% compared to 16.1% for residents of regional/rural Victoria; the populations of these areas grew by 4.6% and 1.9% respectively. A sex breakdown showed no geographical difference. Age profiles showed that 25-34 year olds comprised 28.2% of admissions among residents of metropolitan Melbourne, compared to 23.3% among residents of regional/rural Victoria. Admissions of 40-54 year olds were higher among residents of regional/rural Victoria compared to residents of metropolitan Melbourne (27.3% vs 22.7%). Residents of the Melbourne metropolitan area incurred average hospital costs of $3,276 per episode, compared to $3,379 per episode for residents of regional/rural Victoria. Residents of regional/rural Victoria spent longer in hospital with 34.3% admitted for 2+ days compared to 24.9% for residents of metropolitan Melbourne.

Discussion and conclusion: Despite faster population growth, assault-related injury admissions among residents of metropolitan Melbourne increased at a slower rate than admissions among residents of regional/rural Victoria. The demographic profile was also different; younger age groups were represented more frequently among assault-related admissions for residents of metropolitan Melbourne. Assault-related injuries were also more severe among residents of regional/rural Victoria; spending longer in hospital and therefore, incurring higher treatment costs. To conclude, significant differences exist between assault-related hospital admissions in metropolitan Melbourne and regional/rural Victoria and prevention strategies should be tailored as such.

Theme: Intentional injury and violence prevention, Presentation Type: Oral
Epidemiology and Outcomes of Traumatic Brain Injury in Korean Children, SEUNG CHUL LEE
Dongguk University Ilsan Hospital.

Background

Traumatic brain injury (TBI) is one of the major causes of death and disability in children. Understanding epidemiologic characteristics of TBI in children is the first step for developing preventative strategies, optimizing care systems and rehabilitation of injury.

Aims

We aimed to describe and compare epidemiologic features and outcomes among children with TBI according to aged groups.

Methods

This is a cross-sectional study based on the date of the Emergency Department (ED)–based Injury In-depth Surveillance in Korea. ED-based injury in-depth Surveillance is a prospective injury registry and total 23 EDs in tertiary hospital participate in it. We identified children (aged 0 to 18) with TBI in EDs between Jan. 2011 and Dec. 2015. We classified children into two aged categories: pre-school group (under 7 years old) and school-aged group (7 years old and over). We compared epidemiologic characteristics and outcomes according to aged groups (pre-school group and school-aged group) and evaluated temporal variability in incidence. Rate of mortality and intracranial injuries was compared among aged groups using multivariate logistic regression analysis.

Results

During the study period (5 years), a total of 30,866 children with TBI were included in the analysis. There were 19,231 patients (62.3%) in pre-school group and 11,635 patients (37.7%) in school-aged group. TBI in school-aged group occurred more in male, road and school/educational facilities, recreational and educational activities, daytime and weekday compared with pre-school group (all p value < 0.01). TBI in pre-school group occurred more in home, activity of daily living, evening time and weekend. Motor vehicle collision was more common in school aged group (35.6% vs 19.7%) but fall was more common in pre-school group (36.7% vs 72.2%). The school-aged group had a higher mortality rate compared with pre-school group (0.3% vs 1.1%, AOR: 1.6 (1.1-2.2)), and a higher intracranial injuries ((7.3% vs 14.4%, AOR: 1.6 (1.5-1.8)).

Discussion and conclusions

The epidemiological characteristics of TBI in school-aged group are differentiated from pre-school group and rate of mortality and intracranial injuries in school-aged group were higher. It is necessary to develop differentiated preventative strategies and treatment systems according to aged groups in children.

Key Words: Epidemiology; Traumatic brain injury; Pediatrics: children

Theme: Child health and safety, Presentation Type: Poster
Prospective Validation of the 2011 Field Triage Guideline Recommendations For patients with Traumatic brain injury in the Emergency Department, **SEUNG CHUL LEE**
Dongguk University Ilsan Hospital.

Background

Rapid clinical triage of severe injury patients is essential for determining appropriate diagnostic and therapeutic interventions in the emergency department (ED). Traumatic brain injury (TBI) is one of the major causes of death and disability in trauma patients. The triage tool for patients with TBI is not established.

Aims

The purpose of this study is to evaluate and validate whether it is feasible to use the 2011 Field Triage Guideline Recommendations (“Field Triage”) for identifying major TBI among TBI patients in the ED.

Methods

This was a prospective, observational study based on in-hospital cohort registry of injured patients, performed in an ED of tertiary hospital in Korea. We enrolled all TBI patients attending our ED from January 1, 2013 through December 31, 2015. An initial triage evaluation for all TBI patients according to “Field Triage” was performed by emergency medical technicians (EMTs) in our ED. The date of the field triage decision scheme included the status (positive or negative) from step 1 (physiologic criteria), step 3 (injury mechanism criteria) and step 4 (special consideration criteria), sequentially. The primary outcome variable was confirmed as major TBI, defined as an injury severity score (ISS) >15. Sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV) and area under the curve (AUC) value were calculated to validate the application of the field triage decision scheme (cumulative and independent steps).

Results

During the study period (3 years), a total of 14,889 TBI patients were included in the analysis. Major TBI was 269 cases (1.8%). The positive cases in step 1 criteria, (step 1 or step 3) criteria and (step 1 or step 3 or step 4) criteria were 136 (0.9%), 597 (4.0%) and 7,966 cases (53.5%), respectively. The sensitivity, specificity, and AUC value of the step 1 criteria for identifying major TBI were 28.3%, 99.6% and 0.639. The sensitivity, specificity, and AUC value of the (step 1 or step 3) criteria were 50.6% and 96.8% and 0.737. The sensitivity, specificity, and AUC value of the (step 1 or step 3 or step 4) criteria were 82.2% and 47.0%, and 0.646, respectively.

Discussion and conclusions

This present study attempted to find out the feasibility of applying the 2011 Field Triage Guideline Recommendations for the triage of TBI patients who visit an emergency room. The cumulative criteria combined with physiologic and injury mechanism criteria had moderate discriminative power for identifying major TBI patients and the highest AUC value than other independent or cumulative criteria.

Theme: Rehabilitation and trauma care, Presentation Type: Oral
Preventive effects of motorcycle helmets on clinical outcomes in motorcycle crashes, SEUNG CHUL LEE
Dongguk University Ilsan Hospital.

Background.

Injuries caused by motorcycle crashes are one of the major public health burdens leading to high mortality, functional disability. The risk of death among motorcyclists is 30 times greater than that among car drivers, with head injuries the leading cause of death. The motorcycle helmet is crucial protective equipment for motorcyclists.

Aims

This study aimed to measure the protective effect of motorcycle helmet use on intracranial injury and mortality and to compare the preventive effect in drivers and passengers.

Methods

This is a cross-sectional study based on the Emergency Department(ED)–based Injury In-depth Surveillance(EDIIS) database from 23 EDs in Korea. All of trauma patients injured in motorcycle crashes between January 1, 2013, and December 31, 2016, were eligible, excluding cases with unknown helmet use and outcomes. The primary and secondary outcomes were intracranial injury and in-hospital mortality. We calculated adjusted odds ratios (AORs) of helmet use and driving status for study outcomes after adjusting for potential confounders.

Results

Among 17,791 eligible patients, 10,668 (60.0%) patients were wearing helmets at the time of the crash, 2,128 (12.0%) patients had intracranial injuries and 331 (1.9%) patients had in-hospital death. 16,381 (92.1%) patients were drivers and 1410 (7.9%) patients were passengers. 62.6% in drivers and 29.1% in passengers were wearing helmets at the time of the crash. Compared to un-helmeted group, the helmeted group was less likely to have an intracranial injury (8.0% vs. 17.9%, AOR: 0.43 (0.39-0.48)) and in-hospital mortality (1.0% vs. 3.2%, AOR: 0.29 (0.22-0.37)). In the interaction model, AORs (95% CIs) of helmet use for intracranial injury were 0.42 (0.38-0.47) in drivers and 0.61 (0.41-0.90) in passengers, respectively. There was a significant preventive effect of helmet use on in-hospital mortality in driver (AOR: 0.26 (0.21-0.34)).

Discussion and conclusions

Wearing helmets in motorcycle crashes reduced intracranial injuries and in-hospital mortality. The preventive effect of motorcycle helmet use on intracranial injury was stronger in drivers than in passengers. Public health efforts to increase motorcycle helmet use are needed to reduce health burden from injuries caused by motorcycle crashes.

Theme: Road and transport safety, Presentation Type: Oral
Characteristics of hospitalised unintentional poisoning amongst Aboriginal and non-Aboriginal preschool children in New South Wales: a population data linkage study, Caroline Lee
UNSW

Background: Poisoning is a leading cause of childhood injury worldwide, and preschool children have the highest rates. Aboriginal children have rates of poisoning hospitalisation twice as higher as non-Aboriginal children in Australia.

Objectives: to investigate differences in demographic and clinical characteristics of hospitalised poisoning for Aboriginal and non-Aboriginal children aged 0-4 in New South Wales (NSW)

Methods: This was a retrospective whole-of-population cohort analysis of linked hospital and mortality data for 2000-2014. The main outcome measure was hospitalisation for unintentional poisoning. Demographic characteristics included sex, area-level disadvantage and geographic remoteness. The crude and adjusted odds of poisoning hospitalisation associated with demographic characteristics were estimated using logistic regression. Poisoning agents were analysed by class and individual agents. Clinical outcomes were repeat admissions, length of stay and procedures. Differences between Aboriginal and non-Aboriginal children were compared using chi-squared tests.

Results: 382 Aboriginal and 3003 non-Aboriginal children were hospitalised for poisoning. Male sex, socioeconomic disadvantage and geographic remoteness were associated with higher crude and adjusted odds of poisoning hospitalisation for both Aboriginal and non-Aboriginal children, but only attained statistical significance in the non-Aboriginal group. Peak age of poisoning incidence was between two to three years. Most poisonings were caused by pharmaceutical agents (83%), particularly aminophenol-derivatives, benzodiazepines and other antihypertensives, not elsewhere classified. Clinical outcomes were similar for both Aboriginal and non-Aboriginal children, with few repeat admissions or procedures, and most with a length of stay of one day or less. Only 8% of children had recorded social worker involvement.

Conclusion: Medications commonly used in the general population were amongst the most frequent causes of hospitalised poisoning for both Aboriginal and non-Aboriginal children. Sex, geographic remoteness and area-level disadvantage were associated with higher risk of poisoning hospitalisation and clinical outcomes were similar across both groups.

Theme: Indigenous health and injury prevention, Presentation Type: Oral
Characteristics of hospitalised unintentional poisoning amongst Aboriginal and non-Aboriginal preschool children in New South Wales: a population data linkage study, Caroline Lee
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Theme: Indigenous health and injury prevention, Presentation Type: Oral
Preventive effects of motorcycle helmets on clinical outcomes in motorcycle crashes, Seung Chul Lee Dongguk University Ilsan Hospital.

Background.

Injuries caused by motorcycle crashes are one of the major public health burdens leading to high mortality, functional disability. The risk of death among motorcyclists is 30 times greater than that among car drivers, with head injuries the leading cause of death. The motorcycle helmet is crucial protective equipment for motorcyclists.

Aims

This study aimed to measure the protective effect of motorcycle helmet use on intracranial injury and mortality and to compare the preventive effect in drivers and passengers.

Methods

This is a cross-sectional study based on the Emergency Department(ED)-based Injury In-depth Surveillance(EDIIS) database from 23 EDs in Korea. All of trauma patients injured in motorcycle crashes between January 1, 2013. and December 31, 2016. were eligible, excluding cases with unknown helmet use and outcomes. The primary and secondary outcomes were intracranial injury and in-hospital mortality. We calculated adjusted odds ratios (AORs) of helmet use and driving status for study outcomes after adjusting for potential confounders.

Results

Among 17,791 eligible patients, 10,668(60.0%) patients were wearing helmets at the time of the crash, 2,128(12.0%) patients had intracranial injuries and 331(1.9%) patients had in-hospital death. 16,381(92.1%) patients were drivers and 1410(7.9%) patients were passengers. 62.6% in drivers and 29.1% in passengers were wearing helmets at the time of the crash. Compared to un-helmeted group, the helmeted group was less likely to have an intracranial injury(8.0% vs. 17.9%, AOR: 0.43(0.39-0.48)) and in-hospital mortality (1.0% vs. 3.2%, AOR: 0.29 (0.22-0.37)). In the interaction model, AORs (95% Cs) of helmet use for intracranial injury were 0.42(0.38-0.47) in drivers and 0.61(0.41-0.90) in passengers, respectively. There was a significant preventive effect of helmet use on in-hospital mortality in driver(AOR: 0.26(0.21–0.34)).

Discussion and conclusions

Wearing helmets in motorcycle crashes reduced intracranial injuries and in-hospital mortality. The preventive effect of motorcycle helmet use on intracranial injury was stronger in drivers than in passengers. Public health efforts to increase motorcycle helmet use are needed to reduce health burden from injuries caused by motorcycle crashes.

Theme: Road and transport safety, Presentation Type: Rapid Oral Presentation (e-Poster)
Epidemiology and Outcomes of Traumatic Brain Injury in Korean Children, SEUNG CHUL LEE
Dongguk University Ilsan Hospital.

Background

Traumatic brain injury (TBI) is one of the major causes of death and disability in children. Understanding epidemiologic characteristics of TBI in children is the first step for developing preventative strategies, optimizing care systems and rehabilitation of injury.

Aims

We aimed to describe and compare epidemiologic features and outcomes among children with TBI according to aged groups.

Methods

This is a cross-sectional study based on the date of the Emergency Department (ED)–based Injury In-depth Surveillance in Korea. ED-based injury in-depth Surveillance is a prospective injury registry and total 23 EDs in tertiary hospital participate in it. We identified children (aged 0 to 18) with TBI in EDs between Jan. 2011 and Dec. 2015. We classified children into two aged categories: pre-school group (under 7 years old) and school-aged group (7 years old and over). We compared epidemiologic characteristics and outcomes according to aged groups (pre-school group and school-aged group) and evaluated temporal variability in incidence. Rate of mortality and intracranial injuries was compared among aged groups using multivariate logistic regression analysis.

Results

During the study period (5 years), a total of 30,866 children with TBI were included in the analysis. There were 19,231 patients (62.3 %) in pre-school group and 11,635 patients (37.7 %) in school-aged group. TBI in school-aged group occurred more in male, road and school/educational facilities, recreational and educational activities, daytime and weekday compared with pre-school group (all p value < 0.01). TBI in pre-school group occurred more in home, activity of daily living, evening time and weekend. Motor vehicle collision was more common in school aged group (35.6% vs 19.7%) but fall was more common in pre-school group (36.7% vs 72.2%). The school-aged group had a higher mortality rate compared with pre-school group (0.3% vs 1.1%, AOR: 1.6 (1.1-2.2)), and a higher intracranial injuries ((7.3% vs 14.4%, AOR: 1.6 (1.5-1.8)).

Discussion and conclusions

The epidemiological characteristics of TBI in school-aged group are differentiated from pre-school group and rate of mortality and intracranial injuries in school-aged group were higher. It is necessary to develop differentiated preventative strategies and treatment systems according to aged groups in children.

Key Words: Epidemiology; Traumatic brain injury: Pediatrics: children

Theme: , Presentation Type: Rapid Oral Presentation (e-Poster)
Experiences with navigating and integrating information in the community following spinal cord injury,

Alyse Lennox
Monash University

Background: After sustaining a spinal cord injury (SCI), individuals often develop secondary conditions. Up to date information is important in order to prevent these conditions, however people living with SCI have reported difficulties managing information in the community, which can negatively impact on their independence and quality of life.

Aims: This exploratory qualitative study aimed to describe, from the perspective of people living with SCI, their experiences with navigating and integrating information in the community.

Methods: Twenty-two in-depth interviews were conducted with people living with SCI between September and October 2015. Participants were recruited through the Australian Quadriplegic Association and were purposively selected to ensure representation based on age, gender, SCI level and compensation status. Data were thematically analysed using a framework approach.

Results: People living with SCI reported using multiple, complementary sources of information throughout their recovery and had a desire to act as a source of information and share their knowledge with others. They described the need to become experts about their own condition and how they appraised SCI related information. They also encountered issues with access to information through health professionals in the community, which was in contrast to receiving large quantities of information in rehabilitation. Some participants anticipated that their information needs wouldn’t be acknowledged by health professionals and expressed frustration at the lack of information surrounding their future with SCI.

Discussion and conclusions: People living with SCI currently use a number of processes and sources to meet their informational needs. Our findings highlighted that greater support is required for individuals with SCI to navigate information sources on their own after transitioning from rehabilitation into the community. Given that many participants’ preferred source of information was the Internet, rehabilitation could also be an opportune time to provide education related to finding and appraising information online and connecting with other spinal cord injured individuals. The importance of using online information in conjunction with a health professional should also be emphasised. Finally, there is a need for improved access to spinal specialists and community health professionals who are knowledgeable about SCI.

Theme: Rehabilitation and trauma care, Presentation Type: Oral
An epidemiological analysis of prehospital fatal injuries in New Zealand: identifying opportunities for primary and secondary prevention, Rebbecca Lilley
University of Otago

Background: Trauma-related injuries are a common cause of mortality globally. There has been little examination of prehospital fatalities (fatalities occurring either at the scene of the injury event or enroute to hospital) and the identification of primary and secondary prevention opportunities in the prehospital setting to prevent trauma-related fatalities in New Zealand.

Aims: To determine the incidence and characteristics of prehospital injury deaths in New Zealand for the period 2008-2012.

Methods: All deaths registered in 2008-2012 with an underlying cause of death external cause-code V01-Y36 were selected from the Mortality Collection and linked to hospital discharge data and Coronial case files extracted from National Coronial Information System (NCIS). Deaths that occurred in residential care facilities were identified and excluded from this study. Hospital discharge data and Coronial case files were used to identify if cases died either in the hospital or prehospital setting. Information regarding the demographic characteristics of the decedents, and the injury circumstances were extracted.

Results: 9,430 injury deaths were identified from the Mortality Collection, of these 5,850 (62%) occurred in the prehospital setting and were available on NCIS. The distribution of prehospital deaths varied by age, sex, ethnicity, level of deprivation, mechanism of injury, rurality and region. Differences in prehospital fatal incidence rates by age, sex, ethnicity and region were observed.

Discussion & conclusions: The prehospital setting identifies the major burden of deaths due to injury in NZ. However little is known about the characteristics of these deaths. The findings of this study will help inform primary prevention activities with the aim of reducing trauma-related fatal injuries. In addition, understanding the distribution of injury-related mortality is a key step in identifying opportunities for improved care in advanced trauma systems in NZ.

Theme: Other, Presentation Type: Oral
A geospatial examination of access to advanced trauma services in New Zealand: identifying opportunities to improve survival following serious injury. Rebecca Lilley
University of Otago

Background: Outcomes following injury are very time sensitive. Timely advanced hospital level care gives the injured patient the best chance of survival from both intentional and unintentional injury. Little is known about the coverage and accessibility of both land and air ambulance services in New Zealand despite the fact the country can be geographically challenging.

Aims: To determine the geographical and population coverage of emergency ambulance services and advanced hospital level care providers in New Zealand.

Methods: The emergency ambulance service response time from each meshblock (smallest geographical area used by Statistics NZ) was estimated using the location of: 1) the nearest rescue helicopter and road ambulance field stations and 2) the nearest advanced hospital service (level 1 and 2 hospitals). Physical addresses of ambulance field stations and advanced hospital services were converted to geographic coordinates and estimates of driving and flying response times (sum of despatch time, travel time from field location, on-scene time and travel time to hospital) for each meshblock were calculated using Open Source Routing Machine software. The areas covered by existing emergency ambulance services within set time periods (45, 60, 75, 90, 120 minutes) were used to identify the proportion of the population and land area covered by existing services.

Results: Preliminary analysis has identified that 84% of the NZ population have combined air and road ambulance access to advanced level hospital services within 60 minutes. Sub-populations and land areas without adequate emergency coverage will be discussed. Maps depicting population and land area coverage at different total response time periods will be presented.

Discussion & conclusions: Over 694,000 (16%) New Zealanders do not have timely access within 60 minutes to advanced level hospital care, suggesting opportunities to maximise access to these services to increase the chances of survival from serious trauma in New Zealand may exist. The findings of this research will be used to inform trauma system planning and acute hospital level trauma care in New Zealand.

