Evidence into Action - An Overview of Injury Data and Evidence Informed Practice Recommendations for Northern Ontario

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Parachute
Ontario Injury Prevention Resource Centre
Introductions

❖ Ontario Regional Injury Data Report - ORIDR
❖ Jayne Morrish - Research Coordinator
❖ Stacie Carey - Health Promotion Coordinator - Data & Knowledge Exchange
Goals

1. Understand the data in the report and be able to locate it when needed.

2. Understand how to compare data across regions

3. Learn about new tools available to disseminate the information in the ORIDR
Outline

❖ History behind ORIDR
❖ Purpose of ORIDR
❖ Layout of ORIDR
❖ Methodology
❖ Data trends for the Northern Region
❖ Evidence-Informed Practice Recommendations
History Behind ORIDR

❖ Ontario Injury Data Report released in 2012 - OIDR

❖ Requests for regional information

❖ Evidence-Informed Practice Recommendations (EIPs)

❖ Six unique regional reports
Purpose of ORIDR

❖ Provide **counts (#)** and **rates (per 100,000)** of injury related

› **ER visits, hospitalizations and deaths**
› Broken down by **cause** and **age-group**
› Separate report for each region

❖ Better understanding of causes of injuries
› Aid in reducing injuries
Purpose of ORIDR Cont’d

❖ Connect with one another
  ▸ Share knowledge, promote effective strategies, talk same language

❖ EIPs
  ▸ Provide initial evidence for health practitioners
Layout of OIDR

❖ 6 Reports - 1 report for each region
  ‣ Summary section
  ‣ Section of data tables
    - All tables have the same format
  ‣ EIPs for top injury issues
❖ All available from the OIPRC’s website
  ‣ www.oninjuryresources.ca
Introduction

The Ontario Injury Prevention Resource Centre and Parachute are pleased to present the Ontario Regional Injury Data Report.

Injury is the leading cause of death for Canadians 1 to 44 years of age and is the second leading cause of potential years of life lost before the age of 70. There are also major financial implications of injury in our society. According to the Economic Burden of Injury in Canada report released by SMARTRISK in 2014, injuries cost the Ontario economy $6.8 billion. In addition, there were more than 20,000 deaths in Ontario between the years 2001-2015 due to injury, causing these to affect the experience of great personal loss. This loss of life is tragic and unnecessary. It is commonly held that more than 90% of injuries are preventable.

Injuries have been described as the “invisible epidemic” or as the “neglected disease”, as they occur in great numbers and there is a widespread misconception in society that they are accidents which are a part of everyday life. Accidents have been defined as unavoidable acts of fate; that injuries, even unintentional injuries, are not accidents. Research shows that injuries are causally related to specific events and risk factors (e.g., gender, social-economic status, age, risk-taking behavior) and thus, are predictable and preventable.

Injury can be defined as the physical damage that results when a human body is suddenly or briefly subjected to intolerable levels of energy. The time between exposure to the energy and the appearance of an injury is short. Forms of energy that cause injuries include: thermal energy (e.g., scalds or burns); mechanical energy (e.g., collisions, falls or gunshot); electrical energy (e.g., electrical shock); chemical energy (e.g., poisoning); or the absence of heat or oxygen (e.g., hypothermia or suffocation). External causes of injuries can be classified as intentional (self-harm or assault) or unintentional (motor vehicle collisions, falls, drowning, and poisoning when there is no intent to harm). This report includes both intentional and unintentional injury counts and rates. Evidence has indicated that both categories of injury have their own unique risk factors and are receptive to interventions.

The Ontario Injury Data Report

In March of 2012, SMARTRISK (now part of Parachute) released the Ontario Injury Data Report. This report presents the counts and rates of injury-related emergency department visits, hospitalizations and deaths by cause of injury in Ontario as a whole as well as separately for each regional health authority (RHA) in Ontario. This version of the report contains data from the year 2015 and builds on the previous iteration of the report (which was released in 2012). It consists of an introductory section, an overview section, and concludes with an evidence-informed practice recommendations section. The report is intended to provide an overview of injury trends in Ontario and is a resource for decision-makers, researchers, and practitioners in the injury prevention field.

