2008 Report

Major Injury in Ontario

(Includes 2007–2008 Data)

Ontario Trauma Registry

Canadian Institute for Health Information
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ISBN 978-1-55465-557-1 (PDF)

How to cite this document:
Canadian Institute for Health Information, *Major Injury in Ontario—Ontario Trauma Registry 2008 Report* (Ottawa, Ont.: CIHI, 2009).

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Acknowledgements

This Ontario Trauma Registry (OTR) report is made possible by the contributions of the 11 participating facilities, the Ontario Trauma Registry Advisory Committee (TRAC) and the Ontario Ministry of Health and Long-Term Care.

The OTR is funded by the Ontario Ministry of Health and Long-Term Care and is managed by the Canadian Institute for Health Information.

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Executive Summary

The source of data for this report is the Ontario Trauma Registry Comprehensive Data Set. Trauma cases were selected based on an injury severity score (ISS) of more than 12 and on external cause of injury inclusion and exclusion criteria. Cases also met one of the following criteria:

- Were admitted to a participating facility; or
- Were treated in the emergency department of a participating facility (not admitted); or
- Died in the emergency department of a participating facility after treatment was initiated (not admitted).

Overall Trends

In 2007–2008, there were 4,354 cases hospitalized with major trauma in 11 participating facilities across 14 sites in Ontario. This represents an increase of 11% compared to 2003–2004, and an average annual increase of 3% from 2003–2004 to 2007–2008.

In 2007–2008, these major trauma cases accounted for 62,568 days in the participating facilities. Most (70%, n = 3,054) of these cases were male patients, and the average age of all cases was 47. The average age remained relatively stable over the last five years, increasing from 44 in 2003–2004 to 47 in 2007–2008.

Of the 4,354 cases, 12% (n = 540) died, either in hospital (n = 440) or in the emergency department (DIE) (n = 99). The number of in-hospital deaths decreased by 2% from 2003–2004 to 2007–2008, an average annual decrease of 0.4%. The number of DIEs has decreased by 12% since 2003–2004, with an average annual decrease of 2%.

Trends by Cause

Motor vehicle collisions were responsible for nearly one-half of the hospitalizations (42%, n = 1,849), followed by unintentional falls (34%, n = 1,493). Where specific cause of injury is noted, injury purposefully inflicted by another person (that is, attempted homicide and assault) (9%, n = 374) and suicide and self-inflicted injury (excluding poisoning) (3%, n = 126) were the next most common causes of injury. When causes of injury were analyzed by age group, motor vehicle collisions and falls were the leading two causes in all age groups except among cases age 20 to 34. Although motor vehicle collisions (excluding cyclists) were responsible for the majority (57%, n = 514) of cases in this age group, the second most common cause of injury was injury purposely inflicted by another person (17%, n = 150).

Among the 1,849 cases injured in motor vehicle collisions, 60% (n = 1,106) were drivers and 20% (n = 369) were passengers. Motor vehicle collisions accounted for 36% (n = 196) of major injury deaths.

Among the 1,493 cases injured in unintentional falls, the most commonly specified types of falls were falls on or from stairs or steps (21%, n = 310) and falls from slipping, tripping and stumbling (15%, n = 222). Falls were responsible for 38% (n = 206) of major injury in-hospital deaths.

Context of Injury

Ten percent (n = 435) of the major trauma cases were injured while involved in a sports or recreational activity. Six percent (n = 255) of admissions were documented to be work-related. More than half (56%, n = 2,446) of the cases had blood alcohol testing. Of those, 706 (29%) had a blood alcohol concentration (BAC) greater than zero and 526 (22%) had an alcohol concentration, defined as greater than or equal to 17.4 mmol/L, reflecting the legal positive blood alcohol limit. Cases with an alcohol concentration greater than or equal to 17.4 mmol/L represented 12% (n = 526) of all cases and 22% of those who had blood alcohol testing.

Clinical Aspects of Injury

The most common injury types were internal organ injuries (85%, n = 3,681), followed by musculoskeletal (72%, n = 3,141) and superficial (32%, n = 1,373) injuries. Ninety-three percent (n = 4,039) of cases were documented with blunt injury (including lacerations), 6% (n = 251) had penetrating injuries and 1% (n = 64) were hospitalized due to burns.

For all cases, the mean ISS was 24. In 2007–2008, the highest mean ISS occurred among pedestrian injuries involved in a railway incident (ISS = 31, n = 5), followed by cases due to suicide and self-inflicted injury (excluding poisoning) (ISS = 28, n = 126) and water transport (ISS = 28, n = 11). The highest ISS occurred among cases with burn injuries (as opposed to blunt or penetrating injuries) (ISS = 26).

The average length of stay (LOS) was relatively constant at 15 days from 2003–2004 to 2007–2008. In 2007–2008, the longest average LOS was among those admitted with burn injuries (LOS = 39 days) and among those whose injuries were related to a motor vehicle collision (LOS = 16 days).

Of the 3,814 cases discharged alive, 58% (n = 2,230) were discharged home either with or without support services, 18% (n = 681) were transferred to another acute care facility and 17% (n = 656) were discharged to a rehabilitation facility.

1 Introduction

1.1 Purpose of Report

The purpose of this report is to provide a descriptive analysis of patients hospitalized with major trauma in the 11 lead trauma hospitals in Ontario. The data source for this report is the Ontario Trauma Registry Comprehensive Data Set (OTR CDS). Trauma cases were selected based on an injury severity score (ISS) greater than 12 and using external cause of injury inclusion and exclusion criteria.

1.2 About the Ontario Trauma Registry

1.2.1 Goal

The goal of the Ontario Trauma Registry (OTR) is to facilitate the reduction of injury admissions and deaths in the province of Ontario by identifying, describing and quantifying trauma in order to:

1. Increase awareness of injury as a public health problem in Ontario;
2. Assist injury prevention and treatment programs; and
3. Support injury-related analysis and research.

1.2.2 History

The OTR, funded by the Ontario Ministry of Health and Long-Term Care, was established in May 1992. A multidisciplinary advisory committee—the Trauma Registry Advisory Committee (TRAC)—provides guidance to the OTR. TRAC includes representatives from the ministries of Health and Long-Term Care, Labour and Transportation, CIHI, the Office of the Chief Coroner and the Trauma Association of Canada, as well as epidemiologists and trauma care providers.

1.2.3 Structure

For injury prevention programs to be effective, data are needed to clearly define the nature and scope of injury in the province. The use of the International Classification of Disease (ICD) external cause of injury coding system for all injury admissions facilitates the analysis of injury data in Ontario. The OTR consists of three major sources of data as listed on the next page. Standard and ad hoc reports from these data sets detail demographic information, cause and nature of injury admissions and deaths provincially. This information is used by researchers and injury prevention specialists to develop and monitor injury prevention programs.

The Ontario Trauma Registry is composed of three data sets:

1. The **Minimal Data Set** (MDS) contains demographic, diagnostic and procedural information on all acute care hospitalizations due to injury in acute care facilities in Ontario. These admissions are selected from the Hospital Morbidity Database (HMDB) at CIHI and downloaded to the registry's data processing system. As of 2005–2006 (2003–2004 data), inclusion criteria were based on specific external cause of injury codes within the International Classification of Disease, 10th Revision, Canada. Inclusion in the OTR MDS for 1994 to 2002 is based on specific external cause of injury codes within the International Classification of Disease, 9th Revision (ICD-9) (E codes).

   Examples of external cause of injury codes that are included in the definition of trauma are motor vehicle collisions, including those involving pedestrians, motorcycles and bicycles; falls; drownings; and burns. External cause of injury codes that are excluded are poisonings, adverse effects and complications. Appendix B, Trauma Definition: External Cause of Injury Code Inclusions and Exclusions, lists the external cause of injury codes that are included and excluded from the definition of trauma used for the OTR MDS.

2. The **Death Data Set** from the Office of the Chief Coroner contains information on all deaths in the province due to injury. There are approximately 3,500 injury deaths annually in Ontario. Reporting on all injury deaths rather than in-hospital deaths (as reported in the OTR MDS) provides a more complete picture of trauma in the province. Information contained in the database at the Office of the Chief Coroner is indispensable to injury prevention programs because a significant percentage of injured people die before admission to hospital.