Theme: Rehabilitation and trauma care, Presentation Type: Oral
The Ironbark Project: developing and trialling a fall prevention program for older Aboriginal people in New South Wales, Caroline Lukaszyk
The George Institute for Global Health

Background and aims:

Falls are the leading cause of injury-related hospitalisation for older Aboriginal people in New South Wales (NSW), accounting for 24% of all injury-related hospital admissions. Our recent audit of existing services identified very few Aboriginal-specific fall prevention programs available across the state. Stakeholder interviews showed significant interest by health care providers in offering appropriate fall prevention programs for their older Aboriginal clientele. Informed by this consultation and from Yarning Circles with over 70 older Aboriginal people, we developed and pilot tested a new fall prevention program, the Ironbark Program, in partnership with Aboriginal community groups.

Methods:

The Ironbark Program is an on-going, weekly, group-based, strength and balance exercise class with an education component held within Yarning Circles. The program was delivered in 6 communities in NSW over a 6-month period from June 2015. A mixed methods approach was used for evaluation; measures of strength and balance were collected to measure changes in physical outcomes, participants completed questionnaires and interviews to assess program acceptability, and monthly calendars were completed to track participant fall incidence.

Results:

Ninety eight participants (mean age= 64, SD 9.7, range 40 to 90 years, 71% female) registered for the program; 77 (85%) completed baseline and follow-up measurements. Positive ongoing feedback was received, with attendance remaining constant and ranging from an average of 8 to 27 participants at each site. On average across all sites, there was improvement in participant leg strength (time to complete 5 repetition sit-to-stand: 14 sec to 11 sec, p<0.01), balance (timed single-leg stance: 5.6 sec to 7.8 sec, p<0.01) and gait speed (walking speed over 4 metres: 0.51m/s to 0.94m/s, p<0.01). Participants reported both the exercise and group discussion ‘yarning’ component of the program were enjoyable and valuable.

Conclusions:

The Ironbark Program was well received, demonstrating acceptability and significant improvements in physical function. If proven to be effective in a definitive trial, this program could prevent falls and associated disability, allowing older Aboriginal people to remain healthy and strong in their homes and communities.

Theme: Indigenous health and injury prevention, Presentation Type: Oral
Investigating the context and impact of fatal and non-fatal drowning in India, identifying approaches to prevention, Caroline Lukaszyk
The George Institute for Global Health

Background:

Of the 372,000 drowning deaths reported globally each year, over half occur in the WHO South-East Asian and Western Pacific regions. High drowning mortality rates in India (6.4/100,000) contribute to this burden. There is little known about the contextual factors surrounding fatal and non-fatal drowning cases in India, nor on the resulting social or economic impact. Furthermore, it is uncertain which drowning prevention interventions have been delivered successfully/sustainably in this setting, or what challenges may be faced on intervention implementation/upscale.

Aims:

1. To investigate the context and social impact of fatal and non-fatal drowning in India
2. To explore enablers and barriers in implementing drowning prevention initiatives
3. To identify promising drowning prevention interventions for feasible implementation/upscale

Methods:

A retrospective review of medical records for drowning admissions from selected health facilities will be performed, with families and/or patients contacted for follow-up. In-depth interviews and focus group discussions will be held with community members from high risk populations and stakeholders involved in drowning prevention activities. This study will be conducted from December 2016 to December 2017.

Results:

Follow-up of drowning hospital admissions within India will provide insight into the contextual factors surrounding drowning events and treatment sought, while qualitative research stages will investigate the current status of drowning prevention and identify suitable drowning prevention interventions and potential approaches to their implementation. Early study findings will be presented at the AIPN 2017.

Discussion:

This study will provide a better understanding on the context and impact of drowning in India. By identifying enablers and barriers to the implementation of drowning prevention initiatives, feasible initiatives and approaches to their implementation will be identified. Policy briefs presenting the outcomes of the study will be developed and distributed to policy makers and implementers. This study may be of use for identifying approaches to drowning prevention in other LMIC in the Asian region.

Conclusions:
An in-depth understanding of the context and impact of drowning-related mortality and morbidity is required to identify effective targeted approaches towards drowning prevention. This study will provide a suite of research to guide the implementation/upscale of effective drowning prevention initiatives in India.

Theme: Ageing/elder safety, Presentation Type: Oral
Mortality risk among adults hospitalised with hip fracture: a population-based matched cohort study,
Reidar Lystad  
Macquarie University

Background: Hip fracture is one of the most important public health problems worldwide. It is associated with high morbidity and mortality, especially among elderly patients. Improved understanding of long-term mortality attributable to hip fracture is needed to accurately inform injury burden studies.

Aims: To quantify and describe the 12-month mortality of adults presenting to hospitals in Australia with a hip fracture.

Methods: A population-based matched cohort study using linked hospital and mortality data from four Australian states (New South Wales, Queensland, South Australia, and Tasmania) during 2008–2010 was conducted. The hip fracture cohort included individuals aged 18 years or over who had an hospital admission with a primary diagnosis of hip fracture in 2009 (n = 10,448), termed the index hip fracture. A comparison cohort of non-injured people was obtained by randomly selecting from the electoral roll (n = 10,448). The comparison group was matched 1:1 on age, gender, and postcode of residence. Pre-index injury health service use and 12-month mortality were examined. Mortality rate ratios (MRR) and attributable risk percentages were calculated. Cox proportional hazard regression was used to examine the effect of risk factors on survival.

Results: Individuals with hip fracture experienced significantly worse survival at 12 months post-fracture compared to their non-injured counterparts (P < 0.0001). The unadjusted MRR was 5.34 (95%CI: 4.83–5.90). After accounting for the presence of comorbidities and health care service use in the 12 months pre-fracture, the excess mortality risk was more than 3.5 times higher in the hip fracture cohort then the non-injured cohort (adjusted MRR: 3.65 [95%CI: 3.26–4.08]). Hip fracture was likely to be a contributory factor in 73% of mortality within 12 months after the index hip fracture. Excess mortality risk at 12 months post-fracture was higher in males than females and in younger age groups.

Discussion and conclusions: The differences between unadjusted and adjusted MRRs suggests that only a limited portion of the excess mortality risk was accounted for by pre-existing comorbidities, and that the remaining elevated risk of death was likely due to long-term consequences of sustaining a hip fracture. Because the index hip fracture is the main predictor of subsequent mortality, the main priority for reducing excess mortality after hip fracture is primary and secondary prevention of hip fracture.

Theme: Ageing/elder safety, Presentation Type: Oral
A Qualitative Study of Injury and Disability among Formerly Homeless Adults Residing in Housing First, Jessica Mackelprang
Swinburne University of Technology

Background: Homelessness is associated with a myriad of adverse health outcomes, including intentional and unintentional injury. Housing First, which provides permanent, low-barrier, nonabstinence-based housing for homeless individuals, is gaining traction as the preferred method of ending chronic homelessness. Although provision of stable housing has been associated with reduced health service utilisation (e.g., ambulance use, hospital admissions), the lived experience of injury and disability among individuals residing in such programs has not been studied. Exploring the perspectives and concerns of Housing First residents is important for clarifying their needs and values and for informing the development of injury prevention and safety promotion initiatives.

Aims: Aims of the current study were twofold: 1) to describe the lived experiences of injury and disability among adults residing in a single-site Housing First program, and 2) to discuss implications for injury prevention in Housing First programs.

Methods: These data were collected as part of a qualitative study of 44 formerly homeless individuals with alcohol problems who were residing in a single-site Housing First program in an urban centre in the Pacific Northwest United States. Semi-structured interviews (45 to 60 minutes) explored the day-to-day experiences of residents (mean age = 53.2 years). Interviews were audio-recorded and transcribed. Conventional content analysis was utilised for data analysis.

Results: Although interview prompts did not enquire specifically about health-related topics, injuries of varying degrees of severity were described spontaneously by 41% of participants, including broken bones and traumatic brain injury. Experiences of assault were particularly common among women (50%). Many of the injuries described had occurred prior to moving into Housing First, but participant narratives suggested that some individuals suffered ongoing symptoms (e.g., chronic pain, memory problems). Fifty percent of participants expressed concerns about injury risk, disability, and/or medical frailty among fellow residents. Participants worried about fellow residents’ risk for falls and need for disability services, and suggestions for safety precautions (e.g., grab bars) were offered.

Discussion and conclusions: Concerns regarding injury and disability were common among this sample of Housing First residents. For many participants, Housing First was considered a reprieve of sorts from unsafe conditions on the streets. Nonetheless, chronic symptoms associated with past injuries, ongoing risk of injury in Housing First, and disability were salient concerns. This presentation will discuss avenues for future research and considerations for Housing First program development, as this housing model continues to gain popularity around the world.

Theme: Injury in vulnerable populations, Presentation Type: Rapid Oral Presentation (e-Poster)
Factors associated with leading indicators of Work Health and Safety: Findings from a national workplace health and safety survey., Miriam Marembo
Monash University

Background: The economic and social costs of work-related injury and illness are quite substantial, accounting for about 4.1% of Australia’s GDP. Whilst the steady reduction in lagging indicators (such as the incidence of workplace injuries) suggests that workplaces in Australia are becoming safer, there is need to continue promoting better preventative work health and safety (WHS) practices. This can be achieved through the use of leading indicators such as the Psychosocial Job Quality (PJQ) scale, the Occupational Health and Safety (OHS) vulnerability scale and the Organisational Performance Metric-Monash University (OPM-MU).

Aim: This study aims to determine the associations between leading indicator measures and worker, workplace and job characteristics; and also to assess the degree of overlap between three WHS leading indicator measures.

Method: The study uses data from the National Workplace Health and Safety Survey, carried out via telephone and internet in June 2016 for 1130 workers who completed a 20 minute questionnaire. Descriptive and inferential statistics were conducted using the chi-squared test for a range of worker, workplace and job characteristics. The overlap in leading indicator outcomes was examined using descriptive statistics for the leading indicators; as well as for selected industries, occupations and by work site size.

Results: The prevalence of leading indicators varied by occupation and workplace size. Workers employed in larger worksites (>20 employees) and in white collar occupations were more likely to consider their job to have high psychosocial demands. Blue collar workers were more likely to consider their jobs to have low job security and control as measured by the PJQ scale. Workers employed in smaller worksites and in blue collar occupations were more likely to be exposed to hazards, as well as report having inadequate OHS policies and procedures compared to their counterparts, as measured by the OHS vulnerability scale. Overall, 32.0% of the sample met criteria for WHS risk on one of the three and 11.3% met the criteria for all three leading indicator measures.

Discussion and Conclusions: Our findings provide insights into the patterning of unique OHS risk factors among different segments of the labour force. These findings also suggest that there is some overlap in the constructs being measured by the three leading indicator scales, but also that each captures something unique corresponding to the type of prevention and control action being measured. These findings may assist WHS stakeholders in developing WHS programs and policies targeting specific risk factors.

Theme: Workplace injury and safety, Presentation Type: Oral
"ACL Injury Ages the Knee by 30 Years": The Association between ACL/Meniscal Injury and Knee OsteoArthritis Before Age 30 Years, Stephen Marshall
University of North Carolina at Chapel Hill

Background/Purpose: Severe knee injuries, including injuries to the menisci and anterior cruciate ligament (ACL), are common in athletes and military populations. These injuries are associated with accelerated onset of knee osteoarthritis (OA). However, few studies have examined this association in detail and little is known about preventing rapid progression to knee OA secondary to ACL/Meniscal injury.

Aims: Prospectively study the onset of knee OA in an existing cohort of young military officers with a history of ACL/Meniscal Injury.

Methods: We utilized an existing "parent" cohort of 6452 military participants enrolled between 2004 and 2008. In the parent cohort, injuries were prospectively tracked, pre-injury biomechanical data were collected and pre- and post-injury blood specimens were banked. Cohort members with ACL/meniscal injuries and a site-matched subset of non-injured were surveyed and radiographed to assess radiographic and symptomatic onset of knee OA.

Results/Outcomes: Self Report of Pain and Symptoms: Over one-third (36%) of ACL/meniscal injury participants reported (at the moderate or severe level) knee pain, aching, or stiffness in the past 30 days, compared to 13% of non-injured. Participants with ACL/meniscal injury had clinically-relevant deficits (>7) on symptoms, sports/recreation and quality of life on Knee Injury and Osteoarthritis Outcome Score (KOOS) scales. Self-Reported OA Diagnosis: Among participants with a history of ACL/meniscal injuries, 8% (10/128) reported that they had been diagnosed with knee OA by a physician. In comparison, none of the non-injured (0/129) reported having been diagnosed with knee OA (p=0.020). Radiographic OA: Radiographs from 86 participants [42 ACL/meniscal injury and 44 non-injured] were read and scored. A total of 26% (11/42) of ACL/meniscal injury participants had evidence of radiographic OA (Kellgren-Lawrence grade of 2 or higher) vs 0% (0/44) in non-injured participants (p<0.001). Surprisingly, the incidence of OA did not depend on the time since injury: incidence was essentially identical between those whose first ACL/meniscal injury was prior to entry to the military and those who first ACL/meniscal injury was after entry into the military.

Discussion and Conclusions: Using an established injury cohort, we prospectively identified an elevated risk of knee OA before age 30 years. The high incidence of knee OA in this post-ACL/meniscal injury population is concerning, given their young age and the physically-demanding nature of their occupation. Onset of ACL/meniscal injury was much more rapid than expected, suggesting injury may be a late-stage completion point in a pre-established multi-phase causal process.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
*University of North Carolina at Chapel Hill*

**Context:** Message Framing is a concept that has seen extensive use in the context of injury and violence prevention messaging. However, the principles of Message Framing also have broad applicability beyond communications. Specifically, they can also be used to inform the strategic planning of long-term injury prevention activities. We demonstrate the application of message framing concepts in the context of motorcycle safety and prevention of traumatic brain injury in the state of North Carolina, in the United States of America (USA).

**Objectives:** Illustrate the application of Message Framing concepts to the issue of motorcycle safety and prevention of traumatic brain injury in the state of North Carolina, USA.

**Key messages:** In the mid-1970s, all states in USA except for California had laws requiring motorcyclists to wear a helmet while riding a motorcycle. Over the following 40 years, many of these laws were either repealed or considerably weakened. Currently, only 19 of the 50 states in the USA have a law that requires all motorcyclists to wear a helmet. North Carolina is one of the minority of states that has retained a helmet law. This presentation discusses strategies used to inform policy-makers and other key stakeholders in North Carolina about aspects of the motorcycle helmet law in North Carolina. Coalition building and awareness raising strategies will be discussed. The principles of message framing will be illustrated using specific examples of communication strategies pertinent to the North Carolina motorcycle helmet law. The formulation of research objectives and framing of research will also be discussed in the context of message framing principles, noting that federal USA laws that impose strict limits on legislative advocacy by researchers.

**Discussion and Conclusions:** Message Framing provides a useful context for organizing long-term strategic plans for injury issues. It is highly applicable to communications strategies, and can also inform the formulation of long-term strategic research agenda. Utilizing the full potential of framing requires long-term strategic planning and sustained activity over multiple years, whilst retaining a focus on a singular objective.

*Theme: Translating research into practice and policy, Presentation Type: Oral*
Suicidal Ideation: a point for intervention? Sharon Matthews  
Turning Point

Background: Suicide is a leading cause of death worldwide. While suicide has been identified as a priority area for the development and delivery of effective and sustained policy and treatment, there is a paucity of robust and timely data at the population level. The Victorian Alcohol and other drug related Ambo Project was expanded to include self harm and mental health as well as AOD nationally in 2012. As part of this expansion suicidal ideation was included. Suicidal ideation is defined as thoughts of suicide without taking action and therefore provides a potential opportunity for intervention.

Aim: To determine the extent of suicidal ideation among ambulance attendances and associated characteristics in Victoria since 2013.

Methods: The Victorian Ambo Project has been running since 1998 focusing on alcohol and other drugs until 2012, there after including self harm and mental health. Electronic patient care records are received from Ambulance Victoria and additional coding of the data is conducted by a team of data coders. Information is available on the ideation episode e.g a plan, evidence of a plan, the intended modality, in addition to alcohol and other drug use, transportation to hospital; history of mental health. Simple descriptive statistics will be conducted and trends over time will be explored.

Results: Previous analysis showed there to be over 7000 suicidal ideation ambulance attendances in 2013 (in addition to 6500 suicide attempts), 48% were male, a plan was reported by 39%. The three most common stated modalities were vehicular impact 11%, laceration/penetrating wound 10% and AOD overdose 8%. 97% were transported to hospital. 79% had reported a history of mental health problems (Lloyd et al 2015). These results will updated and expanded through to 2017.

Discussion/conclusion: In one year the Victorian Ambulance Service attended over 7000 suicidal ideation cases this will be an under estimation. This was over and above the actual number of people who had attempted suicide. These data highlight the extent of the problem and the need for interventions. Establishing an evidence base for the extent of ideating behaviour provides invaluable information for targeted approaches.

Theme: Other, Presentation Type: Oral
Western Australia Childhood Injury Report: Patterns of Injuries among 0-19 year olds in Western Australia, 2001-2011, Jessica McKenna

Injuries are a leading cause of morbidity and mortality among children in Western Australia. In 2015 Kidsafe WA produced The Western Australia Childhood Injury Report: Patterns of Injuries among 0-19 year olds in Western Australia, 2001-2011. This report aims to provide an overview of unintentional and intentional childhood injuries in WA, while providing a comparison to the previous reporting period from 1989-2000. In addition, the report allows for regional, national and international comparison. The report utilises data from the HealthTracks Reporting application of the Epidemiology Branch at the Department of Health WA and Injury Surveillance Data from the Princess Margaret Hospital Emergency Department. Results are presented by age group, gender, Aboriginality, cause and regional distribution across the state.

During the study period an average of 79 children died every year as a result of injury. In addition 10,580 children were hospitalised and 50,140 children presented to emergency departments across the state annually due to injury. Across deaths, hospitalisations and emergency department presentations, children aged between 0-4 and 15-19 were at greater risk of injury. Similarly males were at greater risk of injury in comparison to females. Transport injuries were the most common cause of injury-related death, whereas falls were the most common cause of injury-related hospitalisation and emergency department presentation. The data analysed also identifies gaps between population groups and those residing in regional and remote areas of WA.

Although this report shows that injury rates are decreasing, it is still of great concern that many children are dying or being hospitalised as a result of injury. 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 demonstrate the significance of childhood injuries within Australia with specific reference to Western Australia and outline the role of data collection on injury prevention strategies.

Theme: Child health and safety, Presentation Type: Oral
The Economics of Sports Injury Prevention Compared to that of Sports Injury Treatment, Paul McPhee
Federation University Australia

Economic impacts of sports injury prevention expenditures are compared to those of sports injury treatment expenditures within a national Input-Output (IO) framework. As this framework illustrates the main sector flows and sub-flows as defined by the ABS Economic Accounts Division, and these have different multiplier values, it allows for this comparison at the sector and aggregate level.

Of specific interest are: economic outcomes from a simultaneous prevention expenditure increase and treatment expenditures decrease; and determination of a prevention-treatment expenditure mix that maximises beneficial economic outcomes. Two crucial hypotheses to be tested are first, whether a simultaneous switch towards prevention expenditure and away from treatment expenditure improves economic outcomes; and second, does increased prevention expenditure result in reduced treatment expenditures?

Earlier studies are reviewed and relevant statistical collections are reconciled with National Accounts and National IO table data classifications. Improvements in estimating methods, data coverage and classifications are suggested and diagnostic regressions are used to test the two hypotheses referred to earlier. Supplementary National Accounts and industry data are used to identify sub-flows that illustrate prevention expenditures and treatment expenditures. These are teased from their parent sector-flows and re-aggregated into prevention and treatment expenditure blocks.

Economic indicators compared using the IO software will be: expenditure contribution to sector outputs, GDP, labour income and productivities, business profits and capital productivities, value-adding; imported know-how, scientific knowledge and related technologies, own sector and flow-on multipliers across these expenditure categories, government debt and fiscal imbalance contributions.

Several policy scenarios are then simulated using the IO software’s ‘change in final demand function’ as applied to prevention capital expenditures and treatment capital expenditures. These policy scenario simulations will progressively switch government expenditure towards prevention activities and away from treatment activities. The examination and comparative analysis referred to in the previous paragraph is then repeated with values of the prevention expenditure and treatment expenditure economic indicators being progressively compared as the switch towards prevention expenditure becomes stronger.

All economic indicators are then examined for evidence that increasing prevention expenditure whilst decreasing treatment expenditure generates improved (more favourable) economic outcomes by way of increased GDP, government finances, labour and capital productivities, employment; decreased workplace absenteeism and associated costs.

