We Know What to Do...

- Do we have the will to do it?
- What tools might assist in implementing what needs to be done?
- How will we monitor the effectiveness of what we implement?
Why Policy Changes?

- Gets us beyond the focus on the individual
- Allows work on Engineering and Enforcement which can be more effective and more passive in application
- Can result in social change (i.e. in public attitudes)
- Awareness & educational programs may be short-lived when designated funds are no longer available, but policies, once implemented are much harder and slower to change ...more sustainable.
- Because they are harder to change, once enacted they can often withstand changes in politicians / decision makers.
Challenges in injury prevention advocacy and policy-making

• Injury and violence prevention is seen as the responsibility of several fields (health, criminal justice, first responders, transportation, education...) This leads to fracturing in the search for solutions.

• Lack of understanding of the definition of injury and the scope of the injury problem.

adapted from the CDC “Adding power to our voices”
Challenges in injury prevention advocacy and policy-making

- Lack of knowledge that solutions exist to reduce the impact of injury and violence
- Lack of individuals’ control over their risk environment (e.g., homes, workplaces, schools) role of SDOH
- Injury and violence is not broadly understood as a public health issue
Challenges continued….

- Funding for injury prevention is not commensurate with the magnitude of the problem
- Stigma associated with injury can hamper open discussion
- Enduring beliefs of unintentional injury as unpredictable and not preventable
Challenges continued….

• “Nanny state” opposition to injury prevention policies
• Acknowledgement of the need for exposure to risk as part of healthy child development
• Media can portray confusion in the name of “balance”
• Long-standing beliefs that “THE game” must not change
• What are the current Barriers and Challenges in Australia to injury prevention knowledge translation, advocacy and policy-making?

• From your vantage point, what are some of the solutions and actions that you can take to address them?
Addressing Challenges

- Burden of Injury among Canadian children & youth
- Development of injury indicators
- Development of an Injury dashboard
- Development of a Social Marketing Campaign
- Provincial Report Cards

**INJURY in CANADA**

- The COST is RISING
- The SINGLE BIGGEST KILLER of Canadians aged 1-44
- 43 Canadians die each day from injuries
- 71 DEATHS EVERY DAY

**Who is impacted most?**

- **Children** die most from 
  - crashes
- **Seniors** hospitalized most from 
  - falls

**Unless we take action, by 2035 injuries will cost** 

- **$75 BILLION**
- and cause 
  - 71 DEATHS EVERY DAY

**Help stop the clock on injury**
Implementing interventions could save more than 1000 children's lives a day.

Report describes 24 proven interventions.

Many high-income countries have been able to reduce their child injury deaths by up to 50% over the past three decades by implementing multisectoral, multi-pronged approaches to child injury prevention.
Addressing Challenges: Indicator Development

- Burden of Injury among Canadian children & youth
- Development of injury indicators
- Development of an Injury dashboard
- Development of a Social Marketing Campaign
- Provincial Report Cards
Our Target Audience:

- **Practitioners**
  - Public Health professionals
  - First responders
  - Those who use injury data to inform prevention
  - Knowledge users / NGOs

- **Decision-makers**
  - Policy-makers - for data, injury information or response to media
  - Health Authorities - injury prevention plan

- **Researchers**
  - Injury epidemiology
Addressing Challenges: Dashboard Development

Purpose

- To foster excellence in communication and encourage engagement through the development of a Canadian child and youth injury prevention injury atlas and dashboard.

Burden of Injury among Canadian children & youth

Development of injury indicators

Development of an Injury dashboard

Development of a Social Marketing Campaign

Provincial Report Cards
Developing the Dashboard

- Injury Dashboard Design Meetings
  - Partner Stakeholder meetings (3)
  - End-user cross Canada meeting series (4)
  - Data Stewards meeting (2)

- PhD Student in Visual Analytics
  - Designed and evaluated the Dashboard
  - Results showed the Dashboard’s ability to facilitate data exploration, problem-solving and decision making
Addressing Challenges

- Burden of Injury among Canadian children & youth
- Development of injury indicators
- Development of an Injury dashboard
- Development of a Social Marketing Campaign
- Provincial Report Cards
Preventable Social Marketing
Results: Awareness, Attitudes & Behaviours

- Those who have seen the campaign score significantly better (10-22%) on measures of awareness, attitudes and behaviours than those who have not seen the campaign.
  - Awareness – injuries are an important issue, are the #1 killer of citizens ages 1-44, resulting in thousands of lives and cost billions of dollars.
  - Attitudes – injuries are inevitable, preventable, a daily concern to me and impact me and my family.
  - Behaviours – use of ladders, distracted driving, safety at work, helmet use, water safety, taking medications, jaywalking.