Data Tables – Northern Ontario

This section of the Ontario Regional Injury Data Report provides data on a single provincial region. Consider the introductory section for information on the methodology used to generate the reported data, as well as guidance on interpretation and publication details. Sections for other regions can be obtained at:


For tables where injury counts were less than 5, the actual event count has been replaced with “<5”, and the rate with “---” to mitigate issues of residual disclosure.

Evidence Informed Practice Recommendations

As mentioned in the summary section of this document, the most common causes of injury in the Northern Ontario region were related to falls, off-road vehicles, on-road vehicles, poisoning, sports and recreation, and transport. This data informs the evidence-informed practice recommendations for each type of injury have been included in the following section, in alphabetical order:
Layout of ORIDR Cont’d

- Tables have same order as in the OIDR
- Information on reading the tables is available via a taped webinar on the OIPRC’s website
- EIPs listed in alphabetical order
Summary Section

❖ Tables for each Ontario Region
  ▸ Top five causes of ER visits, hospitalizations and deaths

❖ Methodology
  ▸ Definitions, regional network breakdown, and ICD-10 codes used
  ▸ How to read the tables and EIPs
Summary Section

- Expert reviewers
  - Full report, individual EIPs
- Data source: IntelliHEALTH Database
- 4 Databases used
Data Tables

❖ Tables 1 & 2: **All Injuries**
❖ Tables 3, 4 & 5: **Falls**
  ‣ Table 5 shows *location of injury* (i.e., hip)
❖ Tables 6 & 7: **On Road MVC’s**
❖ Tables 8 & 9: **Off Road MVC’s**
❖ Tables 10 & 11: **Sports & Rec**
❖ Tables 12 & 13: **Violence**
❖ Tables 14 & 15: **Suicide & Self-harm**
## Data Trends – Northern Ontario – ER Visits

**Table NIPPN-1**

Top five mechanisms of injury resulting in the largest proportion of injury related emergency room visits, Northern Region, fiscal year 2007-2009

<table>
<thead>
<tr>
<th>Cause of Injury</th>
<th>Visits</th>
<th>Rate per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inanimate</td>
<td>71,755</td>
<td>1756.9</td>
</tr>
<tr>
<td>Falls</td>
<td>67,852</td>
<td>1661.3</td>
</tr>
<tr>
<td>Sports and Recreation</td>
<td>32,245</td>
<td>789.5</td>
</tr>
<tr>
<td>Animate</td>
<td>15,854</td>
<td>388.2</td>
</tr>
<tr>
<td>On Road</td>
<td>11,497</td>
<td>281.5</td>
</tr>
</tbody>
</table>
Data Trends – Northern Ontario – Hospital Visits

<table>
<thead>
<tr>
<th>Cause of Injury</th>
<th>Hospitalizations</th>
<th>Rate per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falls</td>
<td>6,524</td>
<td>159.7</td>
</tr>
<tr>
<td>Self-Harm/Suicide</td>
<td>1,493</td>
<td>36.6</td>
</tr>
<tr>
<td>Inanimate</td>
<td>1,079</td>
<td>26.4</td>
</tr>
<tr>
<td>On Road</td>
<td>730</td>
<td>17.9</td>
</tr>
<tr>
<td>Poisoning</td>
<td>713</td>
<td>17.5</td>
</tr>
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</table>
Data Trends – Northern Ontario – Deaths

Table NIPPN-3

Top five mechanisms of injury resulting in the largest proportion of injury related deaths, Northern Region, calendar year 2001-2005