   Trauma is defined in the Death Data Set using components of the Office of the Chief Coroner's classification system of death types, death factors, environments and involvements. The OTR developed a system to map the classification system used by the Office of the Chief Coroner to the external cause of injury codes to allow standardized reporting across the data sets of the OTR and comparisons to other sources of data. Information in the Death Data Set includes demographics, cause of death and factors contributing to death, such as alcohol use.

3. The **Comprehensive Data Set** (CDS), the data source for this report, is described in detail in the next chapter.

2 Methods

2.1 Data Source

The data source for this report is the OTR Comprehensive Data Set (CDS). The OTR CDS consists of detailed information on patients hospitalized with major trauma in 11 participating facilities across 14 sites in the province. These lead trauma hospitals are funded by the Ministry of Health and Long-Term Care for hardware, software and dedicated trauma staff, including a medical director, trauma coordinator, data analyst and administrative assistant.

The definition of trauma in the CDS is based on the injury severity score (ISS), an international scoring system created to calculate the severity of injury, and an appropriate external cause of injury code (see Appendix B). External cause of injury code inclusion criteria have been expanded for the OTR CDS to include other causes of injury where appropriate as determined by an OTR CDS Working Group. Appendix C describes these additional guidelines.

Specialized trauma software (COLLECTOR and TRI-CODE from Digital Innovations and Tri-Analytics, Inc.) is used to collect and analyze data on approximately 4,000 cases annually. This software was customized for the province of Ontario with input from participating facilities and the Ontario Trauma Registry Advisory Committee (TRAC). Detailed data are collected, including demographics, pre-hospital and hospital care, and patient outcomes. Data are electronically transmitted monthly to the OTR to create the CDS.

2.2 Inclusion/Exclusion Criteria

2.2.1 Definition of Trauma

Trauma is defined in the OTR CDS as any case:

- With an ISS greater than 12 and an appropriate external cause of injury code (see Appendix B) that meets one of the following criteria:
  - Admitted to a participating facility; or
  - Treated in the emergency department of a participating facility (not admitted); or
  - Died in the emergency department of a participating facility after treatment was initiated (not admitted).

Additional trauma definition guidelines as established by the OTR CDS Working Group and TRAC are found in appendices B and C.

2.2.2 Participating Facilities

The following 11 participating facilities (across 14 sites) provide data for the OTR CDS:

- Children's Hospital of Eastern Ontario, Ottawa
- Hamilton Health Sciences Corporation, Hamilton (two sites)
- Hospital for Sick Children, Toronto
- Hôtel-Dieu Grace Hospital, Windsor

- Kingston General Hospital, Kingston
- London Health Sciences Centre, London (two sites)
- The Ottawa Hospital, Ottawa (two sites)
- Hôpital régional de Sudbury Regional Hospital, Sudbury
- St. Michael's Hospital, Toronto
- Sunnybrook Health Sciences Centre, Toronto
- Thunder Bay Regional Health Sciences Centre, Thunder Bay

In this report, data from facilities are reported according to a letter of the alphabet (A to N); therefore, specific facilities cannot be identified.

2.3 Data Elements

2.3.1 Data Dictionary

The *OTR CDS Data Dictionary* was prepared by the OTR with input from participating facility staff and members of TRAC. The purpose of the document is to define each data element in the customized Ontario version of COLLECTOR. The *Data Dictionary* includes a list of commonly used abbreviations and their meanings, the field name, the field type and field length for each data element, and an explanation of what is required for the data element as well as a list of menu choices wherever appropriate.

Data Dictionary appendices include the definition of trauma, Minimal Data Set (MDS) trauma patient definition (external cause of injury list), list of participating facilities, CIHI physician services, non-operative procedures definitions and *Motor Vehicle Collision Report* information. The latest update of the *Data Dictionary* was published in July 2005 and is available electronically through CIHI's client services website.

A complete list of OTR CDS data elements can be found in Appendix F.

2.3.2 Data Quality

There are more than 90 detailed edit checks in the COLLECTOR software package to ensure data accuracy, consistency and completeness. These edits include range checks, cross checks, validity checks, date sequence edits and edits for blank fields.

CIHI performs various validity checks on the data submitted by the lead trauma hospitals, such as checking that the diagnosis codes are valid and for completeness of the data. If the data do not pass CIHI validations, a notification of errors is sent to the lead trauma hospitals, which are then asked to resubmit the corrected or complete data.

CIHI implemented the *Data Quality Framework* to provide a means to systematically assess, improve and document data quality for all databases at CIHI. Data quality is defined as "fitness for use" from the user's perspective. Using the *Data Quality Framework*, the OTR CDS is currently being assessed on the basis of five dimensions: accuracy, timeliness, comparability, usability and relevance. Each of these five dimensions is made up of related characteristics, which are assessed using detailed criteria. A description of CIHI's *Data Quality Framework* is available on CIHI's website (www.cihi.ca). Once the OTR CDS data quality report is completed, a summary will be posted on the CIHI website.

2.4 Reporting Guidelines

This report:

- Contains 2007–2008 data from 11 participating facilities across 14 sites transmitted to the OTR as of October 16, 2008.
- Was created based on fiscal year of discharge as approved by TRAC in October 2004. This change was initiated in the 2005 report, which included 2003–2004 data.
- Contains totals that may not match exactly when compared with previous reports, since facilities may update data from previous years.
- Discusses five-year trends (2003–2004 to 2007–2008).
- Does not include admissions due to suicide or homicide resulting from poisoning.
- Generally counts admissions to lead trauma hospitals due to major injury, referred to as cases. Because patients may be transferred between participating hospitals, the same individual patient may be included more than once in the OTR CDS.
- Includes in-hospital deaths and cases that died in emergency (DIEs) in participating hospitals; deaths that occurred before active treatment was initiated (that is, dead on arrival, dead at scene) are not included.
- Explores data from facility sites according to a letter of the alphabet (A to N); therefore, specific facilities cannot be identified.
- Includes data from the lead trauma hospitals by site. The data tables in Appendix H report on 14 individual sites.
- May report percentages that do not add to 100% because of rounding.
- Discusses cause of injury by the primary external cause of injury code documented; up to three codes (primary, secondary and tertiary) can be documented in the OTR CDS.
- Calculates percentages using all records as denominators unless otherwise stated.
- Includes tables produced by age and/or sex that may not sum to the total; cases with unknown age and/or unknown sex are included in the total but not in the individual age or sex categories.
- Includes information about positive BAC, both all BAC levels greater than zero and BAC levels defined as greater than or equal to 17.4 mmol/L (to reflect legal positive blood alcohol limit).

3 Overall Trend Analysis

3.1 2007–2008 Highlights

In the 2007–2008 OTR CDS, there were 4,354 injury cases with an ISS greater than 12 and an appropriate cause of injury treated in 11 participating facilities (across 14 sites) in Ontario.

- 4,354 injury cases accounted for 62,568 hospital days.
- The mean length of stay (LOS) was 15 days (median = 8).
- The mean ISS was 24 (median = 23).
- There were 540 deaths: 440 in-hospital deaths (admitted patients) and 99 deaths in the emergency department (DIEs).
- 3,054 (70%) cases were male.
- 2,275 (52%) cases were direct admissions.
- The mean age for all cases was 47 (median = 46).
- 1,584 (36%) cases were younger than 35 years of age.
- 139 (3%) cases were out-of-province residents.
- 1,383 (32%) patients had ventilator days documented; the mean number of ventilator days was 6 (median = 2).
- 162 (4%) cases had intracranial pressure (ICP) monitoring days documented; the mean number of ICP days was 4 (median = 3).
- 526 cases had a blood alcohol concentration greater than or equal to 17.4 mmol/L, accounting for 12% of all cases and 22% of those who had blood alcohol testing.
- 2,446 (56%) cases had blood alcohol testing; of those, 706 (29%) had a blood alcohol concentration greater than zero.
- The most common injury type was internal organ (85%), followed by musculoskeletal (72%) and superficial (32%) injuries.
- 4,039 (93%) cases had blunt injury.
- 255 (6%) cases were work-related.
- 435 (10%) injuries occurred in a sports and recreational activity.
- 201 (5%) cases had an incomplete Glasgow Coma Scale score due to the administration of paralytic agents.

3.2 Trend Analysis, 2003–2004 to 2007–2008

Over the past five years, the number of cases appearing annually in the OTR CDS increased from 3,784 in 2003–2004 to 4,354 in 2007–2008 (Appendix H, Table 1). This represents an 11% increase compared to 2003–2004 and an average annual increase of 3% between 2003–2004 and 2007–2008.