Hence this research makes a direct contribution to measurement, methodology and policy. The final comparative analysis determines an appropriate sports injury prevention-treatment expenditure policy mix spread across the sector sub-categories that

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Theme: Sports injury prevention and rehabilitation, Presentation Type: Rapid Oral Presentation (e-Poster)
General Practitioners have limited consultancy time to work with patients presenting with mental health problems and their options are limited in terms of what they can do for these patients. An online tool for assessing suicide risk has been developed in order to help GPs detect when the level of patient distress is high and this paper explores the options for integrating this tool within medical practices. The tool was developed by using binary logistic regression to predict self reported suicide ideation in an online sample of nearly 17,000 clients on the basis of K6 and other relevant data. The model performed well for males and females in all age groups (18-64) and was validated using a diagnostic measure for depression. A sample of ten healthcare professionals have highly commended the simplicity of the tool and confirmed the need for such a tool, especially if it can be incorporated in the medical software utilised by medical centres. However, the actual implementation requires more testing. In order to be effective the risk of false alarm must be minimised, but at the same time patient safety must be ensured. A suicidal barometer model is envisaged with appropriate recommendations for GP actions matched to the level of risk predicted. There is some degree of dissension in the field regarding how this should be done, although appropriately designed (online) education materials, direct questioning regarding suicide planning, the development of safety plans with patients and finally, emergency assistance (e.g. hospitalisation), are commonly considered as useful approaches.

Theme: Other, Presentation Type: Oral
A ten year review of child injury hospitalisations, health outcomes and costs in Australia, Rebecca Mitchell
Macquarie University

Background: Injury is one of the leading causes of death and hospitalisation for children and the impact of childhood injury can be far reaching. There has been no comprehensive examination of injury characteristics and survival post-discharge over time for injured children at a national-level.

Aims: To examine the characteristics, temporal trend and survival for children who were hospitalised as a result of injury.

Method: Injury-related hospitalisations involving children aged 16 years or less in Australia during the financial years 1 July 2002 to 30 June 2012. Linked national hospitalisation and mortality records were used to describe the characteristics of hospitalisations. Binomial regression was used to examine temporal trends and Cox proportional hazard regression was used to examine factors associated with 30-day survival post injury hospitalisation. Hospital treatment costs were also estimated.

Results: There were 686,409 index injury-related hospitalisations, with an age-standardised injury hospitalisation rate of 1489 per 100,000 population (95%CI 1485.3-1492.4) in Australia, excluding the Australian Capital Territory. Child injury hospitalisation rates did not change over the ten year period. For every severely injured child, there are at least 13 children hospitalised with minor or moderate injuries. The total cost of child injury hospitalisations was $2.1 billion, with an annual cost of $212 million. Falls (38.4%) were the most common injury mechanism. Factors associated with a higher risk of 30-day mortality were the child was aged ≤10 years, higher injury severity, injured in a transport incident or following drowning and submersion or other threats to breathing, usual residence was regional/remote Australia, and head injury.

Conclusions: Childhood injury is one of the leading causes of death and hospitalisation in Australian children and hospitalisation rates have not reduced in ten years. Children’s patterns of injury change with age, and priorities for injury prevention alter according to their developmental stages. The development of a national multi-sectorial childhood injury monitoring and prevention strategy in Australia is long overdue.

Theme: Child health and safety, Presentation Type: Oral
Comparison of health outcomes of young people hospitalised with an injury who have and do not have a chronic health condition, Rebecca Mitchell
Macquarie University

Background: Injury is amongst the most common reason for hospitalisation of young people. There is a growing number of young people with chronic diseases, yet little is known about the impact of chronic disease on young people who have been traumatically injured.

Aim: To compare health outcomes and hospital treatment costs for injured young people with and without chronic health conditions.

Method: A retrospective examination of hospitalised injury in young people aged ≤ 25 years with and without a chronic health condition using linked hospitalisation and mortality records during 1 January 2010 to 30 June 2014 in New South Wales, Australia. Health outcomes, including hospital length of stay (LOS), unplanned hospital readmission, hospital treatment costs, and 12-month mortality were examined. A 1:1 matched design was used to determine excess mean hospital LOS and cost for young people with and without a chronic health condition.

Results: There were 184,819 injury hospitalisations of young people; 13.8% had a chronic health condition. Compared to young people who did not have a chronic health condition, those with one had twice the mean hospital cost, higher unplanned hospital readmissions, and higher rates of mortality. Injured young people had a three times higher likelihood of having a prolonged LOS if they had a chronic health condition (Adjusted odds ratio: 3.89; 95%CI: 3.69-4.11). Renal conditions, hypertension and anaemia had the highest excess mean LOS and anaemia, hypertension, coagulation defects and renal conditions had the highest excess mean cost for matched injured individuals with and without the health condition.

Conclusions: Health outcomes following injury are worse for young people with a chronic health condition. The increasing prevalence of young people with a chronic health condition has implications for survival following traumatic injury, treatment, provision of support services, resource use, and data collection of comorbid conditions.

Theme: Child health and safety, Presentation Type: Oral
Home injuries in preschoolers. A household quandary --- Who is to blame?, Nadeeya Mohamad Nor
Faculty of Medicine and Health Sciences, Universiti Sains Islam Malaysia

Background: Home injury is one of the important preventable public health issues. In Malaysia, injury at home ranked second to motor-vehicle accident and its prevalence was higher among preschoolers despite the fact that the home is considered to be a safe place for them. Therefore, this study was conducted to examine maternal and child factors that predict the occurrence of minor home injuries among children aged 1-4 years old living in urban area.

Methods: A total of 500 mothers who have at least one child of aged 1-4 years old were selected as respondents. Validated self-administered questionnaires were distributed to mothers who visited child health clinics in an urban area. Predictive factors for home injuries in children were assessed. The factors included maternal and child factors such as socio-demographics characteristics, mother’s injury prevention practices, mother’s knowledge and perception towards injury prevention, social support received by mothers, maternal parenting style and child’s proneness to injury.

Results: Mother’s report of minor home injuries in children aged 1-4 years old were 28.6% with higher proportions occurring among the boys (37.9%). Both maternal and child characteristics predicted home injuries in children. Young mothers with lower level of education, poor injury prevention practices, lack of social support from spouse and practicing a relaxed-parenting style predicted child injury at home. Being a boy and injury prone also predicted home injuries among the children.

Discussion and Conclusions: Future strategies need to be directed to develop injury prevention programme targeting the family. There is a need for educational and intervention programmes to increase positive safety practices, good social support and positive parenting in a family to make the home a safe environment for children.

Key words: unintentional injury; preschool children; prevention; social support; parenting styles.

Theme: Child health and safety, Presentation Type: Oral
Suicide among nursing home residents: To prevent or assist?, Briony Murphy
Monash University

Context: Older adults have one of the highest suicide rates in Australia and in many countries around the world. Yet, little is known about suicide among older adults who reside in nursing homes. Conversations about suicide among older adults, particularly those perceived to be at the end of their lives, are often overshadowed by the euthanasia debate. More detailed information is required to inform constructive approaches to the prevention of suicide in this population. Hence, the current research project examines intentional deaths, including suicide, among nursing home residents in Australia using existing medico-legal information generated for coroner’s investigations.

Objectives: This presentation will examine current attitudes and approaches to suicide prevention among older adults drawing on the researcher’s own experiences in (a) reviewing coroner’s files of nursing home residents who died from suicide; and (b) consulting with key experts and stakeholders in the field to develop appropriate prevention strategies.

Key messages: While youth suicide is generally accompanied by a zero tolerance policy, a common theme encountered throughout this research is that when discussing suicide among nursing home residents, the conversation often becomes about assistance rather than prevention. Separating out the issues of suicide among older adults and euthanasia is difficult but necessary. There is an assumption that the high suicide rate among older adults will be reduced by enacting voluntary euthanasia laws, as individuals who would have taken their own lives using violent means will finally have a legal avenue to do so more peacefully. However, this research demonstrates that not all older adults who died from suicide would have necessarily met the eligibility criteria for voluntary euthanasia. The impact of prioritizing assistance over prevention is that vulnerable older adults may continue to slip through the cracks between voluntary euthanasia laws for the chronically and terminally ill and a lack of services and support for older adults with serious emotional and mental health needs. In light of the ageing population and high prevalence of physical and mental comorbidities among nursing home residents, there is an urgent need to improve our aged care and mental health systems now to prepare for the future.

Conclusions: Suicide is tragic and preventable in any population. Older adults deserve the same right to prevention efforts afforded younger age groups. Prevention and improvement of the aged care and mental health systems should be our first priority in tackling the public health problem of suicide among nursing home residents.

Theme: Ageing/elder safety, Presentation Type: Oral
A Crash Testing Evaluation to Prevent Injuries and Fatalities by Mitigating Vehicle Windscreen Spearing Risk from Road Signs, Nilindu Muthubandara
Transport for New South Wales

1. Background:

Fatal incidents have occurred in Queensland and New South Wales involving road signs spearing through vehicle windscreens. These crashes occurred at T-intersections where the impacting vehicle was travelling at high speed on the continuing carriageway. Transport for New South Wales and Queensland Department of Transport and Main Roads began an innovative joint research program into road sign safety where vehicles have collided with road signs.

2. Aims:

The research aimed to find ways to improve the safety of these road signs. The research program involved testing various treatments which could be retrofitted to existing high-risk signs and also applied to new sign designs.

3. Methods:

A series of vehicle crash-tests were conducted at the Roads and Maritime Services Crashlab facility in New South Wales. Eight crash tests were conducted using two vehicle types, a small passenger vehicle (Daihatsu Charade) and a 4WD (Nissan Patrol). Various sign sizes and arrangements were crash-tested with different treatments, with all tests conducted at a collision speed of 100 km/h.

4. Results:

The first test was a baseline test of a standard sign and post configuration. Upon impact the pop rivets easily sheared and the aluminium sign face crumpled but did not significantly enter the occupant space. However the metal stiffener rails that support the sign face became detached and acted as spears. The top stiffener rail safely travelled over the top of the vehicle cabin. The bottom stiffener rail pierced the windscreen into the vehicle compartment in the general area of the passenger’s head and through the seat, hitting the rear passenger side window. It became clear that the sign should not come in contact with the windscreen, because the windscreen could not provide the necessary force to deflect the sign safely over the vehicle. A cost-effective treatment was developed by tethering the sign face to the support post, which pulled the sign down and prevented contact with the windscreen.

5. Discussion and conclusions:

This new tethering design successfully prevented contact with the windscreen. It was found that both currently installed and new signs could be successfully treated. Once treated, the signs would not penetrate the occupant space in an end-on collision at 100 km/h. This new research will lead to a safer road environment for motorists.

Theme: Road and transport safety, Presentation Type: Oral
‘Ladder Safety Matters’ – insights into the Victorian Department of Health and Human Services response to Coroners’ recommendations regarding ladder fall deaths in Victoria. , Aleksandra Natora
Department of Health and Human Services Victoria

Context:
Coroners perform an important function in publicly examining deaths that are sudden, unexplained or otherwise not readily accountable. The Coroners Court of Victoria is empowered to make recommendations for improving public health and safety as part of their findings following death investigations. Coronial recommendations can profoundly affect whether the community is exposed to unsafe practices, policies or products. State-based Coroners have an important role in injury prevention at a national level.

In the period November 2013 to October 2015 the Victorian Department of Health and Human Services (the department) received nine Coroners’ reports regarding the findings into ten separate deaths which were found to be the result of a fall off a ladder in the home environment.

In addition to domestic ladder fall deaths brought to the attention of the department by the Coroner, the department has identified that major trauma from domestic ladder falls in Victoria has doubled between 2002 and 2013, and that hospital admissions have also steadily increased with over 8,000 admissions between 2009 and 2012. Approximately seven Victorians died each year as a result of injuries sustained in a domestic ladder fall. According to research, ladders are associated with more deaths and injuries than any other household product; men over the age of 60 are over-represented in the statistics.

In response to the Coroners’ recommendations, the Victorian Minister for Health co-launched the ‘Ladder Safety Matters’ national campaign in September 2016 with the Queensland Department of Fair Trading, highlighting the stories of three Victorian men who fell from a ladder in a set of video case studies.

Key messages:

The department is continuing to progress a range of work as part of a coordinated and multi-disciplinary approach to the issue of ladder falls prevention that goes beyond the health sector. Some of the initiatives include the implementation of the ‘Ladder Safety Matters’ national community education campaign, a review of the Aust NZ Portable Ladders Standard, dialogue with the Australian Building Code to offer building innovations that will contribute to reducing ladder falls, and a novel local community approach by a Men’s Shed to offer older men alternatives to climbing ladders.

Discussion:

This presentation will provide insight into the Victorian Department of Health and Human Services response to Coroners’ recommendations regarding ladder fall deaths and will showcase multi-sectoral partnerships that enabled national preventive action on ladder fall injury.

Word count: 391.

Theme: Translating research into practice and policy, Presentation Type: Oral
Falls prevention among Personal Alert Victoria clients, Aleksandra Natora  
Department of Health and Human Services Victoria

Falls are a common and significant challenge to the health, well-being, safety and independence of older people. Personal Alert Victoria (PAV) is a daily monitoring and emergency response service that responds to calls for assistance. It is funded by the Victorian Government through the Department of Health and Human Services and is provided free of charge to eligible frail, and isolated older people and people with disabilities, who have complex ongoing health and support needs and are at risk of medical emergencies, to help them keep living in their own home by. The PAV service has approximately 27,000 clients at any one point in time. Seventy eight per cent of clients are over 75 years. Falls are the most common (frequent and recurring) reason for clients to call for assistance.

While there is robust evidence that a number of interventions can reduce the risk of falls among older people living at home, uptake and participation in these interventions is often poor. The majority of studies have focused on the broader community population who may be younger and less frail than PAV clients, limiting generalisability across the populations.

Aims and Methods:

In order to improve the PAV service and increase engagement with falls prevention activities among PAV clients, the Victorian Department of Health and Human Services engaged Monash University to undertake a research project involving the following components:

1. Cluster analysis of PAV client characteristics (e.g. age, gender, marital/family status, country of birth, medical conditions, etc.) to identify clients most vulnerable to falls and where falls are occurring among this population;

2. Interviews with PAV clients about their perceptions and experiences of falls and falls prevention interventions, especially information on barriers to, and enablers of, participation in prevention interventions (e.g. home or group exercise, medication review, occupational therapy-based home safety assessment, first eye cataract surgery, etc.); and

3. Survey of the experiences and perceptions of PAV assessors in relation to their role in falls prevention, current referral practices, barriers, provision of advice and client response to falls prevention advice and referrals.

Results and Discussion:

This presentation will outline the main findings of the three components of the research project. Implications for the PAV service and broader aged care service provision will be discussed.

Theme: Falls prevention and rehabilitation, Presentation Type: Oral
Agreement between medical record and ICD-10-AM coding of mental health, alcohol and drug conditions in trauma patients, Tu Nguyen
Monash University

Background: Mental health, drug and alcohol conditions are risk factors for both intentional and unintentional injury. Injury studies commonly utilise comorbidity coding from routinely coded data sources to capture information about mental, drug and alcohol conditions, however there is little information available about the validity of these coded data.

Aims: The aim of this study is to compare the prevalence of drug, alcohol and mental health conditions coded from the medical record with ICD-10-AM coded diagnoses in major trauma patients.

Method: A random sample of patients (n=500) captured by the Victorian State Trauma Registry is included. This study involves retrospective medical record review of documented mental, drug and alcohol conditions. Kappa statistics are used to assess the level of agreement between medical record documentation and ICD-10-AM coding.

Results:

The data of about 200 patients have been collected, and preliminary findings indicate the prevalence of mental, drug and alcohol conditions in the medical record (48%) is higher than that coded by ICD-10-AM (33%). The overall agreement for mental, drug and alcohol disorders was 71%. There was 79% agreement of mental disorders with a kappa statistic of 0.47 (95% CI: 0.33-0.60) between the two sources. The percentage agreement was 85% of cases for alcohol use disorders f (Kappa 0.54, 95% CI: 0.39-0.68). There was 83% agreement between the sources with respect to drug disorders (Kappa 0.29, 95% CI: 0.14-0.45).

Conclusion: Agreement between medical record documentation and ICD-10-AM coding ranged from fair to moderate depending on the condition of interest. The full study findings, including presentation of agreement by diagnosis, will be presented.

Theme: Alcohol and drugs related injury, Presentation Type: Oral
Is poor hamstring flexibility a risk factor for hamstring strain in Gaelic games?, Siobhán O’Connor  
Dublin City University

Background: Hamstring strains are a leading cause of injury in adolescent and collegiate Gaelic games, accounting for 4.0-17.6% of all injuries in this population. Worryingly, in elite Gaelic footballers, hamstring strains have increased twofold between the 2008/2011 and 2012/2015 seasons. Poor hamstring flexibility has been proposed as a potential risk factor for sustaining a hamstring strain, however conflicting findings have been noted in the literature. No previous research has examined whether hamstring flexibility can predict hamstring strains in Gaelic games prospectively. The active knee extension (AKE) test has been proposed as a quick, accurate and reliable test to measure hamstring flexibility.

Aims: To establish whether poor hamstring flexibility identified using the AKE test can predict those at risk of sustaining a hamstring strain in Gaelic games and identify population specific cut-off points to predict those at risk of sustaining a hamstring strain.

Methods: Male adolescent and collegiate Gaelic footballers and hurlers were recruited (n=570, age=17.7±2.3 years, weight=71.5±10.9kg, height=1.78±0.08m) at the beginning of the season. Hamstring flexibility was measured using the AKE test to the nearest degree using an inclinometer on the right and left legs during a pre-season screening. Any hamstring strains that occurred during the season were examined by a Certified Athletic and Rehabilitation Therapist and students under her supervision. Logistic regression was performed to examine whether flexibility of the hamstring and age can predict hamstring strains. ROC curves were also implemented to examine whether cut-off points could be generated to identify Gaelic players at risk of sustaining a hamstring strain.

Results: Mean flexibility of 63.6 (±12.5)° and 63.8 (±12.4)° was noted on the right and left hamstring respectively. Thirty-one players sustained 34 hamstring strains during the season. Multicollinearity was not noted between the variables in the model. The model did not predict hamstring strains (χ²=7.23, p>0.05), with a sensitivity of 0% and specificity of 100%. ROC curves produced AUC values below 0.6, therefore no hamstring flexibility cut-off points to predict hamstring strains could be generated.

Discussion and conclusions: Poor flexibility noted in the AKE test during pre-season screening was unable to predict those at risk of sustaining a hamstring strain in Gaelic games over one season. Therefore, since hamstring strains are common during sprinting in Gaelic games, potentially hamstring flexibility may not be a risk factor for hamstring strains in young Gaelic footballers and other risk factors such as eccentric strength should be examined in this population.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
Race-day fracture incidence in Irish professional flat and jump horse racing from 2011-2016, Siobhán O’Connor
Dublin City University

Background: Professional horse racing is a highly competitive and popular sport, with a high incidence of falls and injuries reported on race-days. After soft tissue injuries, fractures are the second most common injury reported following a fall in Irish professional flat and jump horse racing.

Aims: To provide a comprehensive longitudinal analysis of fracture incidence from race-day professional flat and jump jockey falls over the last six years in Ireland.

Methods: From 2011-2016, designated Turf Club medical doctors, attending each race meeting recorded, all race-day injuries including fractures in a standardised injury report form. The Senior Medical Officer collated all injury report forms after each race meeting. Fracture rates were measured /1,000 falls, rides and race meetings and their 95% confidence intervals (CI) were calculated using Poisson distribution. Fracture trends from 2011-2016 were examined using Poisson regression with incidence rate ratios (IRR), 95% CI and percentage change presented. IRR and 95% CI were calculated between jump and flat racing with IRR’s greater than 1 indicating an increase respective to jump racing.

Results: Fractures were significantly higher in jump racing rides (1.96v0.20/1,000rides, IRR=9.80[5.70-16.85]) and meetings (149.4V13.93/1,000meetings, IRR=10.73[6.24-18.44]) than flat. However, fractures/1,000 falls were more common during flat racing (54.47v40.15/1,000falls, IRR=0.74[0.43-1.27]), but this difference was not significant. Since 2011, in flat racing, fractures have significantly decreased per falls (IRR=0.81[0.76-0.87], p<0.0001) and race meetings (IRR=0.76[0.66-0.87], p<0.0001), however the reduction noted in rides was not significant (IRR=0.77[0.25-2.32], p>0.05). In contrast in jump racing, fractures per falls significantly increased (IRR=1.12[1.04-1.21], p=0.002), with a non-significant increase also noted for rides (IRR=1.09[0.78-1.53]) and meetings (IRR=1.04[0.99-1.07]).