- Positive shifts (10%) observed in attitudes towards injury prevention in the BC population.
Results: Unintentional Injury Deaths, BC
(rates per 100,000 population; 25-54 yr and 0-24 yr; 2005-2014)

Injury mortality rate (per 100,000 population)

- Pre-campaign: 33%
decrease (P < 0.05)
- Campaign: 27%
decrease (P < 0.05)

40 lives saved – mostly young adults and children
$25,990,527 cost avoided since launch
Results: Unintentional Injury Hospitalizations, BC
(rates per 100,000 population; 25-54 yr and 0-24 yr; 2005-2014)

Significant reduction in injury hospitalizations
$143,155,084 cost avoided since launch

14% decrease (P < 0.05)
16% decrease (P < 0.05)
Results: Unintentional Injury ER visits, BC
(rates per 100,000 population; 25-54 yr and 0-24 yr; 2005-2014)

Injury Deaths
(n = 1,546)

Estimated reduction in injury ER visits
$734,186,552 cost avoided since launch

Injury Hospitalizations
(n = 32,706)

Injury Emergency Room visits
(n = 472,680)
• Do any of the efforts to taken in Canada have relevance in Australia?

• What might knowledge translation, advocacy and policy-making efforts look like here?
Addressing Challenges

- Burden of Injury among Canadian children & youth
- Development of injury indicators
- Development of an Injury dashboard
- Development of a Social Marketing Campaign
- Provincial Report Cards

**Passenger/driver safety**

| National law requiring use of appropriate child and adolescent passenger restraint | 🌟 |
| National law requiring children to remain seated in rear facing car seats until age 4 years | 😞 |
| National law requiring children and adolescents to remain seated in the back seat of a motor vehicle until age 13 years | 😞 |
| National policy that increases access to child passenger restraint systems (CPRS) by disadvantaged families (e.g., CPRS included as essential child-care articles or taxed at lower rate, subsidies offered through programmes targeting disadvantaged families) | 😞 |
| National law requiring graduated licensing for new drivers (e.g., law requiring multi-stage program with graduated privileges to allow new licensed drivers on-road driving experience under conditions of reduced risk) | 🌟 |
| National law banning children from riding/driving farm tractors | 😞 |
| National law banning children from riding/driving all terrain vehicles (e.g., ATVs, three-wheelers, four-wheelers) | 😞 |
An evaluation of evidence-based paediatric injury prevention policies across Canada

Alison K. Macpherson¹, Mariana Brussoni², Pamela Fuselli³, Tara Middaugh-Bonney⁴, Shannon Piedt⁵* and Ian Pike²
Comparing injury rates between provinces and over time

Objective

To perform an interprovincial comparison of unintentional population-based injury hospitalization and death rates for Canadian children and youth ages 0 – 19 between 2006 and 2012
Methods

Morbidity Data

- Canadian Institutes for Health Information (CIHI) – Discharge Abstract Database
- Data: all hospital discharges including deaths, sign-outs, and transfers
- Data is collected from all provinces (QC not required to report)
- Use ICD-10-CA codes for injury mechanisms (V01-X59;Y85
- Hospitalization data from January 1 2006 – December 31, 2012-Y86

Mortality Data

- Statistics Canada Vital Statistics Death Database (original source)
- Data: demographic and medical (cause of death) information from each province and territory
- ICD-10-CA codes for injury mechanisms (V01-X59;Y85-Y86)
- Obtained medical examiner/coroner in each province and obtained number of childhood deaths (all unintentional)
- Death data from January 1 2006 – December 31, 2012
Methods

Study Variables

- Primary outcome measure: injury related hospitalization and death
- Variables analyzed: cause of injury, residence province

Statistical Analyses

- Population-based hospitalizations per 100,000 for each province by year and cause of injury
- Population-based mortality rates per 100,000 population
- Average annual incidence rate per 100,000
- Percent change: $V_2 - V_1 / V_1 \times 100$ ($V_2 = \text{pop’n based rate in 2012, } V_1 = \text{pop’n based rate in 2006}$)
Interprovincial comparisons

Population Based Injury Rate per 100,000 by Canadian Province between 2006 – 2012

Canadian average = 567.71

- 2.90 %
Saskatchewan injury rate over time

Population Based Injury Rate per 100,000 Between 2006 - 2012

Population Based Injury Rate per 100,000

Year

2006 2007 2008 2009 2010 2011 2012

SK  Canada
Population Based Injury Rate per 100,000 Between 2006 - 2012

Year | BC | Canada
--- | --- | ---
2006 | 600 | 550
2007 | 620 | 550
2008 | 580 | 540
2009 | 560 | 530
2010 | 550 | 520
2011 | 540 | 510
2012 | 530 | 500
Conclusions

• Overall rate of hospitalization and mortality from unintentional injuries in children is decreasing in Canada over time

• There are differences in the population based rates of childhood injury hospitalization and death by province and sub cause
Putting it all together:
The Canadian Child Safety Report Card
Developing the Report Card

Objective

- To create evidence-based child safety report cards that can be used to evaluate and influence policies and practices related to the prevention of childhood injuries
Developing the Report Card

**Methods**

**Rankings**

- Population-based rates: lowest morbidity/mortality rate was given highest point value (9)
- Percent changes: highest percent decrease was given highest point value (9)
- Total points for all 6 summed policies: highest score was given highest point value (9)
- Overall ranking: summed values for all 5 criteria, highest score was given an overall ranking of