Of the 4,354 cases, 540 (12%) died either in hospital or in the emergency room. The number of in-hospital deaths has decreased by 2% since 2003–2004, with an average annual decrease of 0.4%. The percentage of the total caseload attributed to in-hospital deaths fluctuated between 12% and 10% over the past five years. The number of DIEs

has decreased by 12% since 2003–2004, with an average annual decrease of 2% from 2003–2004 to 2007–2008. DIEs as a percentage of the total caseload fluctuated between 2% and 3% over the last five years.

The mean ISS remained relatively constant at 24 or 25 between 2003–2004 and 2007–2008.

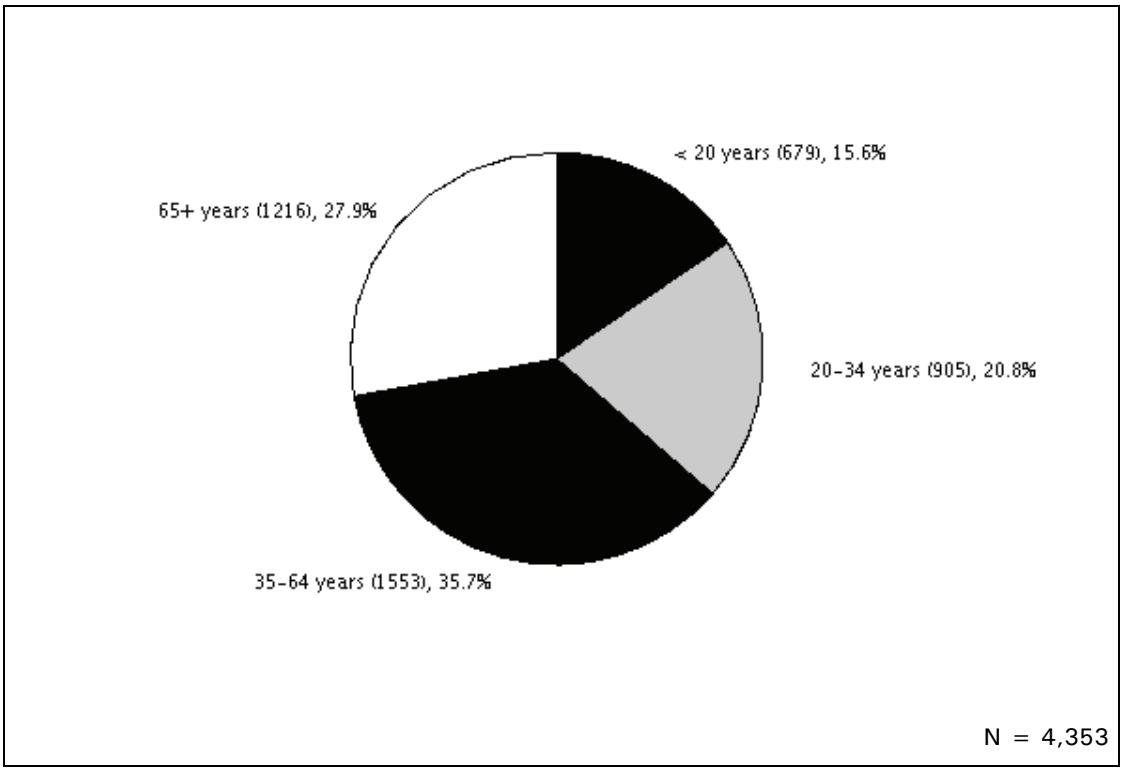
The mean LOS remained constant at 15 days over the last five years.

3.3 Demographic Analysis

Figure 1 shows the injury cases by age group.

- Younger than 20 years of age accounted for:
  - 16% (n = 679) of all cases.
  - 11% (n = 6,742) of participating hospital days.
- Between the ages of 20 and 34 accounted for:
  - 21% (n = 905) of all cases.
  - 19% (n = 11,913) of participating hospital days.
- Between the ages of 35 and 64 accounted for:
  - 36% (n = 1,553) of all cases.
  - 38% (n = 23,483) of participating hospital days.
- Age 65 and older accounted for:
  - 28% (n = 1,216) of all cases.
  - 33% (n = 20,430) of participating hospital days.

Figure 1 Injury Cases by Age Group, 2007–2008

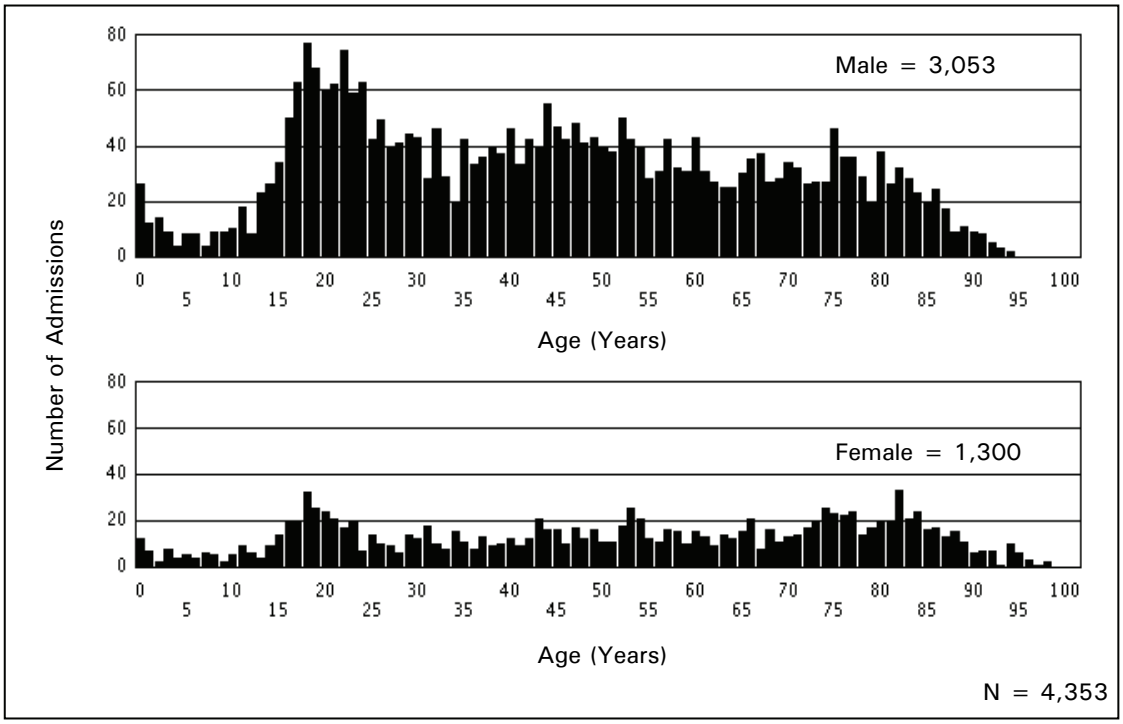


Note
One case with unknown age.

Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

As seen in Figure 2, males accounted for the greatest (70%) number of cases, with a peak in young males around 18 years of age.

Figure 2 Injuries by Single Year of Age and Sex, All Cases, 2007–2008



Note
One case with unknown age.

Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

4 Analysis of Causes of Injury

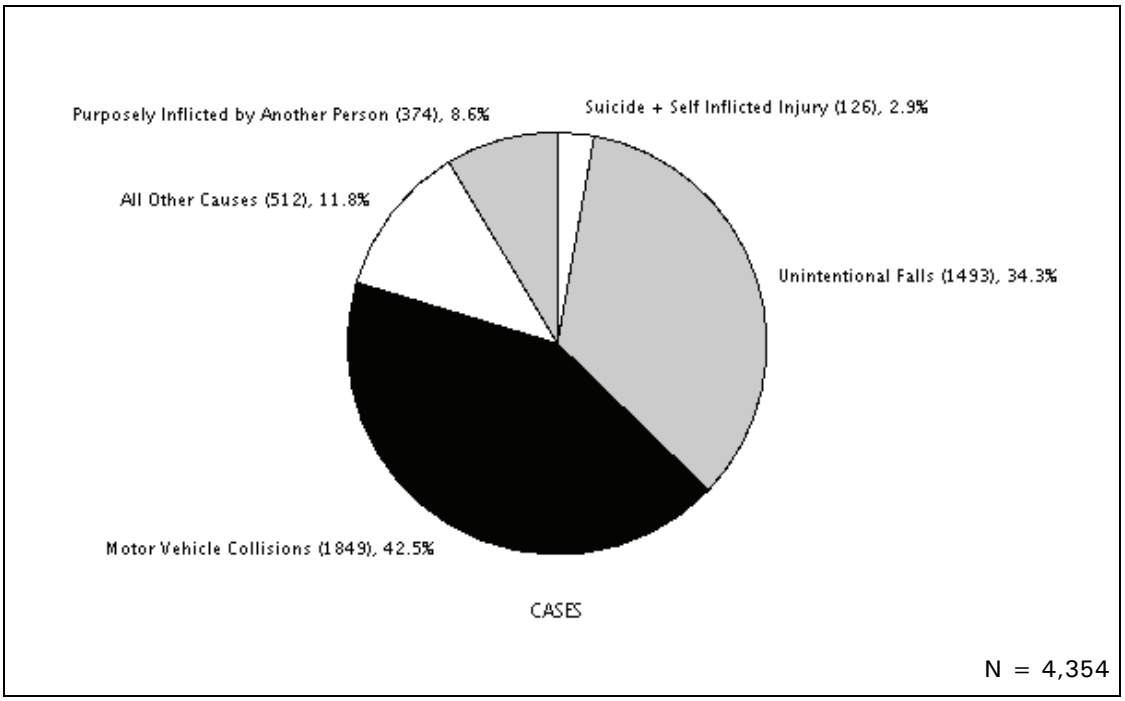
4.1 Overall Causes

Figure 3 shows the causes of injury for the 4,354 cases in the 2007–2008 OTR CDS. Motor vehicle collisions were responsible for almost half of the cases (42%, n = 1,849). Unintentional falls were the second most common cause of major injury hospitalizations (34%, n = 1,493).

Tables 13 and 14 in Appendix H show highlights for the most common causes of injury. The mean ages for the most common causes of injury were the following (Appendix H, Table 14):

- 40 for motor vehicle collisions (median = 38);
- 61 for unintentional falls (median = 67);
- 31 for assault and injury purposely inflicted by another person (median = 27); and
- 36 for suicide and self-inflicted injury (median = 34).

Figure 3 Causes of Injury, All Cases, 2007–2008



Note
Excludes boarding or alighting incidents.

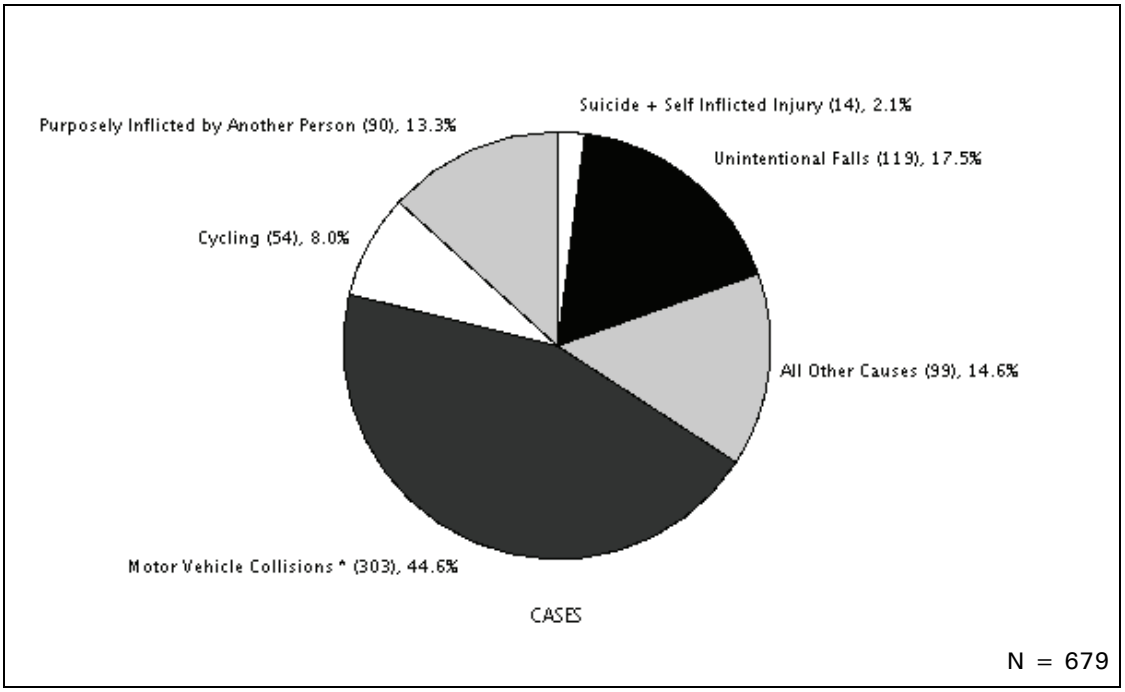
Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

4.2 Causes by Age Group

4.2.1 Cases Younger Than 20 Years of Age

Figure 4 shows the causes of injury among those hospitalized for major injury younger than age 20 (n = 679). Motor vehicle collisions *excluding* those involving cyclists[i] comprised nearly half of these cases (45%, n = 303), followed by unintentional falls (18%, n = 119). Injuries purposely inflicted by another person were responsible for 13% of cases (n = 90), and cycling incidents were responsible for 8% of cases (n = 54).

Figure 4 Causes of Injury, Cases Under 20 Years of Age, 2007–2008



Note

* Excludes Cyclists.

Source

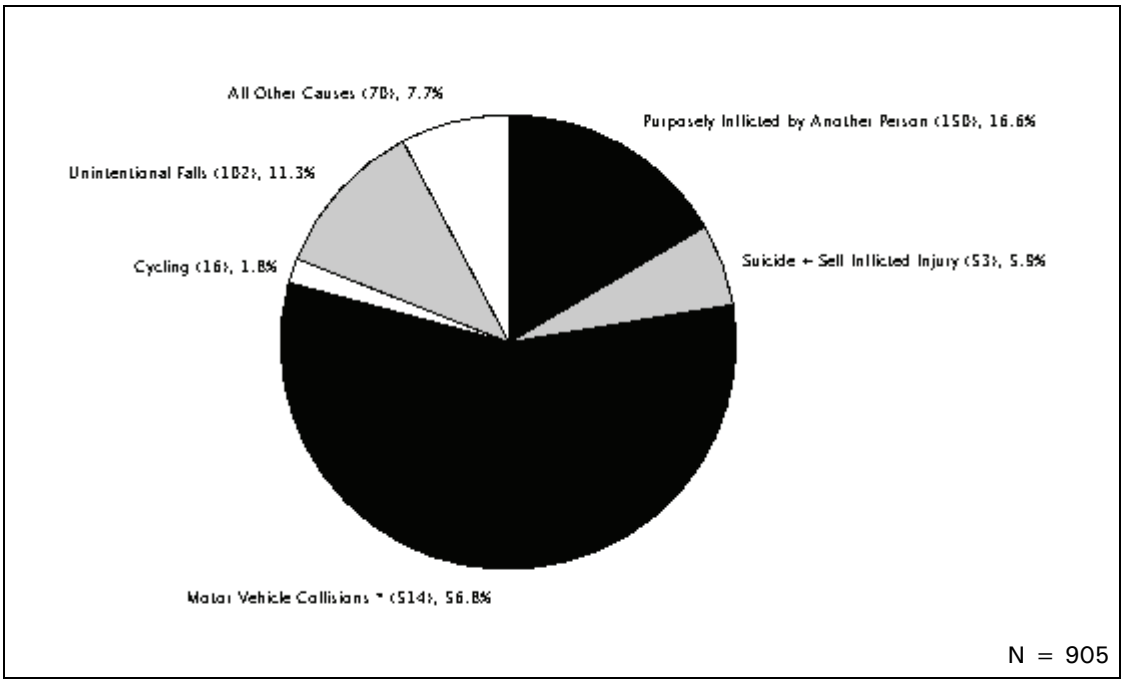
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

i. Cyclists are reported separately from motor vehicle collisions in cases younger than 35 because 48% (n = 70) of cycling incidents occurred in this age group.

4.2.2 Cases Age 20 to 34

Figure 5 shows the causes of injury for cases age 20 to 34 (n = 905). Motor vehicle collisions *excluding* those involving cyclists[ii] were responsible for 57% (n = 514) of the cases. The next most common causes of injury were injuries purposely inflicted by another person (17%, n = 150) and unintentional falls (11%, n = 102).