Discussion and conclusions: Fractures are prevalent in horse racing and are almost ten times more likely to occur in a ride in jump racing than flat. A fracture occurs in every 18 and 25 falls in flat and jump racing respectively. A welcome trend is the reduced fracture incidence in flat racing over the last six years, with a notable 24% reduction in fractures during race meetings. In contrast, fractures have slightly increased in jump racing, but this was only statistically significant in falls, with a 12% increase noted. Therefore, the introduction of a falls training programme to teach appropriate fall mechanics, particularly in jump jockeys, should be considered. In January 2017, new safety vests were introduced in Irish horse racing which also have the potential to minimise fracture occurrence, and future research should examine the effects of this injury prevention strategy.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
Effect of bicycle helmet promotion and legislation on serious head injuries in Western Australia, Jake Olivier
UNSW Sydney

Background: Strategies to increase bicycle helmet usage in Western Australia (WA) include (1) a promotion campaign from December 1987 to February 1994 and (2) mandatory bicycle helmet legislation (MHL) from July 1992.

Aims: To evaluate the short and long term effect of bicycle helmet promotion and legislation in Western Australia (WA).

Methods: Injured cyclists were identified by International Classification of Disease (ICD-8, ICD-9, ICD-9-CM, ICD-10) from WA hospital records during the study period (1970-2013). Cases include cyclists admitted to hospital with serious head injury including open wound of head, skull fracture or intracranial injury. To control for confounding, controls were selected from admitted cyclists with no diagnosed injuries to the head, face or neck, and pedestrians injured in a motor vehicle collision. Monthly rates of bicycle-related serious head injury per 100,000 population relative to the onsets of bicycle helmet promotion and legislation were computed and analysed using interrupted time series methods.

Results: This study is ongoing; however, preliminary results indicate the rate of serious head injuries for cyclists steadily declined following the onset of helmet promotion reaching a nadir coinciding with helmet legislation. Rates of cyclists injured solely below the neck increased steadily during the study period, while rates of pedestrians in a motor vehicle collision have steadily declined. No changes were observed in either control time series associated with the onsets of either helmet promotion or legislation.

Discussion and conclusions: Preliminary results suggest bicycle helmet promotion and legislation in WA have been beneficial at reducing serious head injuries for cyclists. However, the steady increase in cycling injury overall suggests alternative strategies such as dedicated cycling infrastructure are needed to further reduce cycling injury. The lack of an association with either control time series suggests the reduction in serious head injuries was not due to unintended consequences such as less cycling associated with helmet legislation.

Theme: Road and transport safety, Presentation Type: Oral
Bicycle and non-motorised wheeled recreational injuries and helmet use attitudes in children, Jessica Ong
UNSW

Introduction

Injuries involving recreational vehicles have been described in the media and in scientific journals as a common cause for hospitalisation among the paediatric population. Head injuries have the potential to cause longstanding negative effects on a child’s quality of life. Studies have shown that helmet use in bicycles can significantly decrease mortality and morbidity. Despite this evidence, there remains a large proportion of children who are non-helmet users (NHUs), with injury trends based in Sydney Children’s Hospital, Randwick demonstrating up to 75% of children admitted to hospital following such accidents to be NHUs. We sought to understand the effects and reasoning for helmet use in this population by investigating helmet use and injury patterns and attitudes towards helmet use in children riding bicycles and other non-motorised wheeled recreational vehicles (NMWRVs).

Methods

A prospective cohort study between 1st March 2016 to 1st November 2016, recruiting children ages 0 to 16 involved in trauma secondary to bicycle or NMWRV, who presented to the emergency department (ED) of two tertiary paediatric centres in Sydney, Australia. Data on demographic, incident, injury severity and attitudes of helmet use between helmet users (HU) and non-helmet users were compared.

Results

342 children presented to ED with injury from a bicycle or other NMWRV over the eight-month period - 41% scooters, 39% bicycles, 18% skateboarders, and 2% in-line skaters. Most injuries occurred among males (74.6%). The overall mean age was 9. HU use was 57.8% and was significantly more likely in children riding bicycles and in specified recreational areas.

NHUs were more likely to be admitted hospital and to sustain a major head injury (p=0.009). The main influence on HU was found to be parental rules (68%). The biggest factor influencing NHU was perceived low levels of danger.

Conclusion

This study shows that lack of helmet-use especially in NMWRVs is a current issue that needs to be attended to. A multifaceted approach including education and enforcement mandating helmet use in NMWRVs is likely to promote its use whilst altering community norms and individual behaviours, ultimately reducing rate of injury.

Theme: Child health and safety, Presentation Type: Oral
Context: Australia has some of the best data systems globally, yet has fallen behind other developed countries in using these data for public good research, including injury prevention research.

Objectives: This paper aims to review, with a focus on injury prevention, the policy implications of The Productivity Commission’s Public Inquiry into “Data Availability and Use” (2017). This inquiry initially received 211 submissions and a further 125 post-draft report (Nov 2016) submissions.

Key messages: The terms of reference for the Productivity Commission Inquiry included:

- look at the benefits and costs of making public and private datasets more available;
- examine options for collection, sharing and release of data

Submissions to the inquiry included the following issues of relevance to injury research and prevention: huge delays in access to data; requirements for state by state approval for use of pooled national data; further delays and privacy concerns regarding data linkage; complexities of linking health data with those of other sectors; much data collected by states and territories is not pooled, nor available for research; regulatory requirements for destruction of datasets post studies; some data custodians are reluctant to release data for research; lack of unique identifiers for individuals in Australian data systems; lack of consistency between data sets and incomplete data.

The draft PC report indicated positive directions “The Commission is proposing reforms to data availability and use, aimed at moving from a system based on risk aversion and avoidance, to one based on transparency and confidence in data processes”. It also indicated, amongst other positive content, support for enduring use of linked data for multiple studies.

Discussion and conclusions: The PC final report will be tabled in both Houses of Parliament within 25 sitting days of commencement of the Budget parliamentary session in May 2017. The key recommendations of relevance to injury prevention, any immediate government response and policy implications will be discussed in this paper. Any potential follow-up action for the injury prevention community will also be raised.

Theme: Other, Presentation Type: Oral
Increasing awareness of drowning risk through the National Inland Waterways Drowning Prevention Program, Amy Peden
Royal Life Saving Society - Australia

Background:
Inland waterways such as rivers, creeks and streams, lakes, dams and lagoons are common areas for recreation. In 2014 a research study was conducted of ‘Drowning deaths in Australian rivers, creeks and streams: A 10 year analysis.’ 735 people drowned in rivers, creeks and streams, accounting for 25% of all drowning deaths experienced in Australian waterways across this ten year period.

Aims:
With support from the Federal Government, Royal Life Saving Society - Australia (RLSSA) is working across Australia to promote safe aquatic recreation and prevent drowning in inland waterways.

Methods:
The program includes the following activities:
• National Communication and Branding – Messages include:
  o Awareness - Individuals and communities are aware of the high number of drownings that occur in Inland Waterways.
  o Know the Risks - Individuals and communities know the hazards associated with Australian rivers when swimming or recreating.
  o Remember to take action - When Individuals and communities enjoy Australian rivers they remember to take safety precautions.
• Open Water Initiative (Primary Schools) - Royal Life Saving has developed the Open Water Experience to provide primary schools children (Years 5 and 6) with the opportunity to acquire relevant skills and knowledge to participate in recreational activities in our open water environments.
• Open Water Audits & Improvement Plans Royal Life Saving has undertaken risk assessments along rivers, lakes and dams and provides land owners such as Councils with compliance reports and improvement strategies.

Results:
Taverner Research was commissioned by Royal Life Saving Society – Australia to conduct a quantitative survey of individuals who lived within 50km of the Murray River. The research report following the launch of the Respect the River Campaign revealed that an increase of 28% identified that they had heard of the Respect the River Campaign

The Next Chapter:
• Guidelines for Inland Waterways - In line with many of the other RLSSA Guidelines for Water Safety, RLSSA will research, engage with various stakeholders and develop a Best Practice Risk management Guideline for owners and operators of Inland Waterways.

• Men and Alcohol Campaign - The campaign aims to raise awareness of the dangers associated with drinking in and around waterways.

Conclusion:

The Royal Life Saving Australia’s Inland Waterway Drowning Prevention Program is leading drowning prevention measures to better understand the risks of Australia’s Inland Waterways and engage with the Australian Community to inform, educate and up skill users of our Inland Waterways.

*Theme: Water safety (including drowning), Presentation Type: Oral*
“The Long Dive”. Aquatic safety, voluntary endurance breath holding, aquatic activities and competition,
Amy Peden
Royal Life Saving Society - Australia

Hypoxic blackout, erroneously but commonly referred to as ‘shallow water blackout’, is a preventable cause of drowning. Preceded by hyperventilation, this cause of aquatic deaths occurs in both public and private swimming pools and in the sea. Case series include victims training for underwater hockey, synchronized swimming, free diving and voluntary submersion endurance challenges as competitive play. The history of endurance submersion dates from formal competition events called ‘the long dive’. The winners were those who achieved primacy in the maximum distance swum underwater, or timed maximum voluntary submersion. Although ‘The Long Dive’ is no longer part of formal aquatic competition the practice remains in a) informal ludic play particularly among younger males; b) as a perceived (but incorrect) belief that post-hyperventilation endurance submersion has training benefits for various aquatic sports. Voluntary endurance hypoxic submersion is disapproved by USA Swimming, Swimming Australia and Royal Life Saving; and has no place in the training for aquatic sport. Our experience suggests that the risk of hypoxic blackout is distinct from drowning deaths due to pre-existing cardiac disease including cardiac electrical abnormalities and epilepsy. This paper discusses: the history of ‘The Long Dive’; the associated pathophysiology; predisposing conditions; differential diagnosis of fatal and near fatal episodes; prevention stratagems which involve a) medical examination of those involved in sub-extreme underwater breath holding activities; b) advocacy, suitably targeted, for the awareness of risks; and c) education and training concerning the syndrome of hypoxic blackout for all involved in supervisory and training roles in aquatics.

Theme: Water safety (including drowning), Presentation Type: Rapid Oral Presentation (e-Poster)
A 10 year analysis of boating and watercraft drowning deaths in Australia, Amy Peden
Royal Life Saving Society - Australia

Background:

In Australia, boating is the second leading activity prior to drowning behind swimming. Reducing boating and watercraft related drowning deaths is a priority within the Australian Water Safety Strategy 2016-20. This research analysed all unintentional drowning deaths related to boating and watercraft that occurred in Australia from the 1st July 2005 – 30th June 2015.

Aims:

• To conduct an in-depth analysis of boating and watercraft drowning incidents over 10 years
• To increase understanding of the risk factors contributing towards boating and watercraft drowning deaths
• To provide current evidence to support new and existing boating and watercraft safety strategies

Methods:

All unintentional, fatal drowning deaths in Australia related to boating and watercraft between 1st July 2005 – 30th June 2015 were included. Data is sourced from the National Coronial Information System. Exclusions include drowning deaths as a result of suicide, homicide, from natural causes, shark and crocodile attack, or hypothermia.

Results:

Between 1st July 2005 – 30th June 2015, 473 people drowned whilst participating in boating and watercraft activity, a crude rate of 0.21/100,000 population, representing 16.5% of drowning deaths during this period. Men accounted for 91.8% and 53.2% were aged 25 - 55 years. Only 8.2% were wearing a lifejacket at the time of death. Of those not wearing lifejackets, 14% had lifejackets on-board at the time. Alcohol was present in 26.0% of cases, with 60.0% over the legal limit for operating a vehicle. Additionally 30.3% involved drugs, 31.3% being illegal. Most people were not visitors to the location where they drowned (63.5%).

Discussion:

This study shows a decrease of boating and watercraft related drowning deaths over time, suggesting that prevention efforts and legislation in Australia are making a difference. Interestingly, findings indicate that drowning deaths related to powered boats appear to be decreasing, whilst drowning related to non-powered watercraft are on the rise. Men aged 18-24 years were most likely to be over the alcohol limit, with more being over the limit at inland locations and at night. The number of lives lost when using paddle-craft are of high concern. Further research and campaigns relating to alcohol, drugs and paddle-craft should be explored.

Conclusion:

This report confirms that men, alcohol and lifejacket-wearing remain key issues. Emerging risk factors for boating and watercraft activity include drug consumption and using paddle-craft. With men accounting for over 90% of
boating and watercraft drowning deaths, targeted efforts in awareness raising and education campaigns is imperative.

Theme: Water safety (including drowning), Presentation Type: Oral
Unintentional fatal drowning in rivers and the role of alcohol, Amy Peden
Royal Life Saving Society - Australia

Introduction:

Rivers are the leading location for unintentional fatal drowning in Australia (1). Alcohol is known to be a risk factor for drowning however the extent of its role in unintentional river drowning has yet to be explored (2).

Aims/Objectives:

To examine the prevalence of alcohol and its contributory role in unintentional fatal drowning in Australian rivers to inform strategies for prevention.

Methods:

Cases of unintentional fatal river drowning in Australia, 1-July-2002 to 30-June-2012, were extracted from the Australian National Coronial Information System (NCIS), an online registry which records information on all sudden and unexpected deaths in Australia. River drowning cases with positive alcohol readings found through autopsy or toxicology reports were retained for analysis. Discrete analysis was conducted on cases with a Blood Alcohol Content (BAC) of ≥0.05% (0.05 grams of alcohol in every 100 millilitres of blood).

Results:

Rivers (n = 770; 26.6%) were the leading location among the 2,892 people who died from unintentional fatal drowning (1). Alcohol was known to be involved in 314 cases (40.8%), 279 recorded a positive BAC, 196 (70.3%) recorded a BAC of ≥0.05%. 40.3% of adult victims had a BAC of ≥0.20%. Known alcohol involvement was found to be more likely for victims who drowned as a result of jumping in (X2= 7.8; p < 0.01), identify as Aboriginal and Torres Strait Islander (X2= 8.9; p < 0.01) and drowned in the evening (X2= 7.8; p < 0.01) and early morning (X2= 16.1; p < 0.01) hours.

Discussion:

The number of people who drown with alcohol in their bloodstream is concerning and challenging for prevention. This study used a BAC of ≥0.05% as a measure of contributory involvement, however there is a lack of consensus among researchers as to what BAC level poses a risk for drowning. Improved data on length of time the body was submerged in water prior to removal and exposure studies (2) are required to be able to support an appropriate BAC level with evidence. To assist with the prevention of alcohol related river drowning improved data quality, as well as a greater understanding of alcohol’s contribution and consumption patterns at rivers (especially those <18 years of age) is required.

Conclusion:

Alcohol contributes to fatal unintentional drowning in Australian rivers. Although challenging, better data and exposure studies are the next step to enhance prevention efforts.

Theme: Water safety (including drowning), Presentation Type: Oral
Non-fatal drowning in the Australian context, Amy Peden
Royal Life Saving Society - Australia

Background:

The analysis and reporting of fatal drowning data has allowed the drowning prevention community to determine the patterns of fatal drowning in Australia, enabling key risk factors to be identified and targeted by the Australian Water Safety Strategy. However, the full burden of drowning cannot be understood until non-fatal drowning statistics are also routinely analysed and reported.

Previous research has identified important patterns in non-fatal drowning, such as variation by age and locations, as well as ratios of fatal to non-fatal drowning at a state level. However, current comparison data at a national level is scarce.

Aims:

To gain a greater understanding of the full burden of drowning by focusing on non-fatal incidents, in order to inform prevention strategies, support services and ongoing evaluation.

Methods:

Non-fatal drowning incidents that occurred between 1 June 2002 and 30 June 2014 were collated using hospitalisation data. Hospital separations where the first reported external cause of morbidity was Accidental Drowning and Submersion (W65-W74) were included. Figures were obtained from the Australian Institute of Health and Welfare (AIHW) National Hospital Morbidity Database.

Results:

Between 1 June 2002 and 30 June 2014, there were 5597 cases of non-fatal drowning in Australia, with 66.1% occurring in males and children aged 0-4 years accounting for 42.3% of cases. More than a third of incidents occurred in swimming pools (36.1%), with 29.7% occurring in ‘other/unspecified’ locations. Of the 26.1% of incidents which occurred in natural water, 40.8% were in a large area of water, 30.7% at a beach and 15.3% in a stream of water.

Discussion:

The long term implications of non-fatal drowning can be far reaching, with young children disproportionately affected. The high proportion of non-fatal incidents in swimming pools is suggestive of a more controlled environment, compared to the lower proportion in open water environments, which may be isolated and unattended; leading to a higher proportion of fatal drowning incidents.

Conclusion:

The study revealed the number of non-fatal drowning incidents in Australia and highlighted the high proportion of cases which occur in children and at swimming pools. By examining non-fatal drowning statistics in conjunction with fatal drowning data, the full burden of drowning can be established.

Theme: Water safety (including drowning), Presentation Type: Oral
Measuring the value of swimming and physical activity, Amy Peden
Royal Life Saving Society - Australia

Background:

The Australian Institute of Health and Welfare (AIHW) estimates that 5% of the burden of illness in Australia results from insufficient physical activity. Australians’ 106 million annual visits to aquatic facilities each year represent a significant source of physical exercise, reducing expected mortality, morbidity and absenteeism.

We estimate the economic value of the benefits from physical activity, measured in metabolic equivalent of tasks minutes (MET.mins). This estimate is applied to the MET.mins from an average aquatic facility visit to calculate the economic value of a marginal aquatic facility visit, an average aquatic facility and of the Australian aquatic industry as a whole.

Method:

Estimates of the burden of illness caused by insufficient physical activity measured in Disability Adjusted Life Years were taken from the AIHW’s 2016 Australian Burden of Disease Study and converted to a dollar value using a Value of a Statistical Life Year. Associated health care costs were imputed using a percentage of the total costs of relevant diseases. Absenteeism due to activity-related health problems was estimated using Australian survey evidence, valued based on average weekly earnings. Measurement scale for levels of physical activity and levels of increased risk was taken from the 2013 Global Burden of Disease study.

Risks were weighed by their relative contribution to the burden of inactivity and by the age distribution of the Australian population to derive a single “relative risk of health burden” for the average Australian at each level of physical activity. Data showing the distribution of physical activity in MET.mins was derived from the Australian Bureau of Statistics’ 2012 Health Survey. This was used as the basis for a Monte Carlo simulation of a marginal increase or decrease in aquatic facility visits on the distribution of activity levels and costs.

Results:

Simulating aquatic facility visits randomly distributed across the Australian population, we calculate that the total value of the improved health, reduced health care spending and absenteeism due to the average aquatic facility visit is $26.39, compared to an average entry cost of $6.73. This implies consumer surplus of at least $19.66 per visit and economic benefits from aquatic facilities of $2.72 billion per year.

Conclusion:

Australia’s aquatic facilities generate health-related benefits significantly above the cost of a visit. Where attendees do not fully internalise these benefits there is a case for further promoting and subsidising swimming pool visits and aquatic facilities.

Theme: Water safety (including drowning), Presentation Type: Oral
Risk factors for falls among older community-dwellers in Shenzhen, China, Ke Peng
The George Institute for Global Health

Background: Falls incidence in older Chinese community-dwellers are reported to be approximately half of which in Caucasian people. The different risk factors for falls in older Chinese people could be the contributors.

Objective: To determine the number of falls experienced by older community-dwellers in Shenzhen, China and to identify fall-related risk factors.

Method: Participants were community-dwellers residing in Shenzhen, China who were aged 60 years and over and were recruited using multistage random sampling. All participants completed a survey that collected demographic and health-related information, measures of mood, vision and hearing impairment, self-rated health, retrospective falls and a test of balance was also administered. Univariate and multivariate negative binomial regression was used to compare risk factors among non-fallers and people reporting different numbers of falls.

Result: Study participants were 1290 people aged 60 to 98 years (mean 68.2 years, SD±6.5). One hundred and eleven (8.6%) participants reported one fall in the past year; 17 (1.3%) participants reported 2 falls; and 10 (0.8%) participants reported 3 or more falls. The univariate analysis showed that age, medication usage, visual impairment, low mood, poor self-rated health, fall history (prior to the past 12 months), presence of at least one chronic disease, use of a walking aid, living alone, poor balance and poor subjective body sense perception were associated with an increased number of falls in the past year. The multivariate analysis identified a highly significant relationship between fall history (prior to the past 12 months) and number of falls in the past year, (IRR=16.51 95%CI=11.37 to 23.99) and the presence of at least one chronic disease (IRR=1.85 95%CI=1.09 to 3.19). When fall history (prior to the past 12 months) was removed from the model, the presence of a chronic disease, walking aid use and living alone were significantly associated with a greater number of falls in the past year.

Conclusion: The incidence of falls among older community-dwellers in Shenzhen, China was 10.7% which was lower than the incidence of 30% found in older Caucasian. The fall-related risk factors for older Chinese people included in this study were a fall history (prior to the past 12 months), the presence of at least one chronic disease, walking aid use and living alone. Further research using a prospective cohort design is needed to confirm these preliminary results.