**Policies**

- Smoke and carbon monoxide detectors, pedestrian safety, distracted driving, bicycle helmet legislation, booster seat legislation, graduated driver’s licensing

**Scoring System**

- None = 0 to Excellent = 3 points
- Provinces ranged from: 0 to 18 points
Results

Bicycle Helmet Legislation

- Excellent = all ages law, include all-wheeled activities (non-motorized skates, skateboards, and push scooters)
- Two provinces received an excellent score: BC and NS
- One province received a score of ‘none’ = SK

Booster Seat Legislation

- Evaluated based on: age/weight & height restrictions, public education and incentive programs, noncompliance penalties, driver responsibility
- Excellent = all of the above criteria integrated into legislation
- Four provinces received an excellent score – BC, ON, NS, and PEI
- One province received a score of ‘none’ – Alberta
Developing the Report Card

Results

<table>
<thead>
<tr>
<th>Province</th>
<th>Population Based Hospitalization Rate per 100,000 (1 = worst, 9 = best)</th>
<th>Percent Change in Hospitalization Rate (1 = worst, 9 = best)</th>
<th>Population Based Mortality Rate per 100,000 (1 = worst, 9 = best)</th>
<th>Percent Change in Mortality Rate (1 = worst, 9 = best)</th>
<th>Evidence-Based Policy Score (1 = worst, 9 = best)</th>
<th>Overall Score (1 = best, 9 = worst)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC</td>
<td>8</td>
<td>9</td>
<td>8</td>
<td>6</td>
<td>8</td>
<td>39 (1)</td>
</tr>
<tr>
<td>AB</td>
<td>4</td>
<td>4</td>
<td>7</td>
<td>8</td>
<td>2</td>
<td>25 (3)</td>
</tr>
<tr>
<td>SK</td>
<td>1</td>
<td>8</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>12 (9)</td>
</tr>
<tr>
<td>MB</td>
<td>7</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>23 (5)</td>
</tr>
<tr>
<td>ON</td>
<td>9</td>
<td>3</td>
<td>9</td>
<td>7</td>
<td>9</td>
<td>37 (2)</td>
</tr>
<tr>
<td>NS</td>
<td>6</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>7</td>
<td>25 (3)</td>
</tr>
<tr>
<td>NB</td>
<td>3</td>
<td>7</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>21 (8)</td>
</tr>
<tr>
<td>PEI</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>9</td>
<td>7</td>
<td>23 (5)</td>
</tr>
<tr>
<td>NL</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>3</td>
<td>3</td>
<td>22 (7)</td>
</tr>
</tbody>
</table>
Developing the Report Card

Strengths

- First interprovincial report card that ranks Canadian provinces with one another on a number of injury indicators and evidence based policies

Limitations

- Do not take into account contextual factors other than policy/legislation that may affect injury rates over time
- We do not know whether they will have the intended effect (yet)
Conclusions

• Generally, provinces that have a number of strong evidence-based injury prevention policies in place also have fewer child and youth injury hospitalizations and deaths.

• After taking into account all of the various criteria, BC was the province given the highest rank in Canada and SK was given the lowest.

• Harmonizing legislation related to evidence-based injury prevention policies may help decrease the burden of childhood injuries.
**Bicycle Helmet Legislation**

In 2012, 4,974 British Columbia residents suffered an injury, equivalent to 515.7 injury-caused deaths per 100,000 people.

**Overall Injury Prevention**

- Burden of cycling-related hospitalizations decreased by -42.14% between 2006-2012, compared to -35% reduction in the Canadian average.
- Bicycle Helmet Legislation for all ages has been in place in British Columbia since 1996.
- Research Evidence suggests that helmet use is greater in jurisdictions with all age helmet laws as opposed to those that only apply to children (Dennis et al., 2010; Hagel et al., 2006) and that increased enforcement through fines and tickets increases compliance (Gilchrist et al., 2000).
- British Columbia received an ‘excellent’ score on this injury prevention policy based on the helmet law applying to all ages, and to all wheeled activities.

**Policy Rank in Canada**

British Columbia includes the following:
- Smoke & Carbon Monoxide Safety
- Pedestrian Safety Laws
- Distracted Driving Laws
- Bicycle Helmet Legislation
- Booster Seat Legislation
- Graduated Driver’s Licence

For detailed information on appropriate policy.

**Table 9: Bicycle Helmet Legislation Rules in BC**

<table>
<thead>
<tr>
<th>Age</th>
<th>Effective Date</th>
<th>Penalty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applies to all ages</td>
<td>September 3, 1996</td>
<td>Fine up to $100</td>
</tr>
<tr>
<td></td>
<td>2003: updated to include helmet use for all wheeled activities (skates, skateboards, and push scooters)</td>
<td></td>
</tr>
</tbody>
</table>
Conclusions

- A systematic, indicator-based approach to assessing trends in childhood injury can help us understand the problem in context.
- Policies appear to play an important role in the reduction of childhood injuries.
- Ongoing evaluation of policies, implementation, and enforcement may reduce childhood injuries even more.
- A novel interactive knowledge translation approach was identified by the users, and will be evaluated.
Acknowledgements

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Thank you
Questions?