Figure 5 Causes of Injury, Cases Age 20 to 34, 2007–2008



Note
* Excludes cyclists.

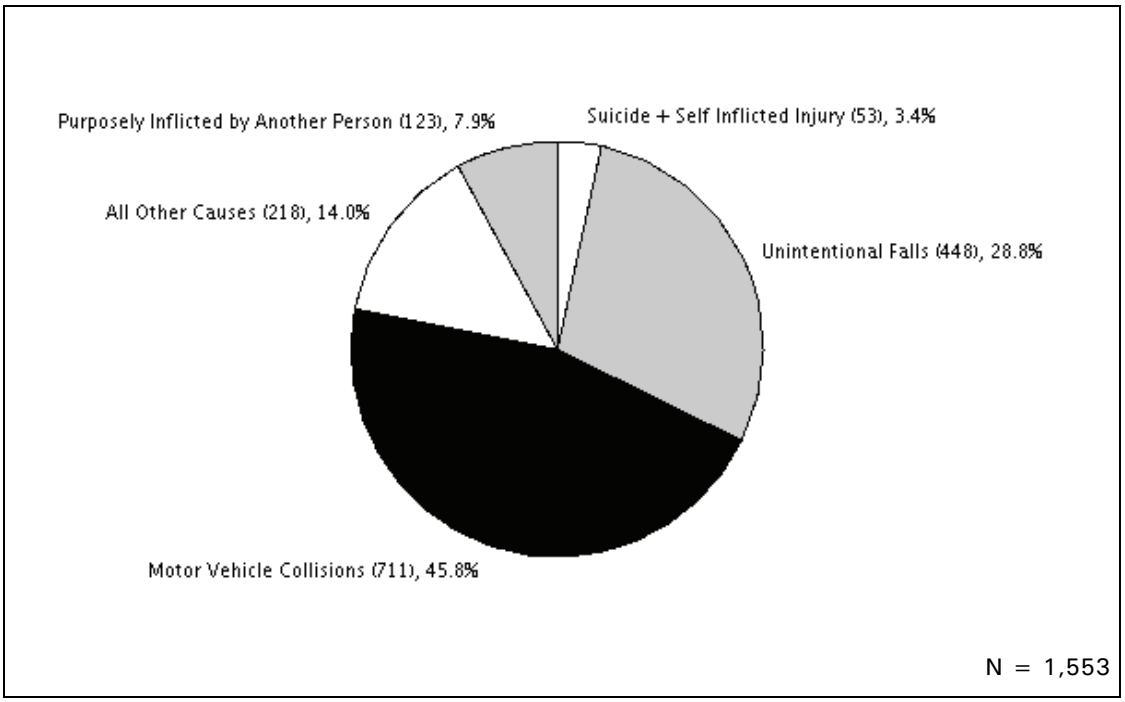
Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

ii. Cyclists are reported separately from motor vehicle collisions in cases younger than 35 because 48% (n = 70) of cycling incidents occurred in this age group.

4.2.3 Cases Age 35 to 64

Figure 6 shows the causes of injury for cases between 35 and 64 years of age (n = 1,553). Motor vehicle collisions *including* those involving cyclists were responsible for almost half of the cases (46%, n = 711), followed by unintentional falls (29%, n = 448).

Figure 6 Causes of Injury, Cases Age 35 to 64, 2007–2008

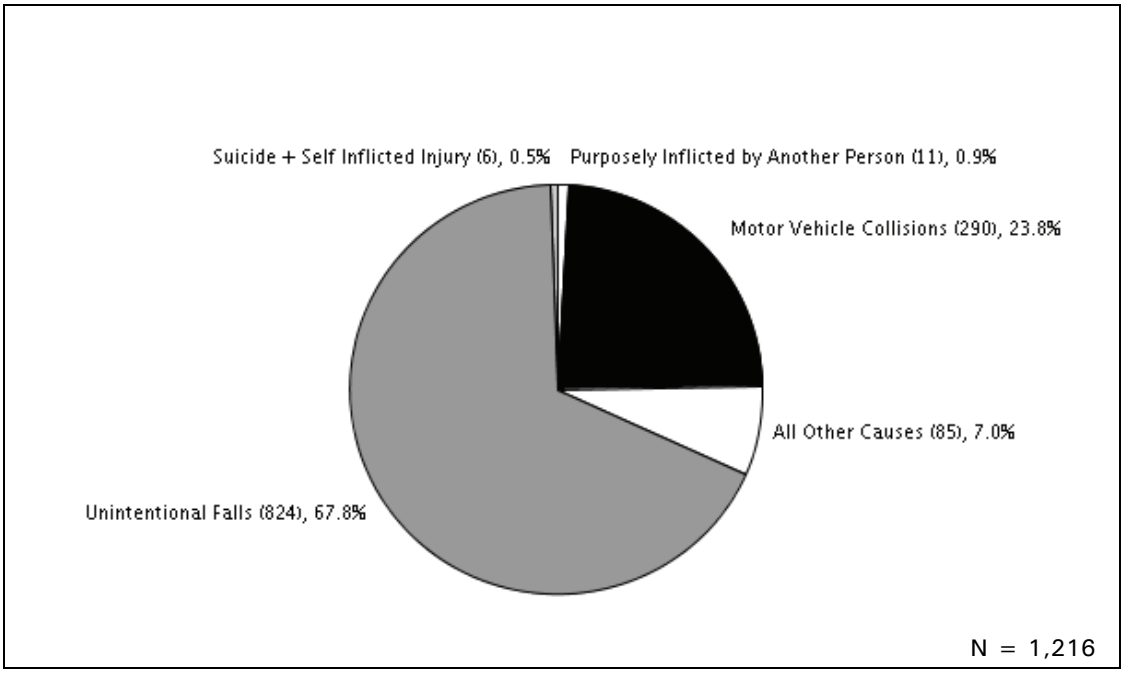


Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

4.2.4 Cases Age 65 and Older

Figure 7 shows the causes of injury for cases age 65 and older (n = 1,216). Unintentional falls were responsible for the majority of cases (68%, n = 824), followed by motor vehicle collisions *including* those involving cyclists (24%, n = 290). Together, these two causes of injury were responsible for 92% (n =1,114) of the hospitalizations for major injury in this age group.

Figure 7 Causes of Injury, Cases Age 65 and Older, 2007–2008



Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

4.3 Motor Vehicle Collisions

4.3.1 Motor Vehicle Traffic and Non-Traffic Incidents

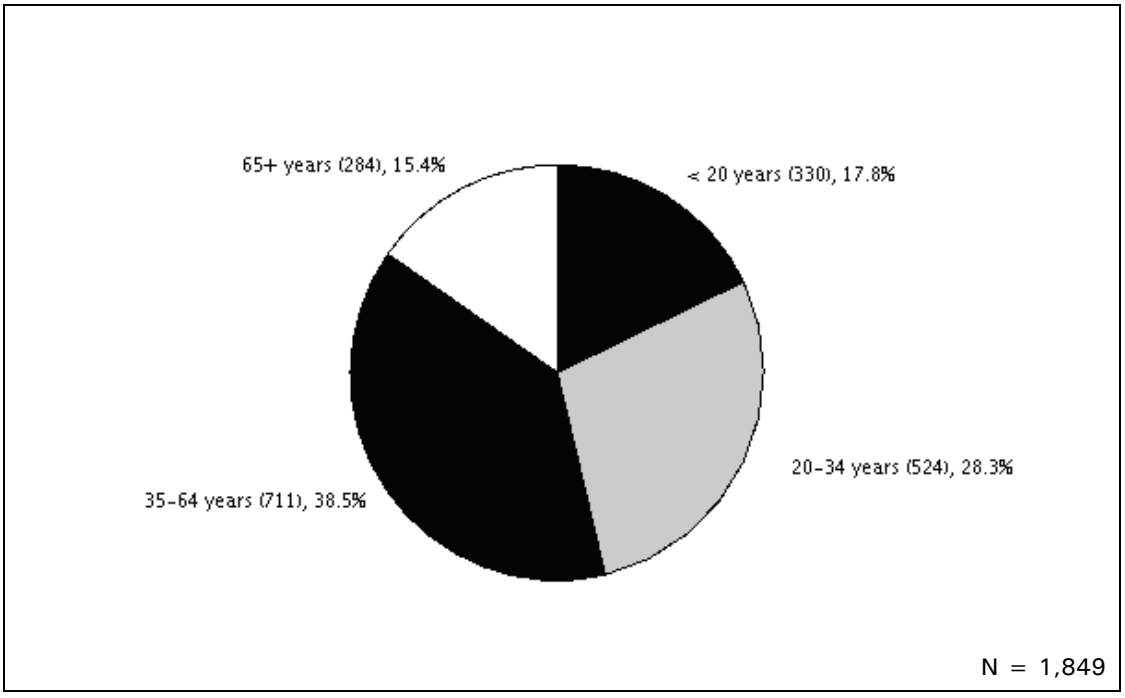
A motor vehicle is defined within the ICD coding system as any mechanically or electrically powered device, not operated on rails, upon which any person or property may be transported or drawn upon a highway. Automobiles, buses, construction machinery, farm and industrial machinery, fire engines, motorcycles, motorized bicycles, trolley buses not operating on rails, trucks and vans are all included in this category. A motor vehicle collision (MVC) is a transport collision involving a motor vehicle. A motor vehicle traffic collision occurs on a public highway. A motor vehicle non-traffic collision occurs entirely in any place other than a public highway.