Theme: Falls prevention and rehabilitation, Presentation Type: Oral
Risk factors for falls among older community-dwellers in Shenzhen, China, Ke Peng
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Theme: Falls prevention and rehabilitation, Presentation Type: Oral
Examining child swimming competency: A comparison of two different modes of delivery for a school swimming and water safety program, Lauren Petrass
Federation University Australia

Introduction: There are many suggested actions to prevent drowning, one of which is teaching school-age children basic swimming, water safety and safe rescue skills. However, currently in Australia, not all children have access to swimming and water safety education. Reasons for this include cost and time to access lessons, access to facilities, and for schools, transport costs, and an already crowded curriculum. Whilst competence in swimming and water safety is an important life skill, no clear “best delivery practice” has been reported for the development of swimming competency through school-based aquatic education programs.

Aim: To determine the change in swimming competency of primary school children that completed: 1) a 10 lesson intensive program; versus 2) a 10 week extended swimming and water safety program.

Method: Year 5 and 6 primary school children from two schools were invited to participate in this project, with allocation to program based on convenience. The content for both programs was identical, and for consistency, the same trained swim teachers were used to deliver both programs. To determine changes in swimming competency five practical swimming skills were assessed pre- and post-program. In addition, a validated self-report questionnaire was administered pre- and post-program to obtain information from children about their physical swimming skills, water safety knowledge, and attitudes.

Results: A total of 33 children (51% female, 49% male) completed the intensive program and 36 children (47% female, 53% male) completed the extended program. Shapiro-Wilk test demonstrated the practical test variables were not normally distributed and therefore Wilcoxon signed-rank tests were used to determine changes in practical performance. Preliminary results indicate that students in the intensive program demonstrated significant improvement in distance swam \( p = 0.001 \) and dive technique \( p = 0.041 \), but no change in ability to float; swimming technique on front or back; or the ability to submerge and swim underwater. In contrast, no significant change in performance was demonstrated pre- and post-program for students in the extended program.

Discussion and Conclusions: Preliminary analysis demonstrates that the intensive program was successful in improving swimming skills, although further analysis will consider the impact of both programs on the development of overall swimming competency, including water safety knowledge. While it is important that further investigations are conducted with larger sample sizes, these findings are the first to provide empirical evidence of the impact of delivery mode on the development of swimming and water safety competency for primary school children.

Theme: Water safety (including drowning), Presentation Type: Oral
Road Crash Trauma amongst Aboriginal and Torres Strait Islander People in New South Wales, Hassan Raisianzadeh
Transport for NSW

Background

Aboriginal and Torres Strait Islander road users are over-represented in road trauma in NSW, but few details have been known about this issue as crash reports from NSW Police do not identify Aboriginality for people involved in the crash.

Aims

The research aimed to improve understanding of factors in road crashes involving Aboriginal and Torres Strait Islander people by linking data from Police crash reports with data from NSW Health.

Methods

Aboriginal status was derived using variables from the NSW Admitted Patient Data Collection and NSW Emergency Department Data Collection. The method used an algorithm endorsed by the NSW Ministry of Health (2012). Each record of Aboriginal status was treated as a "unit of information" contributing to a weight of evidence as to whether a person should be reported as Aboriginal. A statistical profile was produced of road trauma amongst Aboriginal and Torres Strait Islander people in NSW between 2005 and 2015. The profile focused on serious injuries and fatalities and compared the factors underlying Aboriginal and non-Aboriginal casualties.

Results

Between 2005 and 2015, 931,203 people were recorded as being involved in crashes in NSW. Of these people, 18,452 (2.0%) were reported as being Aboriginal or Torres Strait Islander. They made up 4.0% of serious injuries and 3.2% of moderate injuries. Key findings include:

- Aboriginal and Torres Strait Islander people are 2.7 times more likely than non-Aboriginal people to be fatally injured, and 1.7 times more likely to be seriously injured, in a road crash.
- The crash and serious injury profile of Aboriginal and Torres Strait Islander road users is significantly different to that of other road users.
- The fatality rate for Aboriginal and Torres Strait Islander people increased by 182.1 per cent in 2005–2015, from 3.7 to 10.3 deaths per 100,000. The rate for other road users decreased by 43.2 per cent during this time, from 7.6 to 4.3 deaths per 100,000.

Discussion and conclusions

The use of linked data and a weight-of-evidence approach in reporting Aboriginality has resulted in a wealth of information not previously available. More accurate identification will aid understanding of the causes and implications of road crashes and inform development of effective initiatives to move towards zero deaths and serious injuries for Aboriginal and Torres Strait Islander road users.
Theme: Road and transport safety, Presentation Type: Oral
Child restraint use: baseline survey results from a child restraint program with 12 Aboriginal and Torres Strait Islander communities in New South Wales, Martyn Ralph
The George Institute for Global Health

Background

In Australia, road traffic injuries are the primary cause of death and serious injury for children. The rates of road-related fatalities and serious injury in Aboriginal and Torres Strait Islander children are disproportionally higher than those for other Australian children. However, little is known about how Aboriginal and Torres Strait Islander children are travelling in cars, or about the knowledge their families have of optimal child restraint use.

Aims

To describe child restraint use within 12 Aboriginal and Torres Strait Islander communities in New South Wales prior to the delivery of the Buckle-Up Safely program.

Method

The pragmatic trial (Buckle-Up Safely) targeting optimal restraint use was conducted throughout 2015-2016. A total of 48 early childhood services (2-6 services per site) participated in delivery and evaluation of the Buckle-Up Safely program. To measure restraint use before the program began, 41 local Aboriginal and Torres Strait Islander Research Assistants were trained to conduct surveys with parent/carers, and to observe child restraint use at morning arrival times. The baseline data are presented below.

Results

Baseline surveys were completed by 661 parents and/or carers. Of those interviewed, 84% (555/661) were female and their mean age was 34 years (SD 11 years). The average age of the observed child was 3.2 (SD 1.6) years. Of the children observed, 18% (69/381) were not in the right restraint for their age. Significant errors included the belt buckle not being engaged (7%; 16/242) the internal/shoulder harness being incorrectly or not used (37%; 87/236) and the top tether not being properly secured (19%; 71/371). Knowledge about the right restraint for a pre-school aged child was gauged by asking how strongly parents/carers agreed or disagreed with the statement that “a booster seat gives a 3 year old child the same level of protection as a forward facing restraint”: 27% (188/693) strongly disagreed and 60% (414/693) disagreed with that statement.

Conclusion

This is the first large scale survey of knowledge and use of child restraints in Aboriginal and Torres Strait Islander communities in NSW. Though knowledge about the right restraint was high, and most children travelled in some form of car restraint, 18% were not in the right restraint for their age. Further, restraint misuse was evident. These findings informed the design and delivery of the Buckle-Up Safely program. Evaluation of the program, including the conduct of follow-up surveys and observations will be completed in mid-2017.

Theme: Indigenous health and injury prevention, Presentation Type: Oral
The Australian truck underrun dynamic crash test standard., George Rechnitzer
George Rechnitzer & Associates Pty Ltd

Background:

Around 10 vehicle occupants are killed or injured in rear truck underrun crashes annually. The injuries are usually horrific. These crashes involve heavy vehicles with rear overhangs, represent the most extreme examples of system incompatibility between heavy vehicles and passenger cars. Any car crashworthiness protection devices such as crumple zones, frontal airbags, or pre-tensioning belts are completely negated by the obvious mismatch between the truck’s rear and car’s crashworthiness systems. No legislation or Australian Design Rule (ADR) exists requiring dynamic crash testing of truck/trailer rear underrun barriers (TUBs).

Current vehicle crashworthiness technology indicates that cars can be designed to prevent occupants from serious injury at a frontal impact speed (ΔV) of 64 km/h into a deformable barrier and also when crashing into a rigid barrier at a narrow 25% offset, if the car is a modern five star New Car Assessment Programme (NCAP) crashworthy rated vehicle.

Hence, based on this new technology and to address the ADR shortcomings within a ‘Safe System Approach’ paradigm, a new Australian Standard AS/NZS 3845.2: Road Safety Barrier Systems and Devices was recently developed and released as a ‘world’s first’ underrun crash test for regulators and operators who want to specify crashworthy TUBs fitted to trucks that operate in the work place. This presentation provides details of the new standard and how the test requirements were developed.

Aims:

The objective of this project was to develop a dynamic truck under-ride Australian Standard that is practical and utilises currently accepted US crash test protocols for crash testing road safety hardware that have been harmonised around the world.

Methods:

Crash tests and simulations of a car striking a non-energy dissipating truck under-ride barrier at a speed of 50 km/h and 75 km/h were carried out for two crash modes: a centred impact and a 50% offset impact. US road safety barrier crash tests protocols were then used to develop the standard.

Results:

The crash tests are compared and results showed that the impacts were survivable.

Discussion and Conclusions:

It is possible to implement a dynamic truck under-ride standard that is practical and utilises currently accepted US crash test protocols for crash testing that have been harmonised around the world. A dynamic crash test protocol and criterion was developed based on these crash simulations and crash tests carried two decades ago in Australia. The test protocol and criteria have been implemented in an Australian Standard.

Theme: Road and transport safety, Presentation Type: Oral
Enhancing our understanding of falls risk - perceptions from the older person, *Kristy Robson*
*Charles Sturt University*

Introduction:
Fall related injuries in older people constitute a significant public health issue in Australia and internationally. Falling represents the leading cause of unintentional injury in this population (Gelbard et al., 2014). Approximately one third of older adults fall each year (Lord, Delbaere, Tiedeman, Smith & Sturvieks, 2011). The complexity of managing fall risk in the diverse populations found within Australia, coupled with an ageing population and finite resources, drives the need to better understand factors that can influence falling from the perspective of the older person.

Research Aims:
The aim of this study was to understand the experiences of falling from older people living in a regional area.

Methods:
A qualitative approach using hermeneutics explored the perceptions of older people towards falling. 33 participants residing in southern NSW who took part in semi-structured focus groups and semi-structured in-depth interviews. Interviews were audio-recorded, transcribed verbatim and individually and collectively analysed to identify key themes.

Findings:
The findings suggest that older people were reluctant to disclose a fall history, especially non-injurious falls, as they don’t perceive it to be an issue, often blaming themselves for the fall rather than considering the range contributing factors. In addition, participants indicated that health professionals were not routinely asking about a falls history or engaging in ongoing collaborative dialogue on strategies that could assist in reducing the risk of falling. This was especially evident in less frail older populations.

Discussion:
Preventing injurious falls is a key priority area in Australian health care. Our current approach to fall risk management relies heavily on our ability to identify an older person at risk of falling and then instigate appropriate interventions to mitigate this risk before injury occurs. Given findings suggest that older people are reluctant to admit to falling, reliance on self-reporting, by older people, of their falls history may not be the most effective way for identifying those individuals at risk.

Effective management of falls in older populations is complex and challenging. Despite the substantial focus on falls prevention by the Australian government over the last decade age standardised hospital admission rates attributed to falls have increased by 2% per year in Australia (Bradley, 2013). Understanding the perception of falling from the perspective of the older person may provide greater opportunities for allied health professionals to instigate early falls prevention strategies before significant injury occurs.

*Theme: Falls prevention and rehabilitation, Presentation Type: Oral*
Secondary and tertiary injury prevention in trauma patients: NSW Institute of Trauma and Injury Management Clinical Review Committee’s current practices and future directions, Pooria Sarrami
NSW Agency for Clinical Innovation

Context:
In New South Wales (NSW) there are more than 4,000 major trauma admissions annually. The NSW Institute of Trauma and Injury Management (ITIM), the body responsible for overseeing, coordinating and supporting the NSW trauma system, is dedicated to the primary prevention of injuries, minimising the severity of injuries (secondary prevention) and optimising the outcome of patients (tertiary prevention). Secondary and tertiary injury prevention plays a vital role in reducing the burden of traumatic injuries in NSW. In order to undertake these later types of preventions, ITIM has established the Clinical Review Committee (CRC), which focuses on monitoring and reviewing the trauma incidents and preventable deaths across the NSW trauma system, with the aim of learning from the incidents, identifying trends and opportunities for education and research, and enhancing the trauma care for future patients.

Objectives:
This presentation introduces the current practices of the ITIM CRC in relation to secondary and tertiary injury prevention and demonstrates the challenges of this practice and the future directions. This will assist researchers, policy-makers and clinicians to access the ITIM CRC, or other equivalent bodies, to receive services and to contribute to injury prevention practices.

Key messages:
- A systematic approach to secondary and tertiary injury prevention is via clinical case reviews
- Enhancing injury prevention through clinical case reviews has multiple challenges
- Further formalised and enhanced processes has to be developed in future.

Discussion and conclusions:
ITIM CRC reviews trauma cases with potentially preventable incidents or deaths, which have system-wide implications in NSW. These cases are voluntarily referred to ITIM CRC from NSW Local Health Districts, pre-hospital and retrieval services, research groups, and regulatory agencies, inclusive of the NSW Health Clinical Excellence Commission Root Cause Analysis investigations.

A recent example of ITIM CRC case reviews resulting in system change was the identified trend of delays to haemorrhage control. This resulted in the development of the ‘Pre-hospital Code Crimson Guideline’.

ITIM CRC is facing multiple challenges such as non-mandatory case referral processes and limited access to detailed case information. In order to overcome these challenges, ITIM CRC is currently relying on various workarounds such as employing committee member’s local knowledge and supporting relationship building. The future directions of ITIM CRC in relation to secondary and tertiary injury prevention includes establishing a formalised processes for case notification and review and enhancing relevance by consolidating qualitative and quantitative information.
Theme: Other, Presentation Type: Oral
“The Talk Test” : Teaching Non Medical Staff How to Assess Potentially Life Threatening On Field Emergencies - A pilot study, Dheeshana Sayakkarage
Eastern Victoria GP Training

Introduction:

In the absence of medical/physiotherapy/sports trainer staff, the management of on field medical emergencies often falls to coaching staff at amateur sporting clubs. Whilst a post injury assessment of readiness to play - utilising DRSABCD, STOP and TOTAPS - has been endorsed by Sports Medicine Australia (SMA), the literature regarding a non-medical assessment of the severity of potentially life threatening injuries is sparse. This study will present a method, grounded in trauma and resuscitation protocols, for non-medical personnel to triage and assess an on field medical emergency without the need for diagnosis.

Methods:A one hour presentation presenting the “Talk Test” was given to the coaching staff and administrative members of an amateur university soccer club in Victoria. The presentation was prepared by a registered Australian health practitioner with a background in emergency medicine, intensive care and anaesthetics. Based on well known resuscitation priorities, the “Talk Test” emphasized: 1. Attention to respiratory and neurological status 2. Triage over diagnosis and 3. Emphasis on ongoing assessment of the player. The emergencies discussed were: head injury, obvious bleeding, trauma, collapse, breathing difficulties and team based emergency response. Simulation training was also included. A pre- and post-presentation survey was administered, where participants marked their ability to deal with the scenarios above on a Likert scale of 1 (not at all confident) to 5 (very confident). Results were tested for statistical significance between pre- and post-presentation participant confidence.

Results: Six members of the club board, comprising coaching and administrative staff with First Aid qualifications, were present for the presentation. A Wilcoxon matched-pairs signed rank test was then performed. Results showed that there was a statistically significant difference between pre- and post-talk confidence in the management of head injury, collapse, trauma and breathing (p values <0.05).

Conclusion: The Talk Test has the potential to teach non medical personnel a management and triage focused approach to a life threatening on field emergency.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
The co-occurrence of alcohol, drug and mental health symptomology in family violence related ambulance presentations in Victoria, Debbie Scott
Monash University

Background

The intersection between alcohol and other drugs, mental health, and family violence represents complex combinations of unmet need, however little is known about these associations in acute community settings. A significant number of ambulance attendances are related to alcohol and drug misuse and there is evidence that these are increasing. Substance use problems, are, in turn, a common factor in the perpetration of violence.

Ambulance paramedics are a frontline health treatment and transport service; whose records are a potential source of information about acute harms. Surveillance of family violence related injury using hospitalisation data under-represents the number of injuries, as not all patients who present to an emergency department are admitted. Furthermore, police do not attend all violence-related injury events so the magnitude of the problem is only partially captured in police data.

Aims

This study will describe the trends and patterns of alcohol and drug use and mental health symptomology where they co-occur with family violence in coded ambulance data in Victoria between 1 July 2016 and 30 June 2017.

Methods

All alcohol, drug, self-harm and mental health related ambulance attendances (as currently captured and coded in ongoing surveillance for these conditions) for a 12-month period (1 July 2016-30 June 2017) in Victoria will analysed for trends and patterns to describe patterns of family violence and their association with risk indicators of alcohol and drug use and mental health symptomology.

Results

There were 2,454 violence related ambulance attendances involving physical violence in Victoria between 1 July and 31 December 2016, almost 30% of these were family violence related attendances. 3% of all alcohol and drug related attendances and 2.4% of attendances with a patient exhibiting mental health symptomology were associated with family violence. Police co-attended 41% and patients were transported to hospital for further treatment in 40% of family violence-related attendances. These data are preliminary and analysis of the complete 12 months from 1 July 2016 to 30 June 2017 will be presented in final results.

Discussions and Conclusions

The use of clinical records completed by ambulance paramedics provides a unique and timely insight into episodes of family violence and associated risk factors that may be underestimated using other data sources, such as police, court records, emergency department presentations or admitted patient hospital records. The results from this study demonstrate the potential for the use of ambulance data for surveillance of family violence at a population level.

Theme: Other, Presentation Type: Oral
How to improve quality of pre-exercise screening in the fitness industry? Betul Sekendiz
Central Queensland University

Background: In Australia, more people with increasingly complicated health risks are using fitness facilities to improve their health and wellbeing. Therefore, it is crucial for fitness facilities to ensure the safety of their customers by properly utilising best practice pre-exercise screening procedures.

Aim: The aim of this study was to identify the quality of pre-exercise screening in the fitness industry, and explore solutions to the identified problems from the perspective of fitness professionals.

Methods: The research design consisted of a mixed methods approach to integrating quantitative and qualitative data. The quantitative data consisted of results from a nationwide cross-sectional survey of fitness professionals (n=1178). The survey items were placed on 6 point Likert scale and the responses on the higher and lower end of the scale were combined for analysis. The qualitative data consisted of in-depth interviews with 60 fitness staff from 20 fitness facilities that were selected according to convenience sampling in four states. The interview data were transcribed and analysed thematically by categorising the responses according to themes.

Results: The results of the survey showed that 12% of the fitness professionals believed pre-exercise screening procedures at their facilities to be poorly conducted, and 27.6% considered this to be somewhat good. Almost one third (31.5%) of fitness professionals were uncertain as to whether managers and trainers were aware of all existing injuries/medical conditions of their customers. The thematic analysis of the interviews found that fitness professionals believed the quality of pre-exercise screening could be improved at their facilities by (a) enforcing referral systems, (b) using a standardised system, (c) improvements to screening policy and procedures, (d) professional development, and (e) improvements to record keeping and confidentiality of information.

Discussion and conclusions: The findings of this study suggest that pre-exercise screening to improve participant safety in fitness facilities in Australia is sub-optimal. Properly conducted pre-exercise screening that confirms to industry best practice is paramount to minimising the foreseeable risk of injuries and adverse health events. This study highlights the need for continuous professional development programs to raise awareness and knowledge of pre-exercise screening, to increase the skills of fitness professionals. Making pre-exercise screening part of a comprehensive risk management program within a fitness facility would ensure proper utilisation of policies and procedures that confirm to industry best practices.

Theme: Translating research into practice and policy, Presentation Type: Oral
How to improve quality of pre-exercise screening in the fitness industry? Betul Sekendiz  
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*Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral*
ABSTRACT: Policy and practice

Context

Whilst football has been found to have many positive effects from a health perspective, injuries are common, particularly at the elite or professional level of play. Injury surveillance is therefore required to document and track injury occurrences to inform the development and implementation of strategies to increase safety in professional football codes. There are clear medical, legal, sporting and socioeconomic arguments for carrying out injury surveillance in the professional football codes.

Objectives

To identify and compare the ongoing injury surveillance systems employed across professional football codes from around the world. Data extracted included population under surveillance, player/team coverage, injury definition and how the results are disseminated.

Key messages

A range of methodologies was used across the surveillance systems in professional football with variations in the definitions of injury, the type of personnel recruited for recording data, the data-recording tool, how the data were disseminated and who the data were disseminated to. Ongoing injury surveillance in elite football has made an important impact in sports medicine research, and allows identification of areas for further research. Whilst consensus statements provide a useful framework for injury reporting, surveillance methodologies must be appropriate to both the sport and the specific context in which the surveillance takes place.

