Evidence into Action: An Overview of Injury Data and Evidence Informed Practice Recommendations for South West 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 & Purpose of ORIDR
❖ Layout of ORIDR
❖ Methodology
❖ Data trends for South West
❖ Comparisons and social determinants
❖ 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 ORIDR

- 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 75.1 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 2009, injuries cost the Ontario economy $6.8 billion. In addition, there were more than 10,000 deaths in Ontario between the years 2001-2005 due to injury, causing these affected to experience great personal loss.2 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.3 Accidents have been defined as unpreventable acts of fate. 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, they 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 shocks); chemical energy (e.g., poisonings); or the absence of heat or oxygen (e.g., hypothermia or suffocation). External causes of injuries can be classified as intentional (self-harm or assaults) 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 presented 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

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1 Ontario Regional Injury Data Report, SMARTRISK: Toronto, ON.
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
South West ER Visits

Table SWIPN-1
Top five mechanisms of injury resulting in the largest proportion of injury related emergency room visits, South West Region, fiscal year 2007-2009

<table>
<thead>
<tr>
<th>Cause of Injury</th>
<th>Visits</th>
<th>Rate</th>
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</thead>
<tbody>
<tr>
<td>Inanimate</td>
<td>116,141</td>
<td>1484.2</td>
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<tr>
<td>Falls</td>
<td>111,699</td>
<td>1427.4</td>
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<tr>
<td>Sports and Recreation</td>
<td>50,386</td>
<td>643.9</td>
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<tr>
<td>Animate</td>
<td>30,780</td>
<td>393.3</td>
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<tr>
<td>On Road</td>
<td>18,993</td>
<td>242.7</td>
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## South West Hospital Visits

**Table SWIPN-2**

Top five mechanisms of injury resulting in the largest proportion of injury related hospitalizations, South West Region, fiscal year 2007-2009

<table>
<thead>
<tr>
<th>Cause of Injury</th>
<th>Hospitalizations</th>
<th>Rate</th>
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</thead>
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<tr>
<td>Falls</td>
<td>10,291</td>
<td>131.5</td>
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<tr>
<td>Inanimate</td>
<td>1,397</td>
<td>17.9</td>
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<td>On Road</td>
<td>1,397</td>
<td>17.9</td>
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<td>Self-Harm/Suicide</td>
<td>1,068</td>
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<tr>
<td>Poisoning</td>
<td>762</td>
<td>9.7</td>
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South West – Deaths

Table SWIPN-3

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

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<th>Cause of Injury</th>
<th>Deaths</th>
<th>Rate</th>
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<td>On Road</td>
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<td>Self-Harm/Suicide</td>
<td>693</td>
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<td>Falls</td>
<td>645</td>
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<td>Pedestrian</td>
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Data 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
South West & Toronto

<table>
<thead>
<tr>
<th>Cause</th>
<th>Toronto DEATHS</th>
<th>Toronto RATES</th>
<th>South West DEATHS</th>
<th>South West RATES</th>
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<td>Self-Harm/Suicide</td>
<td>1,080</td>
<td>8.3</td>
<td>693</td>
<td>8.9</td>
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<tr>
<td>Falls</td>
<td>1,045</td>
<td>8.1</td>
<td>645</td>
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<td>Poisoning</td>
<td>371</td>
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<td>196</td>
<td>2.5</td>
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<tr>
<td>On Road</td>
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<td>2.5</td>
<td>704</td>
<td>9.0</td>
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<tr>
<td>Interpersonal</td>
<td>277</td>
<td>2.1</td>
<td>87</td>
<td>1.1</td>
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</table>

Note: Table created for webinar, not available in the report.
# South West & Toronto

## Comparison of Death Data between TOR and SWIPPN - Number and Rates

<table>
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<th>Causing Death</th>
<th>Toronto DEATHS</th>
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<th>South West DEATHS</th>
<th>South West RATES</th>
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<td>1,080</td>
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<td>Falls</td>
<td>1,045</td>
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<td>On Road</td>
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<tr>
<td>Interpersonal</td>
<td>277</td>
<td>2.1</td>
<td>87</td>
<td>1.1</td>
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</table>

**Note:** table created for webinar, not available in the report.
## Comparison of ER Visits between South West and Central West - Number and Rates

<table>
<thead>
<tr>
<th></th>
<th>South West</th>
<th></th>
<th>Central West</th>
<th></th>
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<td>CAUSE</td>
<td>ER VISITS</td>
<td>CAUSE</td>
<td>ER VISITS</td>
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<td>Falls</td>
<td>111,699</td>
<td>1427.4</td>
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<td>Inanimate</td>
<td>116,141</td>
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<td>Sports &amp; Recreation</td>
<td>50,386</td>
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<td>Animate</td>
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<tr>
<td>On Road</td>
<td>18,993</td>
<td>242.7</td>
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<td>26,691</td>
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**Note:** table created for webinar, not available in the report
## All Regions - Falls

<table>
<thead>
<tr>
<th>Hospitalized Fall Injuries</th>
<th>Count</th>
<th>Rate</th>
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<tbody>
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<td>Central East</td>
<td>15,811</td>
<td>96.6</td>
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<td>Central West</td>
<td>15,444</td>
<td>132.0</td>
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<tr>
<td>Toronto</td>
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<tr>
<td>South West</td>
<td>10,291</td>
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<tr>
<td>Eastern</td>
<td>10,286</td>
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<td>Northern</td>
<td>6,524</td>
<td>159.7</td>
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**Note:** table created for webinar, not available in the report
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
  ▶ Source: Social Determinants of Injury. Atlantic Collaboration on Injury Prevention
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 South West region