In the 2007–2008 OTR CDS, motor vehicle traffic and non-traffic incidents accounted for:

- 1,849 (42% of all cases) major injury admissions; and
- 196 (36% of deaths) in-hospital deaths due to major injury.

Figure 8 shows the motor vehicle traffic and non-traffic injury cases by age group. Almost half (46%, n = 854) of the cases were younger than 35 years of age.

Figure 8 Motor Vehicle Traffic and Non-Traffic Incidents by Age Group, 2007–2008

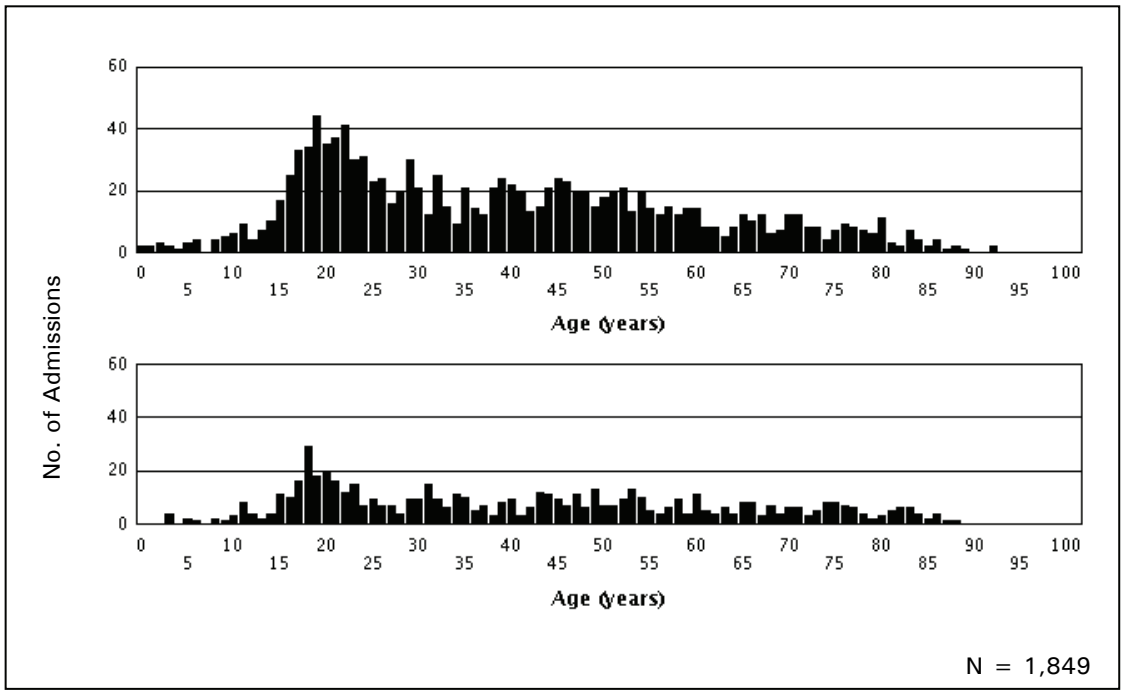


Note
Excludes boarding or alighting incidents.

Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

Figure 9 shows that there were peaks in the number of traffic and non-traffic incidents in young adult males at 19 years of age, and a smaller peak in young adult females around 18 years of age.

Figure 9 Traffic and Non-Traffic Incidents by Sex and Single Year of Age, 2007–2008



Note
Excludes boarding or alighting incidents.

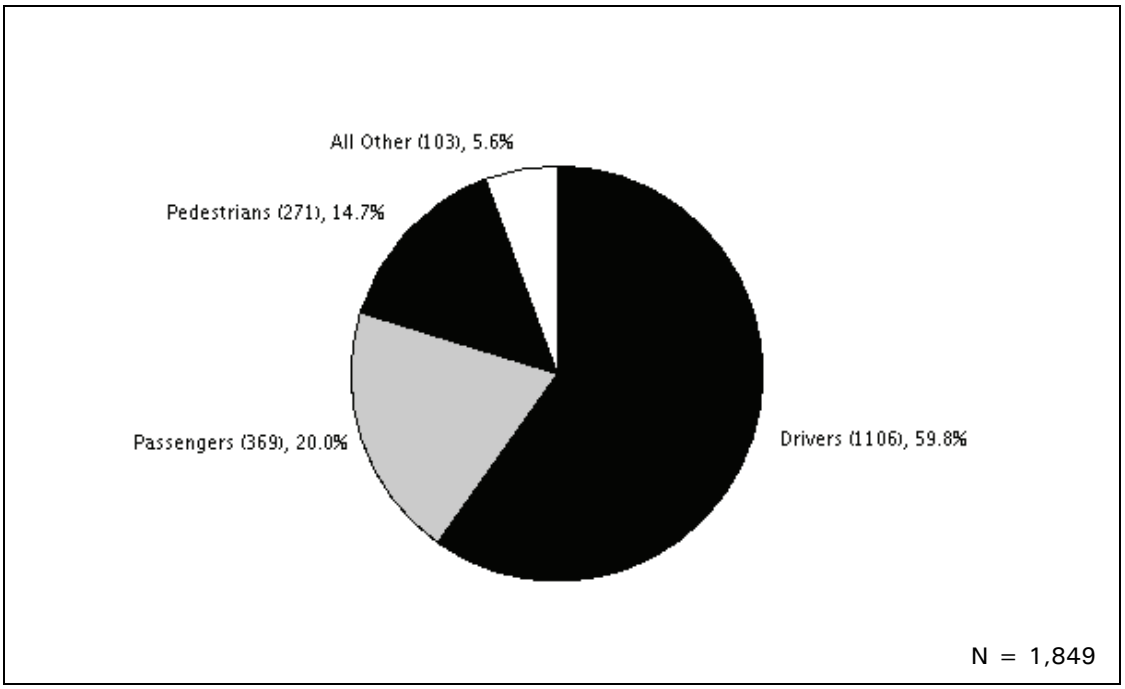
Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

The mean LOS for motor vehicle collision injuries was 16 days (median = 9). The mean age was 39 (median = 38). Almost all (more than 99%, n = 1,847) motor vehicle collision injuries were documented as blunt injury. The mean ISS was 27 (median = 25). The mean LOS for motor vehicle collision deaths in 2007–2008 was 10 days (median = 1). The mean age was 47 and the median age was 46. All motor vehicle collision deaths were documented as blunt injury (100%, n = 196). The mean ISS was 37 (median = 35).

4.3.2 Injured Persons

Figure 10 shows the distribution of the 1,849 motor vehicle traffic and non-traffic injury cases in the 2007–2008 OTR CDS by injured person. More than half were drivers (60%, n = 1,106), including 190 motorcycle drivers. Passengers comprised one-fifth (20%, n = 369) of the injured cases, of which 14 were motorcycle passengers. Eleven percent (n = 204) of the 1,849 motor vehicle traffic and non-traffic injury cases in the 2007–2008 OTR CDS were motorcycle drivers or passengers.