Discussion and conclusions

A range of surveillance methods is employed across the different football codes including injury definition. Some professional football codes have developed consensus statements, which provide guidance on key issues relating to injury surveillance. Dissemination of findings differed with some systems publishing via peer review journals, with others through annual disclosure to the media.

There are many benefits for football associations, clubs and players themselves in conducting comprehensive injury surveillance. The findings from injury surveillance can be used to evaluate injury trends over time and study the effects of changing external circumstances on injury risk such as chance of coaches, change of training programmes and for tactical performance purposes. Injury surveillance is also the first step in a professional club’s risk management strategy and provides direct feedback of the injury situation at their club, allowing comparison with other clubs.

Financial considerations and funding are a crucial factor for creating and maintaining an injury surveillance system. The findings from football injury surveillance have been used to implement rule changes and develop preventive programmes, all aimed at increasing player safety.
Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
Where do sport/leisure injury prevention efforts need to be targeted? Himalaya Singh  
Federation University

Background: Sport/leisure injuries are identified as a major public health burden in Australia and around the world. The injury burden varies across countries, regions and sub-regions. It has been suggested that the differences in injury burden across geographical regions could be reduced by targeting preventive efforts to areas of high burden.

Aims: The aim of this study is to use geospatial analysis methods to identify areas presenting a high or low burden of sport/leisure injury hospitalisations in Victoria, Australia.

Methods: Sport/leisure injury hospitalisation (SIH) data, aggregated by Local Government Areas (LGA), were extracted from the Victorian Injury Surveillance Unit for the years 2005-2014, inclusive. For each LGA, the standardised morbidity ratio (SMR) was calculated as the ratio of the observed to expected number of SIHs. The presence of clusters was investigated using Moran’s I statistics and Getis Ord Gi* was used to identify hotspots and coldspots. The hotspots and coldspots refer to areas with statistically significant clustering of high and low SMR values, respectively. Demographic and injury characteristics of the cases within the hotspots and coldspots were further examined using descriptive analyses. The number of SIHs, SMR and results of Getis Ord Gi* were presented in choropleth maps.

Results: A concentration of SIHs (as counts) was observed for the Melbourne metropolitan region and surrounding LGAs. However, an inverse pattern was observed when the SMR values were mapped. The result of Moran’s I statistics (I = 0.618) applied on SMR suggested clustering of SIHs in Victoria. A hotspot (in Victoria’s south-west) and coldspot (metropolitan area) were identified. Of the 104,271 SIH cases, 5,193 (7 LGAs) resided in hotspot regions and 18,222 (13 LGAs) in coldspot regions representing 5.0 % and 17.5% of total SIH in Victoria. The injury hospitalisation rate in the hotspots and coldspots were 352.9 and 138.8 per 100,000 residents, respectively.

Discussion and conclusion: This study demonstrates that geospatial analysis methods can identify geographical regions having a relatively high or low burden of sport/leisure injuries. Results of this study provide an evidence base for future strategic planning and targeted delivery of sport/leisure injury prevention measures. Future research is needed to investigate the factors that may explain the reasons for the observed variation of sport/leisure injuries in Victoria.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Rapid Oral Presentation (e-Poster)
Lower-back and lumbar spine injuries plaque Australian club cricketers: Injury epidemiology of 406 Sydney club cricketers., Najeebullah Soomro
The University of Sydney

Study design: Prospective cohort study

Background: Club cricket is the nursery that feeds cricketers into the state and national squads in Australia. There are 3,995 cricket clubs in Australia where more than 200,000 cricketers participate. Despite the significance of club cricket, injury epidemiology data at this level is scarce. At elite cricket level the average injury prevalence of 11.9% with non-tendinous shoulder injuries, wrist and hand fractures, side and abdominal strains, lower-back stress fractures, and hamstring strains being the most common injuries that lead to loss of time among the players.6

Aims: Quantify injury rates in club cricket and explore its relationship with age and team performance.

Methods: We followed 406 cricketers over the 2015/16 playing in the Sydney Grade Cricket competition, which is the premier club cricket tournament comprising of 20 teams. A database was maintained to track the players that missed games, every week. A physiotherapist called the players that missed the games and found out if they missed the game due injury, if injury was present, an injury report was filed.

Results: A total of 260 games were missed due to injury by 57 players, who reported 80 injuries over the course of the season. The overall injury prevalence of 14% with lower-back and lumbar spinal injuries (16.25%) being the most common sites. This was followed by foot (15%), hand (13.75%), knee (7.5%), and calf injuries (7.5%). Linear regression analysis showed that the likelihood of injury increased as the mean age of the teams increased (r = 0.50); a weak correlation was also found between lower injury incidence and team performance (r = 0.14). Teams using the least number of players in their squads performed better than the teams which had more variability in their playing 11 due to injury (r = 0.39) (Figure 1).

Discussion: The high rate of lower-back injuries (16.25%) highlights an area of concern for fast bowlers. Perhaps a high workloads and inadequate physical conditioning may be a reason for these factors. This study sets the foundation for understanding injury epidemiology at club cricket level and how injury and performance are linked. This may form the basis for development and implementation of cricket specific injury prevention program at the club cricket level.

Keywords: Club cricket, injury epidemiology, back injury, fast bowlers

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
Cricket can be played without Anterior Cruciate Ligament (ACL): A case report on mechanism and outcomes of ACL Injury in a sub-elite cricket fast bowler, Najeebullah Soomro
The University of Sydney

Study design: Case report.

Background: Anterior Cruciate Ligament (ACL) injuries among fast bowlers playing cricket are rare. The aim of this case report was to describe the mechanism of ACL to sub-elite fast bowler playing club cricket and return to play without ACL repair.

Aim: To describe the mechanism of ACL injury in a pace bowler playing club cricket and explain that club cricket can be played without ACL repair.

Case description: A 29-year-old sub-elite fast bowler playing club cricket in Australia with no known co-morbidities and previous knee injuries, internally rotated his left knee while trying to change his direction, to field a ball of his own bowling during his follow through. Being a right arm fast bowler with a follow through that takes him towards the left (off side) after delivery, he tried to stop a ball hit on the right side and in the process of pivoting heard a popping sound in his knee.

Outcomes: MRI showed a complete rupture of proximal ACL of left knee, as well as tearing of the popliteal fibular ligament and complex tear of lateral meniscus consisting of vertical, radial and oblique components mearing 14mm in length (Figure 1). He had moderate effusion one week post injury and was placed on a knee hinge for 2 weeks. Four weeks post injury he started to walk without any support and started 3x10 sets of knee extensions while sitting on a chair. He further progressed to do half squats, leg press, isometric quad holds, knee flexion and balance training for next 12 weeks.

Results: Twenty-four weeks post injury he started cricket training with minimal knee pain. However, he focused more on batting and started spin bowling.

Discussion: This case report showed the mechanism and extent of ACL injury in sub-elite fast bowler. Understanding this mechanism will assist the coaches and trainers to develop strength and conditioning programs for training fast bowlers more effectively to perform pivoting motions. Developing better training strategies may translate to reduction of ACL injuries; and in case of an ACL tear develop conservative rehabilitation strategies.

Keywords: ACL, cricket, fast-bowler, knee

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
Design and development of a smart watch to detect bowling workloads in cricket, Najeebullah Soomro
The University of Sydney

Background: Up to 50% of fast bowlers in a team can be injured during a season. Research has also shown a direct relationship between injuries in fast bowlers and bowling workloads. It has been shown that the number of balls bowled and cumulative loads over a period of time are predictors of injury. However, to date there is no simple solution to automatically detect bowling counts and ball velocities without using sophisticated equipment.

Aim: To develop a smart watch for detecting bowling counts and velocities by measuring arm rotations using accelerometer and gyroscope data.

Methods: We mounted wrist worn inertial motion units (IMUs) for tracking angular velocity & gyroscope data during bowling. The prototype sensor was Arduino nano-board interfaced with the MPU 6050 and Bluetooth. An Arduino file was used to calibrate raw data to obtain the readings from the IMU and store it on a secure server. The data displayed readings from the x, y, and z axis in a graphical format and were plotted against time.

Outcomes: Using gyroscope data we were able to filter all non-360 degree moments. The peaks of arm accelerations on the accelerometer data correlated well with the bowling counts.

Results: The validation tests on 10 fast-bowlers showed 90% sensitivity in predicting bowling counts and algorithm for bowling speeds is under development.

Discussion & Significance: A device that can assist in tracking and understanding workloads by measuring arm movement patterns can assist in better managing fast bowling workloads. Our project will develop a novel algorithm to alert users on developing overuse related bowling injuries on their smart watch. This App can later be synced with any major smart watch brands (i.e. Apple, Samsung) to allow users accessibility to the product. The commercial value of this research also lies in exporting this technology to other throwing sports such as Baseball, Javelin etc.

Keywords: sensors, cricket, injury

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
Star Ratings and Safer Roads Investment Plan for Cambodia, KONG SOVANN
Cambodia Safety Solution Organization (CaMSafe)

It is noted road crashes in Cambodia are continuing a major public health concern, and it is still a need of capacity building for responsible officers and local engineers, as well as an independent institution who to have adequate ability, knowledge and skill sets to provide support on road and transport safety.

According to the national report of road crash and victim information system (RCVIS) 2015, road crash fatality increased alarmingly at which 2,231 reported deaths (increased by 17% compared to 2014) and 5,450 severely injured on Cambodia’s roads. On average, more than 6 people died and almost 15 were serious injured every day.

Speeding is the main leading cause of fatalities (40%), followed by drink driving (17%). 68% of all fatalities occurred on the National roads. A Cambodia – China Friendship Road Safety Project (CCFRSP) implemented in Cambodia by assessing 557.9km of roads in collaboration between MPWT, RIOH, iRAP and CaMSafe.

The present of this project will seek to increase safety for both citizens and tourists while using Cambodia’s roads especially to create sustainable partnerships among government, business and specialized civil society organizations to ensure that Cambodia could provide star rating roads, and make improvement for at least a three-star roads that would be safer for all vehicle occupants, motorcyclists, bicyclists and pedestrians during the Sustainable Development Goal (SDG) 2030.

Project has opportunity to use of iRAP methodology to assess three national roads which have been seen as the scene of many high-profile road crashes. Training courses provided on iRAP method, data collection, road inspection, attribute coding process, analysis and reporting with appropriate countermeasures plus cost-effectiveness investment plan, in addition to the field assessment on Cambodia’s roads.

Theme: Road and transport safety, Presentation Type: Oral
Built environment and drowning mortality: historical study of the development of the built environment and its impact on drowning, Carolyn Staines
Monash University

Background

The state of Victoria underwent a marked reduction in drowning deaths over the period of its development, reducing from 53.5 deaths per 100,000 in 1863 to 0.8 deaths per 100,000 population by 2000. While part of this reduction was associated with the development of a culture of water safety, and improvements in water survival skills, these did not begin to gather momentum until the 20th century. Yet by the end of the 19th century, drowning deaths rates had reduced to less than 20 deaths per 100,000. This suggests the presence of other factors affecting drowning mortality.

The WHO Global Report on Drowning identifies 10 prevention strategies, some including reference to the built environment. In view of this identified importance, a study was conducted to examine the part that the built environment may have played in changes to drowning mortality in Victoria in the 19th and 20th centuries.

Aims

This study focused on examining the ways that the built environment may have impacted on drowning mortality in Victoria, Australia, during the 19th and 20th centuries.

Method

To determine the circumstances of drowning deaths occurring in the 19th and 20th centuries, Victorian coronial inquest records were accessed for all drowning deaths occurring in a sample of years (1863, 1883, 1906, 1925, 1950 and 1973). Information extracted from these records was analysed thematically. Additionally, newspaper archives (paper based and electronic) were searched for articles relating to drowning or water rescue incidents.

A review of historical literature was also conducted to identify general historical information regarding the built environment, and its development, and population and migration patterns. This included primary, secondary and grey literature sources.

Results

It was found that the built environment could contribute to both the cause and prevention of drowning mortality. In both centuries, many deaths occurred in water hazards that were associated with human activity (e.g. waterholes, wells, dams, pools) while others were prevented by changes to the built environment, such as reticulated water supply and building of bridges and safe places to swim.

Conclusion

It is likely that many of the challenges faced by Victoria during its development have relevance to communities currently in their developmental phase. The findings of this study have the potential to inform drowning prevention in these communities. Providing a picture of the circumstances that occurred in Victoria may help to identify potential hazards and solutions associated with the development of their built environment.
Theme: Water safety (including drowning), Presentation Type: Oral
Hospital treated injuries resulting from structural failures in buildings: Emergency Department data analysis, Voula Stathakis
Monash University

Background: Recent media reports have highlighted injury hazards related to faulty building and plumbing work in buildings constructed in the last 10 years, including current construction. This is possibly a consequence of developers putting pressure on builders to lower their costs by not meeting required technical standards, the use of inferior building materials and poor workmanship.

Aims: The purpose of this research was to describe the incidence and cause of Emergency Department (ED)-treated injuries resulting from failures and defects in buildings in Victoria, from 2011 to 2015.

Methods: Persons injured as a result of failures in buildings were identified based on searches of narrative text within the Victorian Injury Surveillance Unit’s (VISU) Victorian Emergency Minimum Dataset (VEMD). Cases were selected by searching text descriptions for relevant terms, followed by manual screening to ensure the inclusion of records where a building failure had genuinely occurred. Records were not restricted by place of occurrence, while all activity types, except for sport-related activities were included.

Results: In total, 1108 ED presentation records were identified as being associated with a building failure. No time trend was apparent over the 4-year period. There were 277 ED presentations per year on average, ranging in frequency from 301 to 349 ED presentations. Rooves were mentioned in 23% of ED presentations, while the most common cause was falling through structures (46%). One in four were admitted to hospital. The majority of injured persons were male (67%) and most commonly aged between 15-29 years (26%). Common scenarios included persons on rooves falling through skylights, falling through interior floorboards and timber decking, falling through stairs/steps that have collapsed beneath them, balconies collapsing, brick walls falling onto people and ceilings giving way. An additional year of VEMD data (2015/16) will be included in the final results.

Discussion & conclusions: In busy emergency departments, detailed narratives are generally not recorded; the data presented here are therefore likely to under-estimate the total number ED injury presentations resulting from building failures. Monitoring of ED presentations regarding building failure incidents is recommended to measure the injury burden, describe common scenarios and capture time trends.

Theme: Other, Presentation Type: Rapid Oral Presentation (e-Poster)
Chronic disease prevalence in a cohort of injured workers in Victoria, Australia: using hospital data linkage to determine pre-injury health, Voula Stathakis
Monash University

Background: Pre-existing chronic disease can have a negative effect on the injury recovery process, and on injury outcomes. The prevalence of chronic disease increases with age and can be expected to rise among Australian workers due to workforce ageing. Currently, there is very little information regarding the pre-injury health of injured workers.

Aims: To measure and describe the prevalence of chronic disease and other pre-injury medical conditions among a cohort of injured workers in Victoria, adapting established ICD-9-CM/ICD-10 group codes to the Australian ICD-10-AM classification system.

Methods: The study was based on a cohort of Victorian injured workers with an affliction in 2008/09. Their WorkSafe Victoria claims records were linked with the Victorian Admitted Episode Dataset (VAED) by the Victorian Data Linkage Unit (VDL): admissions data analysis was limited to the five years before the injury. Fifty ICD-9-CM/ICD-10 group codes for selected chronic and other health-related conditions were selected and converted to ICD-10-AM codes. Conditions were flagged if they appeared anywhere in the 40 diagnosis codes of patient’s admission record. Coding for relevant conditions was obtained from peer-review publications, government health reports and inclusions by the researchers. Both chronic disease and lifestyle/health status factors were captured.

Results: The 45,957 injured workers’ claims were linked to 33,775 pre-affliction hospital admissions made by 15,313 persons. Tobacco use, past and present, was the most common condition recorded, appearing in 28% of admission records. Chronic pain was recorded in 12% of admissions (6% of the cohort) while cancer (all types) was recorded in 8% of admissions and 2% of the cohort. Diabetes was recorded in 4% of admissions (1% of the cohort) while hypertension was recorded in 3% of admissions (2% of the cohort).

Discussion & conclusions: Tobacco use, chronic pain, cancer and diabetes were the most common pre-injury hospital-recorded conditions. Overall, prevalence of conditions among injured workers was much lower than expected based on prevalence in the population: although the method used in this study aims to make optimal use of admissions data to detect disease prevalence, comorbidities are not systematically captured: undiagnosed conditions and conditions that were not treated during a hospital admission were not captured. The method used in this study does, however, provide morbidity indicators that are not subject to recall or reporting bias: the strength of this method is in internal validity not comprehensive disease prevalence.

Theme: Workplace injury and safety, Presentation Type: Oral
Sports injuries and illnesses in the Lillehammer 2016 Youth Olympic Winter Games, Kathrin Steffen
Oslo Sports Trauma Research Center, Norwegian School of Sport Sciences

Background: Injury and illness surveillance during high-level youth sports events is an important first step in health prevention and caretaking of the young elite athletes.

Aim: To analyse injuries and illnesses that occurred during the 10-days 2nd Youth Olympic Winter Games (YOG), held in Lillehammer 2016.

Methods: We recorded the daily occurrence (or non-occurrence) of injuries and illnesses through the reporting of 1) all National Olympic Committee (NOC) medical teams and 2) the polyclinic and medical venues by the Lillehammer Organising Committee (LYOCOG) medical staff.

Results: In total, 1083 athletes (48 double-starters), 46% (n=502) of them females, from 70 NOCs were registered in the study. NOCs and LYOCOG reported 108 injuries and 81 illnesses, equalling to 9.5 injuries and 7.2 illnesses per 100 athletes. The percentage of injured athletes was highest in the snowboard and ski slopestyle and cross disciplines, alpine skiing, and skeleton, and lowest in the Nordic skiing disciplines. Approximately, two thirds of the injuries (n=71, 65.7%) prevented the athlete from training or competition, while 10 injuries (9.3%) were registered with an estimated absence from sport for >7 days. The rate of illness was highest in curling and the Nordic skiing disciplines with most of them being respiratory tract infections (81.5%).

Conclusion: Overall, 9% of the athletes incurred at least one injury during the games, and 7% an illness, which is similar to the first YOG in Innsbruck 2012 and slightly lower compared to previous Winter Olympic Games. The incidence of injuries and illnesses varied substantially between sports.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
No association between static and dynamic postural control and ACL injury risk among female elite handball and football players, Kathrin Steffen
Oslo Sports Trauma Research Center, Norwegian School of Sport Sciences

Background: To date, little research exists quantifying balance measures as potential risk factors for ACL injury.

Objective: To assess whether static and dynamic postural control were associated with an increased risk for ACL injuries in female elite handball and football players.

Design: Prospective cohort study

Participants: From 2007 through 2015, 838 female premier league players participated in pre-season testing and were prospectively followed for ACL injury risk.

Assessment of risk factors and main outcome measures: At baseline, we recorded player demographics, playing, ACL and ankle injury history, and measured balance through postural sway and the Star Excursion Balance Test. We followed a pre-defined statistical protocol with logistic regression models, one for each of the proposed risk factors.

Results: A total of 55 (6.6%) out of 838 players (age: 21±4 yrs; height: 170±6 cm; body mass: 66±8 kg) sustained a non-contact ACL injury after baseline testing (1.8±1.8 yrs). When comparing normalized balance measures between injured and uninjured players in univariate analyses, none of the variables were statistically associated with an increased risk of ACL rupture. Therefore, we did not conduct multivariate analyses. The OR of sustaining a new ACL injury among those with a previous ACL injury compared to those with no ACL injury history was 2.9 (95% CI 1.4 to 5.7).

Conclusion: None of the static and dynamic postural control measures examined were associated with an increased ACL injury risk among female elite ball sport athletes. Hence, postural control, the way measured here, cannot be used to screen elite athletes to predict injury risk.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
WA Consumer Product Advocacy Network - Reducing the risk of childhood injuries related to consumer products, Anita Stepan  
Kidsafe WA

Over 27 Western Australia children die each year from preventable injuries, while a further 7,000 are hospitalised. A large proportion of these injuries involve consumer products.

The Western Australian Consumer Product Advocacy Network (WA CPAN) was established in October 2014 by Kidsafe WA with the support of the WA Department of Health. The network was formed to provide leadership in identifying unsafe products and exploring solutions to ultimately reduce the number and severity of childhood injuries related to consumer products. The network consists of representatives from organisations who are involved in the regulation, safe use, injury prevention, treatment and sale of products for use by consumers. These organisations include the Department of Health WA; the ACCC, the Burns Injury Research Unit; UWA, Consumer Protection, Goodstart Early Learning and Kidsafe WA.