<table>
<thead>
<tr>
<th>Cause of Injury</th>
<th>Deaths</th>
<th>Rate per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Harm/Suicide</td>
<td>590</td>
<td>14.5</td>
</tr>
<tr>
<td>On-Road</td>
<td>344</td>
<td>8.4</td>
</tr>
<tr>
<td>Falls</td>
<td>337</td>
<td>8.3</td>
</tr>
<tr>
<td>Poisoning</td>
<td>174</td>
<td>4.3</td>
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<tr>
<td>Off-Road</td>
<td>109</td>
<td>2.7</td>
</tr>
</tbody>
</table>
Data Trends – Comparisons

❖ All tables are laid out the exact same way for each region
  ▸ Difference: data is specific to the region
❖ Can now compare across regions with same information
## Northern Ontario Compared to Toronto

Comparison of top five mechanisms of injury resulting in the largest proportion of injury related emergency room visits, Northern Region and Toronto, fiscal year 2007-2009

<table>
<thead>
<tr>
<th>Cause of Injury</th>
<th>Northern Ontario</th>
<th>Toronto</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Visits</td>
<td>Rate per 100,000</td>
</tr>
<tr>
<td>Inanimate</td>
<td>71,755</td>
<td>1756.9</td>
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<td></td>
<td>Visits</td>
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</tr>
<tr>
<td>Inanimate</td>
<td>71,755</td>
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<tr>
<td>Falls</td>
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Northern Ontario Compared to Toronto

Comparison of top five mechanisms of injury resulting in the largest proportion of injury related hospitalizations
Northern Region and Toronto, fiscal year 2007-2009

<table>
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<th>Cause of Injury</th>
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<tr>
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<tr>
<td>Self-Harm/Suicide</td>
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<td>36.6</td>
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<td>1,538</td>
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<td>On Road</td>
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<td>17.9</td>
<td>920</td>
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<td>Poisoning</td>
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Northern Ontario Compared to Toronto

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Comparison of top five mechanisms of injury resulting in the largest proportion of injury related **deaths**, Northern Region and Toronto, calendar year 2001-2005

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Comparisons

❖ Always remember:
  ‣ Unique aspects of the region that may play a role
    - Social Determinants
  ‣ Varying top injuries

❖ Easy comparisons
  ‣ Tables have exact same layout across regions
  ‣ Comparing with a common language
  ‣ Easy to isolate and compare trends within injury categories and specific age-groups
Social Determinants of Health and Injury

❖ Income and income distribution – lower income groups have higher injury rates
❖ Employment and working conditions – lower income more likely to be injured at work
❖ Social environments and social exclusion – housing hazards, violence, pedestrian injuries
Social Determinants of Health and Injury

❖ Education and literacy – injuries that are serious but not fatal associated with lower levels of education

❖ Housing – older buildings, rental units, poorly maintained residential areas associated with higher injury rates

❖ Gender – men higher risk overall, women at risk for particular types of injury (e.g., violence), may be linked to difference in wages
Social Determinants of Injury

❖ Rural vs. urban environments – unique risks associated with both

‣ Access to care

‣ Polarization of rich and poor
Social Determinants of Injury

❖ Equity, Social Determinants and Public Health Programmes (WHO, 2010)

‣ Focuses on the points at which the causal pathway between social determinants and injury can be targeted and interrupted

- Examples used are alcohol, housing and neighbourhoods, and road and vehicles
Evidence Informed Practice (EIP) Recommendations

❖ Top injury issues in Northern Ontario
  ‣ Falls, on-road vehicles, off-road vehicles, poisoning, sports and recreation, and suicide
  ‣ Main risk factors, programs and practices
❖ Animate vs. inanimate
EIP - Falls

- Risk factors by age:
  - Children – natural curiosity, inexperience
  - Teenagers and adults – increased maladaptive risk taking, environmental hazards, sports and recreation
  - Older adults – biological, behavioural, social/economic, and environmental
EIP - Falls

❖ Children – home hazards, playground hazards
❖ Teenagers & adults – encourage adaptive behaviours and educate on proper activity involvement practices
❖ Older adults – individual assessment and management of risks
EIP – Off-Road Vehicles