Figure 10 Motor Vehicle Collisions by Injured Person, All Cases, 2007–2008,

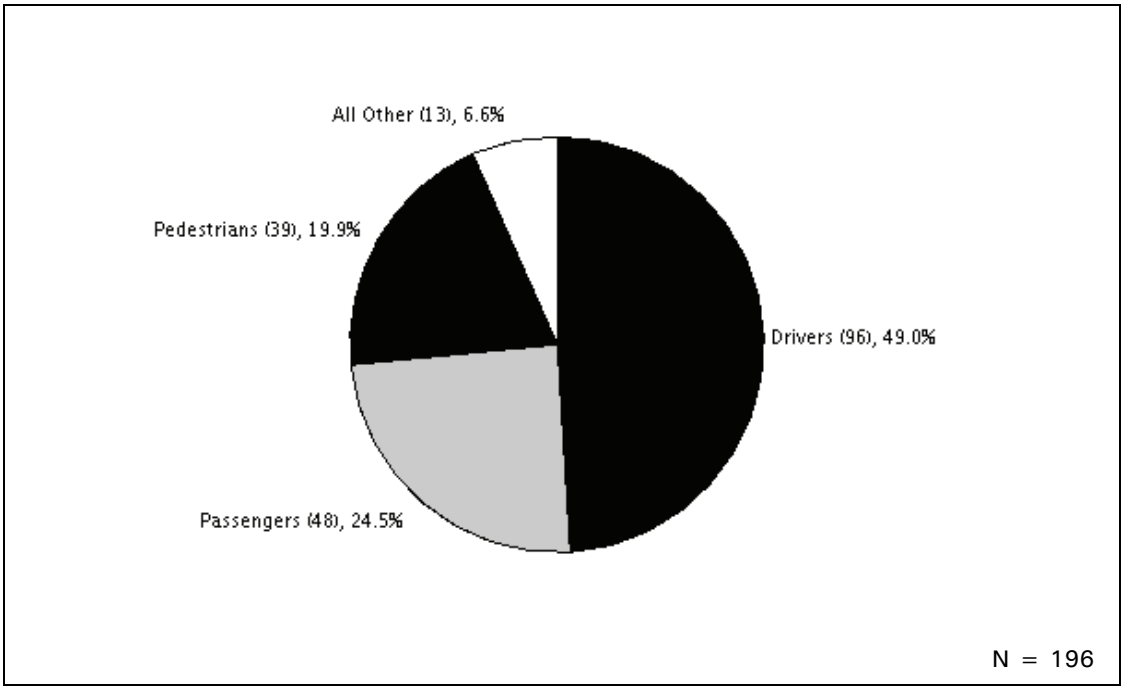


Notes
Drivers and passengers categories include those injured while riding a motorcycle.
Excludes boarding or alighting incidents.

Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

Figure 11 shows the distribution of deaths due to motor vehicle collisions in the 2007–2008 OTR CDS, by injured person. Nearly half were drivers (49%, n = 96), which includes 14 motorcycle drivers. One-fifth (20%, n = 39) were pedestrians.

Figure 11 Motor Vehicle Collisions by Injured Person, Deaths, 2007–2008

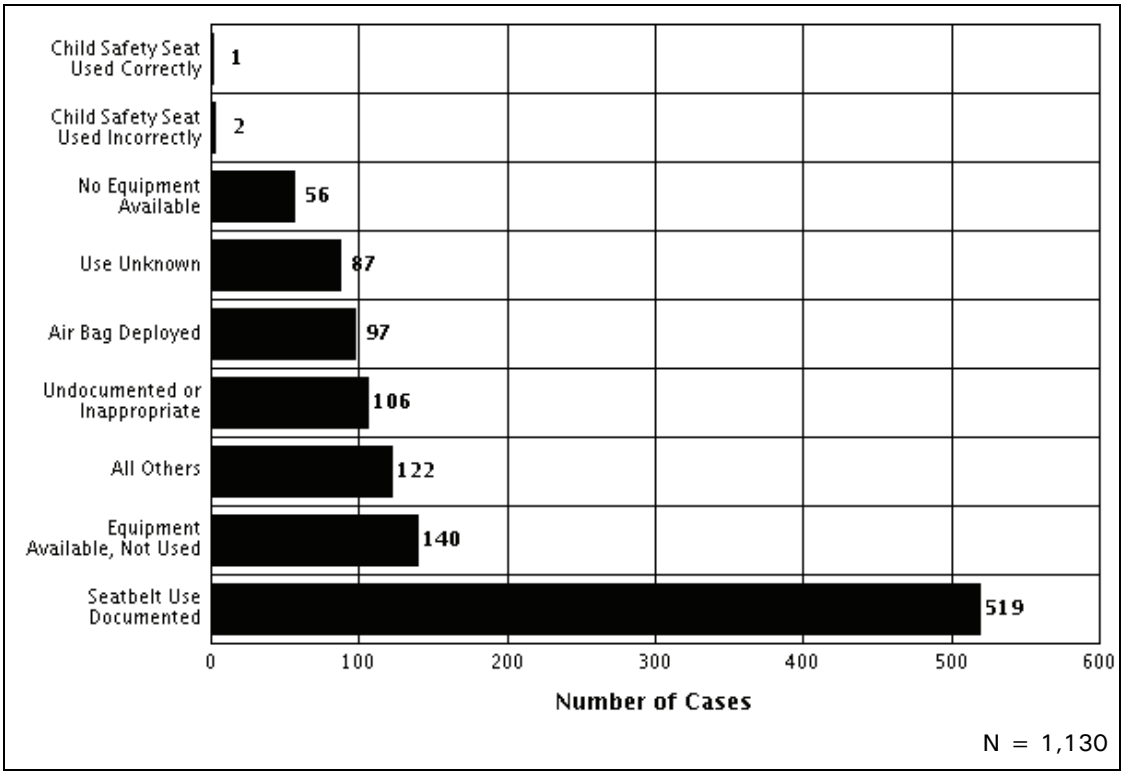


Notes
Drivers and passengers categories include those injured while riding a motorcycle.
Excludes boarding or alighting incidents.

Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

Figures 12 and 13 summarize the use of protective devices for motor vehicle collision occupants, both survivors and non-survivors (those who died). Seatbelt use was documented in less than half of motor vehicle occupants for both survivors (46%, n = 519) and non-survivors (43%, n = 55). For 12% of survivors and 15% of non-survivors (n = 140 and n = 19, respectively), protective equipment was noted to be available but not used.

Figure 12 Protective Devices Summary for Motor Vehicle Collisions, Occupant Survivors, 2007–2008*



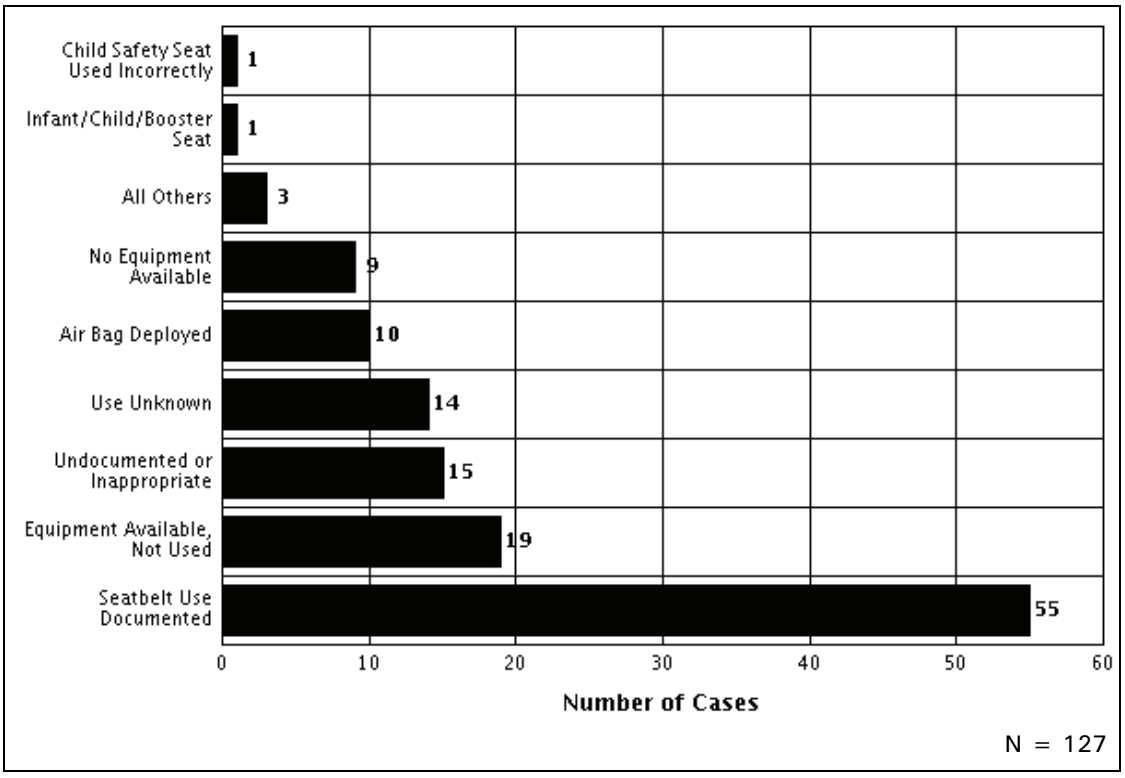
Note

* Excludes boarding or alighting incidents.