The key objectives of WA CPAN include:

- To advocate for the removal of and/or modifications to products that can pose an injury risk to children.
- To increase the knowledge of key child injury prevention stakeholders about products available on the Australian market and internationally, that pose injury risks through their use/misuse.
- To increase knowledge among parents, grandparents and carers of the importance of choosing and using products that are designed to assist with reducing the risk of serious childhood injuries.
- Raise awareness of the importance of safer product design, including both the physical and chemical components of products as identified through evidence collected and research undertaken.

As a large proportion of injuries to children involve products, WA CPAN plays an important role in identifying and addressing these safety issues to reduce the injury risk to children in our state. Since the establishment of WA CPAN, several product safety issues have been identified, discussed and acted upon. The strength of this collaboration comes from the varying skill sets, regulatory powers, communication channels, data access and clinical knowledge within the group. These attributes have enabled members of the network to discuss safety issues and take appropriate actions in a timely manner, to reduce the risk of childhood injuries related to consumer products.

In this presentation we will provide an overview of how this group was formed, some of the product safety issues identified and the actions taken by WA CPAN in dealing with the product safety issues.

Theme: Child health and safety, Presentation Type: Oral
CONCUSSION REPORTING INTENTION AMONG ADOLESCENT GAELIC ATHLETIC ASSOCIATION (GAA) ATHLETES: A CROSS-SECTIONAL STUDY, Lindsay Sullivan
National University of Ireland Galway

Background: Sports-related concussions are a public health concern. Annually, it is estimated that between 1.6 to 3.8 million concussions occur in sports and recreational activities in the USA alone. However, due to a variety of factors including: the culture of sport, limited access to medical professionals during practices and/or games, and lack of knowledge about the signs and symptoms of sport-related concussion, many concussions are neither recognized by athletes nor observed by coaches, parents, and/or diagnosed by medical professionals. As a result, an estimated 50% to 70% of concussions go unreported and/or undetected among athletes, putting them at increased risk of long-term problems and prolonged recovery. In order to increase the disclosure of concussion signs and symptoms among athletes, we need to understand the psychosocial determinants of concussion reporting intention and behaviours.

Aims: The current study examined the utility of the Theory of Planned Behaviour (TPB) in predicting concussion reporting intentions among high school, Gaelic Athletic Association (GAA), athletes in Ireland. Methods: Two hundred and forty athletes aged 14 to 16 (Mage=15.35, SD=0.63) completed an anonymous survey assessing their concussion reporting intentions and reporting behaviours. Also included were measures of perceived self-efficacy, attitudes about the perceived consequences of reporting, subjective norms, and concussion knowledge. Data analyses were completed using SPSS Version 22.0. Results: Results from a series of hierarchical linear regressions provided support for the fit of the TPB to concussion reporting intention among this population. As predicted by the TPB, results revealed that perceived self-efficacy and subjective norms were positively related to concussion reporting intention, whereas attitudes about the perceived consequences of reporting were not. Concussion knowledge and previous season concussion reporting behaviour were also found to be positively associated with concussion reporting intention among this population of athletes. Unlike previous reports, we found, self-efficacy to be the strongest predictor of concussion reporting intention. Conclusion: The current findings suggest that favourable attitudes towards concussion reporting, the influence of coaches and teammates, and an athlete’s perceived control over concussion reporting are key factors associated with concussion reporting intention. Therefore, going forward, concussion education programs based off of the TPB should be developed, implemented and evaluated for high school athletes. Health promotion communication campaigns should also be utilized in conjunction with concussion education and awareness programs to further highlight the importance of appropriate and timely concussion management, and to create a culture that supports and encourages athletes to report concussion.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
EVALUATION OF LASTING IMPACT, A THEORY BASED CONCUSSION EDUCATION PROGRAMME FOR HIGH SCHOOL ATHLETES, Lindsay Sullivan
National University of Ireland Galway

Background: Sports-related concussions are now recognised as a major public health concern, especially among adolescents. As a result, an abundance of concussion education programmes for athletes have been developed, implemented, and evaluated. However, a majority of these educational programmes have been found to be largely ineffective in changing cognitions other than knowledge. Accordingly, research suggests a need for theory-driven concussion interventions that go beyond those that aim at increasing athletes’ concussion knowledge and their ability to recognise concussion signs and symptoms. Aims: This study will apply the theory of planned behaviour (TPB) to the development and evaluation of a targeted concussion education programme for high school, Gaelic Athletic Association (GAA), athletes in the Republic of Ireland. The primary aim of this study is to assess the immediate and short-term impact of a concussion education programme on intention to report concussion; and to explore, changes and/or improvements, if any, in concussion knowledge, attitudes towards concussion and concussion reporting, perceived self-efficacy, subjective norms, and concussion reporting behaviours. Methods: This study will employ a quasi-experimental design, with data collection at baseline (T0), immediately post-intervention (T1), and three-months after programme implementation (T2). The sample will be comprised of approximately 500 student athletes from seven high school GAA teams, from one county in the Republic of Ireland. Using a structured questionnaire, data will be captured on athletes’ (i) attitudes towards concussion and concussion reporting, (ii) subjective norms, (iii) perceived self-efficacy, (iv) concussion knowledge, (v) intention to report concussion, and (vi) concussion reporting behaviour. Data will be collected from October 2016- May 2017. Results: Results from the evaluation will be presented. Data will be analysed with SPSS Version 23. Results will explore differences, if any, in (i) attitudes towards concussion and concussion reporting, (ii) subjective norms, (iii) perceived self-efficacy, (iv) intention to report concussion, and (v) concussion reporting behaviours among athletes based on data collection timepoint (T0, T1, and T2) and group (control or intervention). Using hierarchical linear regression, we will also identify the most significant factors associated with increased concussion reporting intention and concussion reporting behaviours. Conclusion: Findings from this evaluation will be used to assess the efficacy of the TPB in the development of a concussion education programmes for high school student athletes, and will support the knowledge and practice of primary and secondary concussion prevention.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
Background: Individuals with mild cognitive impairment (MCI) and dementia have physical impairments and increased fall risk when compared to their cognitively intact peers. However, there is limited literature examining physical decline across the cognitive spectrum and how neuropsychological domain performance, physical activity and falls impact on this decline.

Aims: Firstly, we aimed to investigate physical decline over 1-year in a cohort of older people across the cognitive spectrum. Secondly, we investigated which factors (i.e., neuropsychological domains and/or physical activity) were associated with physical decline and how falls during follow-up impacted the relationship between these factors and decline. Finally, we investigated the relationship between falls and physical decline over 1-year.

Methods: Physical function was assessed using the Physiological Profile Assessment (PPA) in 490 participants (cognitively normal [CN]: n=301, MCI: n=60, dementia: n=129) at two time-points, 1-year apart. Neuropsychological performance and physical activity (PA) were assessed at baseline. Falls were determined prospectively using monthly calendars and telephone calls, as well as carer assistance for participants with dementia.

Results: Median baseline PPA scores for CN, MCI and dementia were 0.39 (IQR=0.10–1.01), 0.67 (IQR=0.05–1.09) and 1.85 (IQR=0.83–3.38) respectively. All baseline neuropsychological domains and PA were significantly associated with baseline PPA. After 1-year, PPA scores significantly improved in CN, B=−0.20, 95%CI [−0.31, −0.08], remained unchanged in MCI, B=0.17, 95%CI [−0.11, 0.44] and declined in dementia, B=0.97, 95%CI [0.66, 1.27]. There were significant interaction terms (Time × Cognitive Group, Executive Function and PA) in the models investigating decline in PPA while controlling for age and sex, as well as education for neuropsychological measures. These results indicate that participants with dementia, lower baseline executive function and reduced PA demonstrated greater physical decline when compared to CN and those with better baseline executive function and PA respectively. Falls during follow-up did not significantly impact these relationships. Each standard deviation increase in PPA over one year was associated with a 66%, OR 1.66, 95%CI [1.25, 2.21], increased odds of being a faller and multiple faller, when compared to non-fallers and fallers respectively while controlling for age and baseline PPA.

Discussion and conclusions: Having dementia is associated with greater physical decline. Physical inactivity and executive dysfunction are associated with physical decline, and are potentially amenable to interventions. Physical decline was associated with significantly increased odds of falling during follow-up. However, both decline and falls were occurring over the same timeframe and each could influence the other.

Theme: Falls prevention and rehabilitation, Presentation Type: Oral
SiN or SiD? Evidence for the effect of cyclist density on potential car vs cyclist collisions at intersections,

*Jason Thompson*

*University of Melbourne*

Introduction:

The safety in numbers (SiN) effect for cyclists is poorly understood. The most common theory is that it is driven by ‘behavioural adaptation’ among drivers. That is, the more drivers see and become aware of cyclists on the road, the more they learn to drive safely around them.

Despite the popularity of the behavioural adaptation hypothesis, previous work using agent-based modelling (ABM) has suggested it is not a necessary condition for the SiN effect to occur. Rather, SiN may simply be a spatial phenomenon produced by encouraging cyclists behaviour that leads to the formation of higher ‘density’ groups that cluster together on popular cycling routes.

While acknowledged as a potential mechanism, the ‘safety in density’ hypothesis has been criticised from the perspective that it has been built on a computational model, only, and that no empirical evidence exists that cyclists ‘cluster’ in the real world. The purpose of this research was therefore to determine whether the in-silico evidence observed in our computational models was evident in-situ.

Method:

Video-footage of a cross-intersection where cyclists and cars regularly interacted was undertaken in the city of Melbourne, Victoria over the period of 5 days. In total, single interactions between nearly 3000 cyclists and 1500 cars were observed in a situation where cyclists had right of way. Video footage was coded to determine the timing within which drivers either ‘gave way’ or ‘crossed’ the intersection in relation to the presence and density of on-coming cyclists. Analysis was then undertaken to determine whether the presence of cyclists in higher density affected the timing and likelihood of ‘crossing’, and therefore potential collisions, between cars and cyclists.

Results:

Results demonstrated a clear relationship between density of cyclists and potential car vs cyclist collisions. This mirrored both the results of previous ABMs and macro-level observed relationships between cyclist numbers and per-cyclist collision risk reported in the broader SiN literature.

Discussion:

This work addresses previous concern that the ‘clustering’ of cyclists has not been observed in-situ and confirms the hypotheses generated by previous work that cyclist safety may be a product of density (SiD) rather than numbers (SiN). Secondly, it demonstrates that the effect of density can be observed in discrete interactions that preclude opportunity for learning or behavioural adaptation by drivers. Lastly, this work demonstrates the utility of ABMs for generating initial 'synthetic evidence' that can be used to guide and iterate the conduct of real-world research. Potential cycling management and policy implications are discussed.

*Theme: Road and transport safety, Presentation Type: Oral*
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Theme: Road and transport safety, Presentation Type: Oral
Railway suicide clusters: how common are they and what predicts them?, Lay San Too  
University of Melbourne

Background:

Suicide clusters are defined as an unusually high numbers of suicidal behaviours occurring closer together in space and/or time than would be typically expected. A growing number of studies have sought to detect clusters of all suicides, but few have sought to identify clusters of method-specific suicides.

Aims:

Our aims were to (1) identify clusters of railway suicide and (2) having done this, use a case–control design to investigate individual and neighbourhood factors that might be associated with a railway suicide being part of a cluster.

Methods:

Data on railway suicides occurring in Victoria, Australia between 2001 and 2012 were obtained from the National Coronial Information System. We used the Poisson discrete scan statistic to identify railway suicides that occurred close together in space and/or time. We then used a case-control design to compare clustered railway suicides to non-clustered railway suicides on a range of individual (i.e. age, sex, marital status, employment status, diagnosed mental illness, mental health hospitalisation history) and neighbourhood factors (i.e. social fragmentation, socioeconomic status, train-related variables, number of assaults, concentration of alcohol outlets, number of mental health services, number of secondary schools, and overall suicide rate).

Results:

We detected four spatial clusters that accounted for 35% of all railway suicides. We found no temporal or spatial-temporal clusters. Railway suicides by individuals who were hospitalised for mental illness had nearly double the odds of being in a spatial cluster compared to those individuals who had never been hospitalised (odds ratio [OR] 1.80, 95% confidence interval [CI] 1.02, 3.18). Higher frequency train services were associated with increased odds of being in a spatial cluster (OR 1.11, 95% CI 1.03, 1.19). No other predictors were associated with being in a spatial cluster.

Discussion and conclusions:

Railway suicides that occur in clusters warrant particular attention because of the ripple effect they can have for communities and the risk that they may lead to copycat acts. Railway suicide prevention strategies should consider the fact that these suicides can occur in clusters, particularly among individuals have had previous hospitalisations for mental illness or live in areas with high frequency train services.

Theme: Intentional injury and violence prevention, Presentation Type: Oral
An updated subsequent injury categorisation model (SIC-2.0): data-driven categorisation of subsequent injuries in sport, Liam Toohey
La Trobe University

Background: Sustaining multiple sports injuries both within a season and over an athletic career is common. Accounting for all injuries is important when considering an athlete’s injury risk profile. The subsequent injury categorisation (SIC-1.0) model was developed to create a framework for accurate categorisation of subsequent injuries but its operationalisation has been challenging.

Aims: To (1) develop an updated version of the SIC model for categorising sports-related subsequent injuries, (2) apply the updated model to a prospectively collected sports injury dataset, and (3) assess the level of agreement between manual and automated coding methods of the new SIC-2.0 model.

Methods: A critical review of the SIC-1.0 model and its previous application was undertaken. The SIC-1.0 model was expanded to include categories that could be identified without clinical input. These data-driven categories were sub-categorised according to the level of clinical-relatedness between injuries. An automated script for data-driven categorisation, and a flowchart for manual coding, were developed. Both methods of coding were applied in a prospective injury dataset collected for 55 elite international rugby-sevens players (30 men, 25 women) over two-years (2015-16). Absolute agreement between the two coding methods was calculated.

Results: Eight SIC categories that could be assigned without clinical input were identified. Six additional SIC subcategories were identified and integrated into the expanded SIC-2.0 model. The SIC-2.0 model was applied to 246 injuries sustained by the players during the surveillance period (median=4 injuries/player, range 1-12). Absolute agreement between the SIC-2.0 category distribution of the manual coder and automated statistical script was 100%.

Discussion and conclusions: This update of the SIC-1.0 model addresses some limitations of the original model. Updates in the SIC-2.0 model include (1) categorising a subsequent injury to all previous injuries within the surveillance period, (2) introducing a data-driven categorisation level, removing the need for early clinical-based decisions minimising potential biases, (3) including the side of injury differentiation for injuries sustained at the same site and nature, (4) sub-categorising injuries to a more specific tissue structure, (5) identifying a new category of subsequent injuries sustained at other anatomical sites that are of the same nature, and (6) methods for categorising multiple injuries sustained during the one injury event. In addition, a flowchart to guide users through the coding process and the development of an automated script that accurately and efficiently codes large injury datasets facilitates future application of the SIC-2.0 model.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
Increased risk for subsequent lower limb injury following previous injury: a systematic review and meta-analysis, Liam Toohey
La Trobe University

Background: Lower limb injuries in athletes often occur following a previous injury. Previous injury is a strong risk factor for recurrent (injury of the same site and nature) lower limb injury in athletic populations, yet the association between previous injury and a subsequent injury that is different in nature or location is rarely considered.

Aims: To synthesis the available evidence to answer the clinical question: does previous injury alter the risk for subsequent lower limb injury at a different anatomical site and/or of a different nature in athletic populations?

Methods: Eight medical databases were searched. Studies of athletes were eligible if they reported occurrence of a lower limb injury following any injury of a different anatomical site and/or of a different nature, assessed injury risk, and were written in English. Two reviewers independently applied the eligibility criteria and performed the risk of bias assessment. Meta-analysis was conducted using a random effects model to obtain the pooled relative risk (RR) estimate where possible.

Results: An initial list of 1,297 potentially eligible articles was identified, of which only 12 satisfied the eligibility criteria. An increased risk for sustaining a subsequent hamstring injury following anterior cruciate ligament (ACL) injury was found (3 studies, RR=2.25, 95%CI 1.34 to 3.76, p<0.01). There was no statistically significant increase in risk for sustaining a subsequent hamstring injury following chronic groin pain (3 studies, RR=1.14, 95%CI 0.29 to 4.51, p=0.85). Index injuries to the hamstrings (n=2), quadriceps (n=2), adductors (n=2) and calf (n=2) muscles were associated with an increased risk for a subsequent muscular injury at a different site. A back index injury was found to be associated with an increased relative risk of subsequent hamstring (n=2), calf (n=1) and quadriceps (n=1) muscular injury. A knee index injury was associated with future lower limb joint injuries (n=2), while prior concussion was found to be significantly associated with sustaining subsequent lower limb musculoskeletal injuries (n=1).

Discussion and conclusions: Previous injury history is associated with an increased susceptibility to subsequent lower limb injuries at a different site and/or a different nature. Previous research that has only investigated the recurrent nature of many injuries could have underestimated the impact an injury of another type has in the contribution to an athlete’s overall risk profile. Future injury prevention research that incorporates prevention strategies to mitigate the risk for both recurrent and different types of lower limb injury within athletic populations

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
Exploring Feasibility of a Newly Designed Composite Face Shield in Mitigation for Blast-Induced Traumatic Brain Injury (bTBI), Kwong Ming Tse
The University of Melbourne

Background: Blast-induced traumatic brain injury is the most prevalent injury sustained by combat soldiers at the frontline.

Aim: The aim of the current study was to investigate the effect of using a face shield with different configurations of laminate composites comprising of polycarbonate and aerogel materials for mitigating blast-induced brain injuries. Aerogel, with its micro-porous structure and high acoustic impedance properties, reduces the amount of blast transmission to the face by generating large acoustic mismatch between neighbouring layers.

Method: Dynamic fluid-structure interaction using finite element models of the human head, helmet and face shield was employed to evaluate the effectiveness of 4 different face shield configurations when exposed to a frontal free-field blast.

Results: The simulation results demonstrated that the inclusion of face shield to a helmet can mitigate the blast transmission to the face, and also lowered the skull stresses and the intracranial pressures at the frontal and parietal lobes. It was found that sandwiched structured face shields of polycarbonate and aerogel provided superior blast attenuation than a single-layered polycarbonate face shield. The alternate multi-layered transparent materials of high and low densities provided the best attenuation of blast pressure transmission to the head, with the polycarbonate exterior shell casing contributing to the structural integrity of the face shield while the lower dense aerogel filler providing high acoustic impedance to blast wave transmission.

Conclusion: This study provides further insights on future development of personal protective equipment in mitigating blast-induced injuries to the head.

Theme: Intentional injury and violence prevention, Presentation Type: Oral
Injury prevalence and reporting in professional dancers in Australia, Amy Vassallo
University of Sydney

Background:

Professional dance can be a vibrant career, however its physical demands place dancers at high risk for significant injury. Appropriate injury prevention and management is essential for career longevity, as well as optimal mental and physical wellbeing upon retirement. Currently there is a paucity of data regarding dancers’ injury experience from many sectors of the Australian dance industry.

Aims:

The aim of this project was to identify the prevalence of injuries in Australian professional dancers and their associated injury reporting behaviours.

Methods:

This study was the latest update of Safe Dance IV; a national, cross-sectional survey of independent and company-based dancers in Australia. The in-depth injury focussed questionnaire was developed based on similar studies, a literature review and trial with dancers. Data collection occurred between February 2016 and February 2017. It was disseminated electronically using REDCap and paper copies were posted to major dance companies and groups. Data was analysed using Excel and SPSS.

Results:

195 eligible dancers returned Safe Dance IV questionnaires, and 146 completed the relevant injury management questions for this study aim. 73% of dancers sustained a dance-related injury in the past 12 months that affected their ability to participate fully in normal dance training or performance; 59% of these injuries were chronic and 27% acute. It took an average of 8 days for dancers to seek injury treatment. Reported reasons include financial and access barriers, not being able to take time off dance or hoping the injury would resolve on its own. 63% of dancers reported fear of possible repercussions of sustaining an injury, 62% believe there is still stigma associated with injury as a professional dancer and 51% reported that this stigma has led to a delay in reporting or seeking treatment for their injuries.

Discussion and conclusions:

This study demonstrates that injuries are common in Australia’s professional dancers and highlights beliefs and common practices associated with their reporting. Effective and tailored injury prevention initiatives, including safe dancing recommendations, require accurate injury information. Prompt treatment is also required to aid recovery and prevent subsequent injury. However, a significant proportion of dancers in this study feel a stigma attached to injuries in their professional career and delay reporting and/or seeking treatment. Action must be taken by the dance industry to address this as a priority for effective injury prevention.