- Off-road category included injuries related to: ATV use, watercrafts, air transport and railway transport
- Risk factors vary based on type of vehicle
- Focus on ATVs
  - 80% of ER visits
EIP – Off-Road Vehicles

❖ Risk factors:
  ▸ Males and children younger than age 16 at greatest risk
  ▸ ATV use on roadways
  ▸ Speed
  ▸ Protective equipment (e.g., helmets)
EIP – Off-Road Vehicles

❖ Legislation
  ▸ Introduce minimum operating age, helmet use, minimum passenger age

❖ Education
  ▸ Parents, drivers, community
  ▸ Speed, age, protective equipment, alcohol use

❖ Engineering
  ▸ Seatbelts, headlights, speed governors, passenger design, roll bar
EIP – On-Road Injuries

❖ Factors influencing exposure to risk
  ‣ Motorization, age, urban planning

❖ Factors influencing involvement in an on-road incident
  ‣ Speed, driver impairment, driver inexperience
EIP – On-Road Injuries

❖ Factors influencing on-road incident severity
  ‣ In-car protection, speed, roadside objects

❖ Factors influencing post on-road incident severity and recovery
  ‣ Time and quality of response, vehicle factors
EIP – On-Road Injuries

❖ Population level
  ‣ Communication, integration, social marketing and supporting activities
  ‣ 3 E’s of injury prevention

❖ Individual level
  ‣ Distracted driving
  ‣ Fatigue
EIP – Poisoning

❖ Risk Factors:
❖ Children
  ▸ Curiosity and inexperience
❖ Older adults
  ▸ Multiple medications, drowsiness, cognitive function, caregiver knowledge
EIP - Poisoning

❖ Population level strategies
  ‣ 3 E’s of injury prevention, carbon monoxide detectors, poison control centres, home safety education

❖ Children
  ‣ Safe storage of medication and household products, active supervision

❖ Older Adults
  ‣ Medication
Risk factors are described as intrinsic or extrinsic

- Intrinsic
  - Previous injury, fitness level, balance training

- Extrinsic
  - Protective equipment, rules, coach, culture, length of time
EIP – Sports and Recreation

❖ Children and Youth
  ‣ Organized sport
  ‣ Physical training, protective equipment, rule changes

❖ Adults
  ‣ Exercise
  ‣ Slow and gradual, equipment, knowledge

❖ Older Adults
  ‣ Health considerations
EIP – Suicide

❖ Risk factors:
  ‣ Mental illness, previous suicide attempt
  ‣ Male
  ‣ Age – increases in adolescence and elderly

❖ Complex and multifaceted issue
EIP - Suicide

❖ Prevention

‣ Individual level: treatment of mental illness, support for previous suicide attempters,

‣ Community level: access to lethal means, gatekeeper training (safeTALK, ASIST, community helpers), education and awareness
EIP - Suicide

- School-based programming
- Postvention – linked to primary prevention
Contact Information

Jayne Morrish - jmorrish@parachutecanada.org
647-776-5110

Stacie Carey - scarey@parachutecanada.org
647-776-5130
Methodology Cont’d

❖ Population estimate data - “Pop Est Summary PHU County Municip” database

› Calendar year population data used

\[
\frac{\text{total number of ER visits / hospitalizations / deaths in an age group over the reported period}}{\text{total population in that age group over the reported period}} \times 100,000
\]

› Age-Specific Annual Rate per 100,000 for calendar year

› How many people per 100,000 were injured
ICD10 Codes used - full list available in summary document
Quality assurance - robust checking process
Residual disclosure - occurs when previously unknown information about an individual can be deduced based on combination of information sources

- IntelliHEALTH release guidelines require cell sizes less than 5 should be suppressed
- In ORIDR any cell counts less than 5, but greater than zero, have been suppressed and replaced with “<5”, associated rates replaced with “/”
---

**Methodology Cont’d**

| Number and Age-Specific Rate per 100,000 AGE GROUP |

<table>
<thead>
<tr>
<th>CAUSE</th>
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Ontario Injury Prevention Resource Centre