- Falls
- On-Road Injuries
- Pedestrian
- Poisoning
- Sports and Recreation
- Suicide
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
Falls

❖ Children
  ▸ Home hazards – parent education, window guards, stair guards, furniture placement
  ▸ Playground hazards – CSA standard, active supervision

❖ Teenagers & adults
  ▸ encourage adaptive behaviours and educate on proper activity involvement practices
Falls

❖ Older adults

› Overall: individual validated assessment of risk (e.g., Scott Fall Risk Screening Tool) and management of those risks

› Community strategies: assessment and modification of home environment, exercise, assistive devices, health management

› Residential strategies: multidisciplinary team, environment modification, individual plans for those at high risk, exercise, assistive devices
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
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
On-Road Injuries

❖ Population level

▶ Road Safety campaigns that include:
  - Communication campaigns, integrated campaigns
  - Supporting activities that relate to the 3 E’s
  - Involve enforcement agencies and legislative changes when appropriate, coupled with education and promotion of environmental changes
On-Road Injuries

❖ Individual level: target high risk behaviours
  ‣ Distracted driving – e.g., comprehensive strategy
  ‣ Fatigue – e.g., education
  ‣ Aggressive driving - strategies reduce speed
  ‣ Seatbelts
  ‣ Alcohol and drug use
  ‣ New drivers – graduated licensing
  ‣ Children – proper car seats
Pedestrian Injuries

❖ Risk Factors

- **Population**: alcohol use, disobeying crosswalk rules, high speeds, urban areas, evening hours

- **Individual**: unique risks for children, teens, older adults
Pedestrian Injuries

❖ Risk Factors

› Situational: Five situations most likely to be fatal (Coroner's review of pedestrian fatalities)

- Hit at a mid-block location while crossing
- Pedestrian hit on sidewalk
- Pedestrian crossing without the right of way
- Vehicle turning left with pedestrian crossing
- Vehicle turning right with pedestrian crossing
Pedestrian Injuries

❖ Complete Streets Approach

http://www.hdrinc.com/markets/private-development/transportation-infrastructure/services/complete-streets
Pedestrian Injuries

- **Traffic calming measures** that slow traffic, improve visibility and redistribute traffic around target areas
- **Signals** such as LPI’s
- **Medians and curbs**
- **Bus stops** at far left of intersection
- **Pedestrian clothing**
- **Parking**
Poisoning

❖ Risk Factors:

▷ Children
  - Curiosity and inexperience

▷ Older adults
  - Multiple medications, drowsiness, cognitive function, caregiver knowledge
Poisoning

❖ Population level strategies
  ▸ 3 Carbon monoxide detectors
  ▸ Poison control centres
  ▸ Home safety education
Poisoning

❖ Children
  ▶ Safe storage of medication and household products
    - Child-resistant caps, locked up, out of sight and out of reach, original containers,
    - active supervision

❖ Older Adults
  ▶ Safe practices when taking medication
Sports and Recreation

❖ Risk Factors:

› Intrinsic
  - Previous injury, fitness level, balance training

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

❖ Concussions
  ▸ Pre-activity assessments using validated assessment tools for diagnosis
  ▸ Careful monitoring of symptoms
  ▸ Return to play guidelines
Suicide

❖ Self-harm vs. suicide
  ▸ Self-harm – intentional self-poisoning or self-injury, irrespective of type of motive or the extent of suicidal intent (Hawton et al., 2012)

❖ Data collection issues
  ▸ Hospitals collect data in terms of emergency room visits, hospitalizations and deaths
  ▸ ICD 10 codes often related to self-harm
  ▸ Data does not distinguish between self-harm and suicide as it does not account for suicidal intent
Suicide

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

❖ Complex and multifaceted issue
  ▸ No single risk factor or combination
Suicide

❖ Prevention

▶ Individual level: treatment of mental illness, support for previous suicide attempts,

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

❖ School-based programming
  ▶ Based on best available evidence and evaluated carefully
  ▶ Resources for programs: NREPP database

❖ Postvention
  ▶ Linked to primary prevention
  ▶ Procedures directing actions following a suicide
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 Munic” database

❖ Calendar year population data used

\[
\text{Age-Specific Annual Rate per 100,000 for calendar year} = \frac{\text{total number of ER visits / hospitalizations / deaths in an age group over the reported period}}{\text{total population in that age group over the reported period}} \times 100,000
\]

❖ 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

<table>
<thead>
<tr>
<th>CAUSE</th>
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<td>2.0</td>
<td>4.9</td>
<td>2.8</td>
<td>&lt;5</td>
<td>109</td>
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<tr>
<td>ATV</td>
<td>&lt;5</td>
<td>&lt;5</td>
<td>&lt;5</td>
<td></td>
<td>10</td>
<td></td>
<td>7</td>
<td>23</td>
<td>19</td>
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<td>5</td>
<td>10</td>
<td>5</td>
<td>&lt;5</td>
<td>2.7</td>
</tr>
</tbody>
</table>

### NIPPN 9 - MOTOR VEHICLE COLLISIONS – OFF-ROAD: Deaths by Cause and Age Group (CY 2001-2005)

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