Theme: Sports injury prevention and rehabilitation, Presentation Type: Oral
Selling safety - communication 101, Kylie Warren-Wright
Goodstart Early Learning

Goodstart Early Learning is Australia’s largest provider of early learning with 13,500 employees caring for 71,500 children across 646 centres everyday. The organisation has invested heavily in health and safety with a team of dedicated professionals providing guidance and advice to our centre network.

The early learning sector have varying levels of maturity when it comes to safety and injury management. At Goodstart there was a real disconnect with safety. We realised we had to do things differently to engage people and influence safety and injury outcomes.

We went out to our people and talked to them about what we needed to change in order for them to see value in our function. Our technical language was a real barrier. Terms like “hierarchy of controls” made no sense to anyone. There was a belief that the Safe Work team didn’t understand the intricacies of what a day in the life of our people looked like.

The team began to workshop our policies and processes looking at the language we used. We began to rewrite work instructions, using everyday language and focussing on simple messaging. To this point we re-wrote the hierarchy of controls and created a version that was intuitive and could be used by any of our people without needing specialised training. The team also spent time in our centres learning about what our people did everyday and how they did it.

We wrote activities for our people using a gamification model that appealed to our workforce and sector. We called this iSpy, an activity where we would show a picture from one of our centres and the team would need to guess the hazards, discuss the risks and determine ways to manage and communicate the situation. This element of iSpy is called LOOK, DO, TELL. Each Centre Director was provided a facilitators guide which helped them work through the activity with their team. The guide was written in simple terms focussing on three hazards, this kept the activity short and sharp and allowed it to be incorporated into activities like team meetings.

We saw an immediate increase in the number of hazards reported across our network and a confidence from our people to do something and tell someone when they identified a problem. The severity of our injuries has reduced and our employee engagement survey reports safety as being the leading indicator in employee satisfaction.

Theme: Workplace injury and safety, Presentation Type: Oral
A National Approach to Measuring Non-Fatal Road Injuries, Angela Watson
Queensland University of Technology

AIM: Austroads project SS2034 aims to provide proof of concept for a national approach to obtaining routine national data on non-fatal hospitalised road injuries in Australia, using data linkage. We report here on the first part of the project: seeking approvals.

BACKGROUND: Road safety agencies recognise that programs should be guided by data on non-fatal road injuries as well as deaths data. Data on non-fatal cases are thought to be insufficient and improvement was foreshadowed in the National Road Safety Strategy Review and action plan. Linkage of crash data with health sector data has potential to provide more complete and reliable information.

Such linkage has been done in some jurisdictions. Linkage at national level could provide additional benefits including consistency of method, measurement of cross-border flows and extension to all jurisdictions. Few national linkage projects have been completed in Australia, none using crash data.

METHOD: The sources are: admitted patients databases, police-reported road crash databases and the National Death Index (NDI). The method applies the separation principle, which underpins the health data linkage framework in Australia. Linkage, using identifying data, is being undertaken by the Australian Institute of Health and Welfare Data Linkage Unit (AIHW DLU). Linked files for analysis will not contain identifying data, and will be held in a secure repository (SURE), accessible only to authorised investigators.

PROGRESS: Approvals are required by ethics committee (ECs), hospital data custodians and crash data custodians in each jurisdiction, from the AIHW (for NDI data) and the 2 participating universities. Work began in December 2015. By April 2017, approvals had been granted by the university ECs, the AIHW and, in jurisdictions, by 6/8 ECs, 5/8 hospital data custodians and 5/8 crash data custodians. No application had been rejected. In WA, application for hospital data was following a new process after legislative change. Provision of data to the AIHW DLU began in February 2017.

CONCLUSION: Relevant ethics committees and data custodians will allow the linkage and analysis of required data in a design that employs the separation principle. Some road safety agencies would like to obtain identifying linked data, but this is not acceptable to hospital data custodians and ethics committees. Unknown at the time of writing are whether outstanding applications will be approved, the time to delivery of remaining data to AIHW-DLU, duration and quality of the matching process and the time to delivery of linked data to SURE.

Theme: Other, Presentation Type: Oral
Incidence and Cost of Nonfatal Paediatric Injury in QLD, Kerrianne Watt
James Cook University

Background: Injury is a leading cause of the burden of disease in children and adolescents, but the costs of injury have not been well articulated. These data can usefully inform service provision, policy, and prioritisation of interventions, and in quantification of the burden of childhood injury. Aims: The aim of this study is to estimate the costs associated with nonfatal paediatric injury in Queensland. Methods: Data on children in QLD aged 0-17yrs who sustained injury in 2010-11 that involved treatment or transport by QLD Ambulance Service (using case nature to determine injury), treatment at an Emergency Department (ICD10 primary diagnoses code S00–T98), or that resulted in hospital admission (primary diagnoses code S00–T98 OR external cause code V01-Y98) were extracted. Based on data collected as a part of the National Efficient Price Determination, the average cost per hospital bed day in Queensland was $1,974. This was multiplied by the length of hospital stay for each patient to obtain an estimated cost per hospital episode. The average cost per ED visit was estimated at $1,391, and the average cost of attendance per ambulance visit at $684. These costs were used to estimate the direct costs associated with nonfatal paediatric injury in QLD. Results: In the financial year 2010/11 in Queensland, among children aged 0-17yrs there were 16447 hospitalisations (15.7/1000), 92906 ED visits (88.56/1000), and 47166 QAS attendances (44.96/1000) due to injury. This comprised 19.2%, 29.7%, and 19.3% of all hospitalisations, ED visits, and ambulance attendances, respectively. Mean length of hospital stay was 2.37days. The estimated direct costs associated with paediatric injury in QLD were therefore $76 930 728 for hospitalisations; $129 232 246 for ED visits, and $32 261 554 for ambulance episodes. This is a total of $238 424 528 per annum, or $653 217 per day. Costs will be further broken down by age group and mechanism. Conclusion: This study provides a snapshot of the costs of Paediatric injury in QLD, and is the first in a series of studies that are planned to explore this issue. This is a conservative estimate of the direct costs associated with acute episode of care for the initial injury event resulting in hospitalisation, ED visits, and ambulance involvement only. This does not include ICU or other specialised care costs, or any outcome costs (treatment/rehabilitation). It is the first time that direct costs of paediatric injury in QLD have been articulated.

Theme: Other, Presentation Type: Oral
This paper examines road safety in Australia. Road safety and transport infrastructure management is very important to all. Many fatal and serious accidents take place on all types of roads. Road accidents impacts communities and have an impact on State and Federal Governments. The economic, socially and environmental impact is immeasurable. Road Safety Policies have been changing towards “Towards Zero” policies. Transport infrastructure on roads provides safety to all road users. Managing critical infrastructure systems facilitates the ease of traffic congestion and improves road safety. When there is traffic congestion, it creates road safety issues to all road users. Thus, transport networks and road transport infrastructure plays an important part in our daily lives. Road network creates benefits and wealth to nations as well as brings death and environmental damage to societies. Therefore road network and transport infrastructure planning is important when managing State and local roads. Local Councils are responsible for the management of all local roads under the Road Management Act. This research paper analyses the existing road safety policies, strategies, road transport infrastructure and reviews road accidents. A detailed analysis on a few selected roads are carried out through case studies to identify the issues in the road infrastructure and how it affects road safety. A framework will be developed to discuss the identified issues and how it should be addressed in the future.

Key Words: Road Safety, Transport infrastructure planning, Environmental and Social Impact

Theme: Road and transport safety, Presentation Type: Rapid Oral Presentation (e-Poster)
Alcohol, pharmaceutical, and illicit drug consumption in males treated by Australian ambulance services following an episode of self-harm, attempted suicide, or suicidal ideation: Data from the Movember Beyond the Emergency Project, Katrina Witt
Monash University

Background: Previous work on alcohol and drug-related harms in males who engage in suicidal behaviour tends to be based on data from national sources on hospital treated self-harm. These sources underestimate the extent of self-harm, particularly in young males. For each adolescent male who presents to hospital with self-harm, as many as nine more reported engaging in this behaviour in the community.

Aims: This study therefore investigated the characteristics of males who engage in non-fatal self-harm, attempted suicide, and suicidal ideation in the community to better understand the role of alcohol, illicit drug, and pharmacological medication use in suicidal behaviour in males.

Methods: This study is based on all males, aged 15 and older, attended in the community by ambulance paramedics between July 2013 and June 2014 following an episode of suicidal ideation, self-injury, self-poisoning, or attempted suicide in five Australian states and territories: the Australian Capital Territory (ACT), New South Wales (NSW), Queensland (QLD), Tasmania (TAS), and Victoria (VIC).

Results: Between 1 July 2013 and 30 June 2014 ambulance paramedics in these five states and territories attended 23,452 males following an episode of suicidal ideation (n=12,490), attempted suicide (n=7,837), self-injury (n=3,017), and combined self-injury and self-poisoning (n=108). The majority of males were aged under 40 years (M = 37.2 years, SD = 15.3 years, range: 15 to 97 years). Alcohol co-consumption was involved in around one third (range: 30.6% to 36.3%) of these attendances, whilst illicit drug consumption was involved in around one in ten (range: 5.6% to 11.1%). There was significant variation in the proportion of males who consumed pharmaceutical medications, however. A significantly greater proportion of males who engaged in combined self-injury and self-poisoning (72.2%) and attempted suicide (5.45%) as compared with those who engaged in suicidal ideation (4.1%) or self-injury alone (3.3%) consumed any pharmaceutical medication at the index episode. In particular, males engaging in combined self-injury and self-poisoning and attempted suicide were significantly more likely to consume benzodiazepines, antidepressants, and non-opioid analgesics.

Discussion and conclusions: Results describe patterns of alcohol, illicit, and pharmaceutical misuse in males who engage in self-harm in the community, and suggest that these attendances place significant burdens on ambulance services nation-wide. We suggest our results highlight the benefit of using community-based, rather than hospital-based, data to reveal the extent of health care utilisation in males who engage in self-harm.

Theme: Intentional injury and violence prevention, Presentation Type: Oral
Stay On Your Feet®: Learnings for future practice, Catrina Wold
Injury Control Council of WA

Context:

The Injury Control Council of WA (ICCWA), with the support of the WA Department of Health, has coordinated Stay On Your Feet®, WA’s leading falls prevention program for older Western Australians since 1998. In 2013, the Stay On Your Feet® program undertook extensive measures to complete formative evaluation to redevelop falls prevention campaigns which formed part of the wider Stay On Your feet® program. From the formative evaluation recommendations, campaigns were focused on one evidence-informed falls prevention strategy, with specific key messages and calls to action. Biannual campaigns were implemented to promote falls prevention awareness, knowledge and confidence among older adults and health professionals. Since January 2015, five campaigns have been delivered to support the main messages of Move Your Body, Improve Your Health and Remove Hazards.

Objectives:

To evaluate how the Stay On Your Feet® campaigns support the program objectives to increase awareness and engagement with falls prevention strategies.

Key Messages:

Since the implementation of the new campaigns in 2015, the campaigns have reached 4977 community members through peer presentations and distributed over 310,000 resources through 703 health professionals across Western Australia. Thirty-three percent of resources were distributed to regional and remote Western Australia. The program has trained 15 peer educators in campaign specific presentations that deliver simple and targeted messaging to community members. Community members that attended the peer presentations reported that 87% understood the risk factors for falls, 84% thought falls could be prevented, and 92% were motivated to reduce their risk of having a fall. Health professionals reported that 95% discussed falls prevention with their clients and 90% used campaign resources.

Discussion and conclusions:

The Stay On Your Feet® campaigns have shown to have an impactful immediate reach to program participants. Community member participants have reported positive behaviour change and an underpinning awareness that falls are preventable. As a key learning from implementing the campaigns, activities were modified to include community participation as well as health professionals, leading to increased reach, engagement and awareness of older adults. To extend campaign reach to the broader WA population, engagement with community partners was vital; this was an effective method to reach regional and remote populations.

Theme: Falls prevention and rehabilitation, Presentation Type: Oral
Context

Moving evidence from research to practice is vital for effective public health outcomes. Despite literature that supports the need for evidence informed practice, barriers remain preventing this rhetoric from being turned into action. Researchers can struggle to see their findings used effectively in policy and practice as they may lack relationships with community based organisations (CBOs) or may not have factored ‘application to practice’ into their dissemination of findings. In injury prevention programming, CBOs which have been responsible for delivering programs may lack the resources, relationships or research expertise to apply, produce, or distribute evidence to community, policymakers or back to researchers. Knowledge Translation (KT) provides one link between research and practice through the synthesis, exchange, application and dissemination of information. The Injury Control Council of WA (ICCWA) has been working in a research-practice partnership with the Collaboration for Evidence, Research and Impact in Public Health (CERIPH) for several years to improve knowledge translation efforts in injury prevention programs.

Objectives

This presentation is applicable to researchers, practitioners and policy makers and reports on the development and practical application of a knowledge translation plan in a CBO to facilitate better outcomes in injury prevention and build on a research-practice partnership. Elements of the plan have been adapted from the Canadian Institute of Health Research model of KT, incorporating four principles: synthesis, exchange, application and dissemination.

Key Messages

For evidence from research to be utilised effectively by end users there is a need for strong relationships and reciprocal exchange of information between researchers and practitioners working together with shared priorities toward a common goal. In injury prevention, better use of KT principles and definitive strategies may facilitate improved knowledge and skills amongst practitioners, improved community health outcomes and evidence-informed decision making by policy makers.

Discussion

ICCWA has developed a KT plan, a novel strategy for a CBO. The KT plan has a framework that includes short and long-term strategies to trial along with specific evaluation indicators. Developing a KT plan is one strategy to move CBOs towards better application of evidence in practice. A KT plan provides a framework for short- and long-term action. It holds the organisation to account on getting the right evidence to the right people at the right time. Working together, ICCWA and CERIPH aim to bridge the gap between research and practice to determine ‘what works for whom and why and in what context’ in injury prevention.

Theme: Translating research into practice and policy, Presentation Type: Oral
Long-term Disability Outcomes After Hospitalisation for Injury, *Emma Wyeth*
*University of Otago*

Background: Like other indigenous populations, Māori in New Zealand experience considerable health inequities when compared to non-Māori. Injury, and injury-outcomes are no exception with Māori aged 15-64 years experiencing more than twice the mortality risk, and 1.5 times the risk of hospitalisations, due to unintentional injuries compared to non-Māori the same age. Our previous work found that Māori hospitalised for injury are at 1.7 times the risk of disability 24 months post-injury than non-Māori hospitalised for injury.

Aims: This study aims to: 1) describe disability outcomes 24 months post-injury for Māori who have been hospitalised for injury, and 2) identify factors contributing to disability outcomes at 24 months post-injury for Māori and non-Māori who have been hospitalised for injury. Our objective is to identify key areas in the complex pre- and post-injury pathway that can be focused on to improve injury outcomes.

Methods: The longitudinal Prospective Outcomes of Injury Study recruited 2856 injured participants (including 566 Māori) from New Zealand’s no-fault injury insurer, the Accident Compensation Corporation, entitlement claims register, collecting pre- and post-injury information. Multivariable models were developed to estimate the relative risks of disability (measured by the WHODAS II) 24 months after injury.

Results: Of those who completed the 24-month interview, 105 Māori (28%) and 446 non-Māori (25%) were hospitalised for their injury. Of these, 26% of Māori and 10% of non-Māori were experiencing disability (WHODAS≥10) 24 months post-injury. Provisional findings indicate that factors predicting disability 24 months post-injury for both hospitalised Māori and non-Māori were: not working, pre-injury disability, perceiving the injury was a threat to life or long-term disability soon after injury. Having trouble accessing healthcare services for injury, also independently predicted disability 24 months post-injury for Māori. For non-Māori, having inadequate household income, less than secondary school qualifications, ≥2 chronic conditions, BMI≥30 or undisclosed, long-term financial insecurity, pain 3 months after injury or expectations of recovery, also independently predicted disability 24 months post-injury.

Discussion and Conclusions: Our results provide evidence that a number of independent pre-injury, injury-related and early post-injury characteristics predict disability 24 months post-injury. Additionally, there are different factors that predict disability 24 months post-injury for Māori and non-Māori suggesting that different interventions and approaches may be required to improve outcomes. These findings help identify areas where increased focus and support might be required to improve post-injury outcomes for those who have been hospitalised for injury.

Theme: *Indigenous health and injury prevention, Presentation Type: Oral*
Work-related injury and illness in the Victorian public healthcare sector, Ting Xia
Monash University

Background: In Victoria, nearly 13% of workers belong to healthcare sector, and many of them work in hospitals. The health care sector has been identified as a major source of all workplace injuries and the number of accidents at work is high compared to other industries. It is therefore important to understand work-related injury and illness in this specific sector.

Aims: To explore nature, mechanisms and outcomes of work-related injury and illness in the Victorian healthcare sector.

Method: A retrospective cohort analysis was conducted using the Compensation Research Database (CRD). We conducted descriptive analysis of 43,912 workers’ compensation claims from the Victorian healthcare and social assistance industry over a ten-year time period (2006 to 2015). Analysis sought to explore the characteristics of, and trends in, work-related injury and illness in the healthcare sector.

Result: Our analysis demonstrated that a total of 13,490 years working time were lost to work-related injury and illness among workers in the Victorian healthcare and social assistance industry in the period of 2006-2015. Workers from the ‘Midwifery and Nursing Professionals’ group working in hospital and aged care residential services recorded the greatest number of compensable conditions. This was followed by ‘Technicians, Tradeworkers & Labourers’ and ‘Social & Welfare Workers’. The most common types of compensable injury among Victorian health sector workers were musculoskeletal conditions and mental health conditions. However, ‘Social & Welfare workers’ and ‘Administrators and Managers’ had a higher proportion of mental health condition claims than other occupational groups. Workers who were ‘Administrators and managers’ and those reporting mental health conditions had the longest duration of compensated time loss.

Conclusion: Although the largest group of claims were from ‘Midwifery and Nursing Professionals’, we should also draw attention to other groups having a high volume of claims such as ‘Technicians, Trade workers & labourers’ and ‘Social & Welfare workers’. The differential patterns of injury/illness among different occupations suggests a need for occupational health and safety (OHS) primary and secondary prevention responses to be tailored by occupation. Moreover, work-related injury/illness has consequence for a substantial number of time loss weeks in Victoria health sector, suggesting that even a small improvement in injury or illness prevention and/or rehabilitation, by themselves important worker health and well-being objectives, will also result in substantial overall savings in productive working time and costs of compensation.

Theme: Workplace injury and safety, Presentation Type: Oral
The RePAIR trial: Standard post trauma rehabilitation in India for adults with lower limb injuries, Lalit Yadav
George Institute for Global Health

BACKGROUND

Studies of medium- to long-term recovery have shown that functional and quality-of-life outcomes of trauma patients who survive to hospital discharge are substantially influenced by post-hospital treatments, care and support. In India, physical, cognitive and other rehabilitation resources are often unavailable, or are piecemeal, poorly organised, and difficult to access.

AIM

The aim of the RePAIR Observational study was to establish standard care for adults with lower limb fractures following trauma in three Indian public trauma hospital sites ahead of a planned RCT of a paper-based in-hospital and post-discharge physiotherapy rehabilitation program.

RePAIR is a subproject of the Australia-India Trauma Systems Collaboration funded by the Australian and Indian Governments to reduce the burden of injury with trauma system interventions that can be implemented without the need for major health system change.

METHODS

A prospective observational study was conducted involving hospitalised patients 18 years and above from three major public trauma centres with a fracture of the lower limb. The baseline assessment on admission included key socio-demographics, injury characteristics, and aspects of treatment and care within the hospital. These patients were followed up at 6 and 12 weeks post hospitalisation for lower extremity functional score and health related quality of life.

RESULTS AND CONCLUSION

Altogether, 262 patients were recruited into the study. Participants had a mean age of 47 (SD-19), 75% male, and 45% were the sole earner of the household. Further, 66% had no health insurance and 20% had family income below the poverty line. Road traffic injuries accounted for 49% followed by falls (47%). The majority of patients suffered isolated fractures (74%) including 56% femoral fractures and 26% tibial fractures. Of these almost 90% were closed fractures and 90% required operative fixation. At the point of discharge 56%, 83% and 94% of patients were unable to sit, stand and walk respectively. At follow-up interviews, 45% had received physiotherapy, mainly as hospital outpatients. EQ-5D-3L scores and lower extremity function improved over time for all age-groups and fracture types but both remained relatively poor after 12 weeks.

The results of this phase of the study have informed a standard exercise package that forms the basis of the Rehabilitation Prescription Allowing Improved Injury Recovery (RePAIR) randomised controlled trial, and an android smartphone application. The RCT commenced in September 2017.

Theme: Rehabilitation and trauma care, Presentation Type: Oral