Source

Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

Figure 13 Protective Devices Summary for Motor Vehicle Collisions, Occupant Deaths, 2007–2008*



Note

* Excludes boarding or alighting incidents.

Source

Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

4.4 Unintentional Falls

In the 2007–2008 OTR CDS, unintentional falls accounted for:

- 34% (n = 1,493) of all cases; and
- 38% (n = 206) of all injury in-hospital deaths or DIEs.

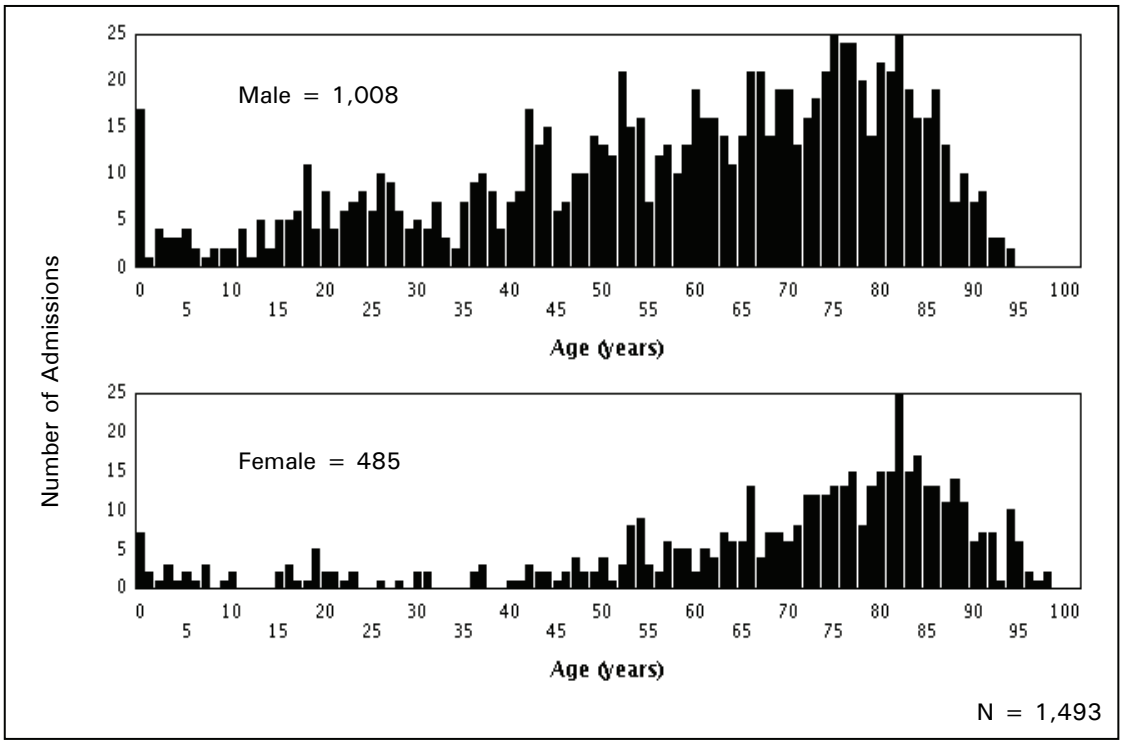
The mean LOS for falls was 15 days (median = 7). The mean age was 61 (median age = 67). Almost all (more than 99%, n = 1,492) falls were documented as blunt injury. The mean ISS was 22 (median = 20).

For in-hospital deaths due to falls (n = 206):

- The mean ISS was 26 (median = 25);
- The mean age was 73 (median = 77); and
- The mean LOS was 13 days (median = 5).

Figure 14 shows that more males experienced major injury due to falls than females. For both males and females, the number of falls increased with advancing age, peaking at 76 and 77 years of age for males and 82 years of age for females.

Figure 14 Unintentional Falls by Sex and Single Year of Age, 2007–2008



Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

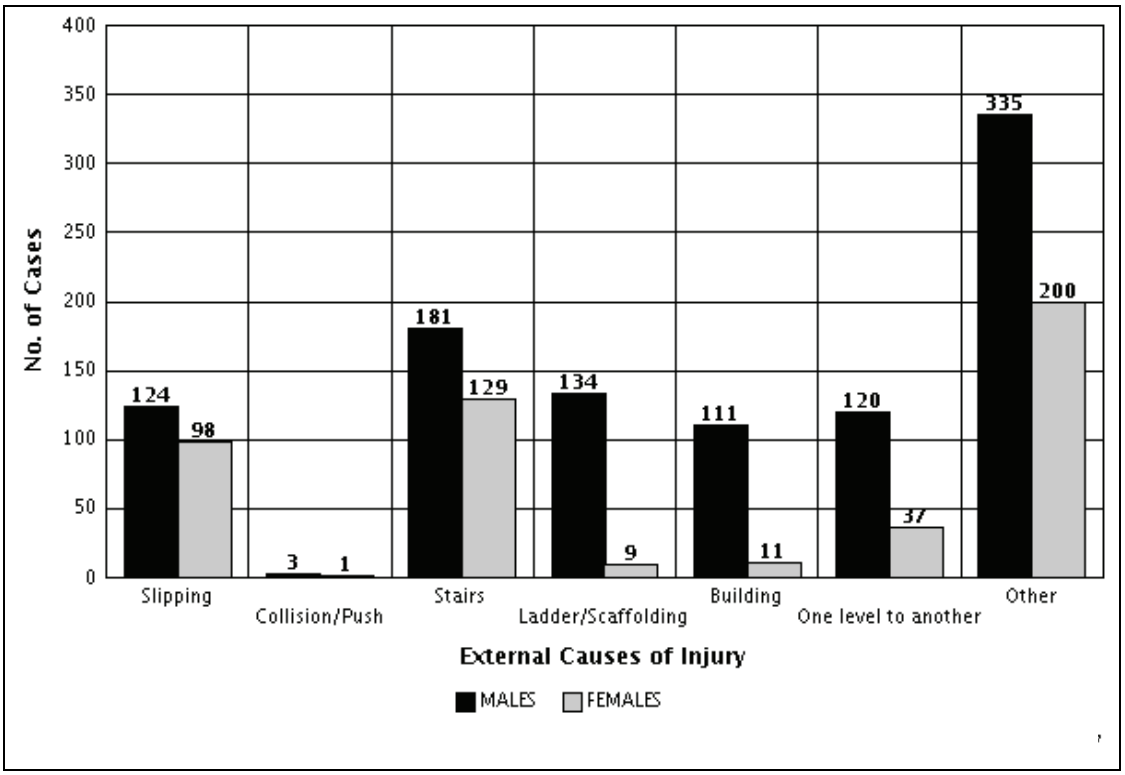
The ICD-10-CA external cause of injury code categories W00 to W19 define injuries due to unintentional falls as follows:

- W00—Involving ice and snow
- W01—Slipping, tripping, stumbling
- W02—Involving skates, skis, sport boards and rollerblades
- W03—Collisions, pushing, shoving by or with other person
- W04—While being carried or supported by another person
- W05—Involving wheelchair and other types of walking devices
- W06—Involving bed
- W07—Involving chair
- W08—Involving other furniture
- W09—Playground equipment
- W10—Stairs or steps
- W11—On or from a ladder
- W12—On or from scaffolding
- W13—From or out of or through building/other structure
- W14—From tree
- W15—From cliff
- W16—Diving or jumping into water
- W17—Other fall from one level to another
- W18—Other fall on same level
- W19—Unspecified fall

Among the 1,493 cases injured in unintentional falls, the most commonly specified types of falls were falls from stairs (21%, n = 310) and falls on the same level from slipping, tripping and stumbling (15%, n = 222).

Figure 15 shows the number of unintentional falls by sex for each external cause of injury code category.

Figure 15 Unintentional Falls by External Cause of Injury and Sex, 2007–2008



Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

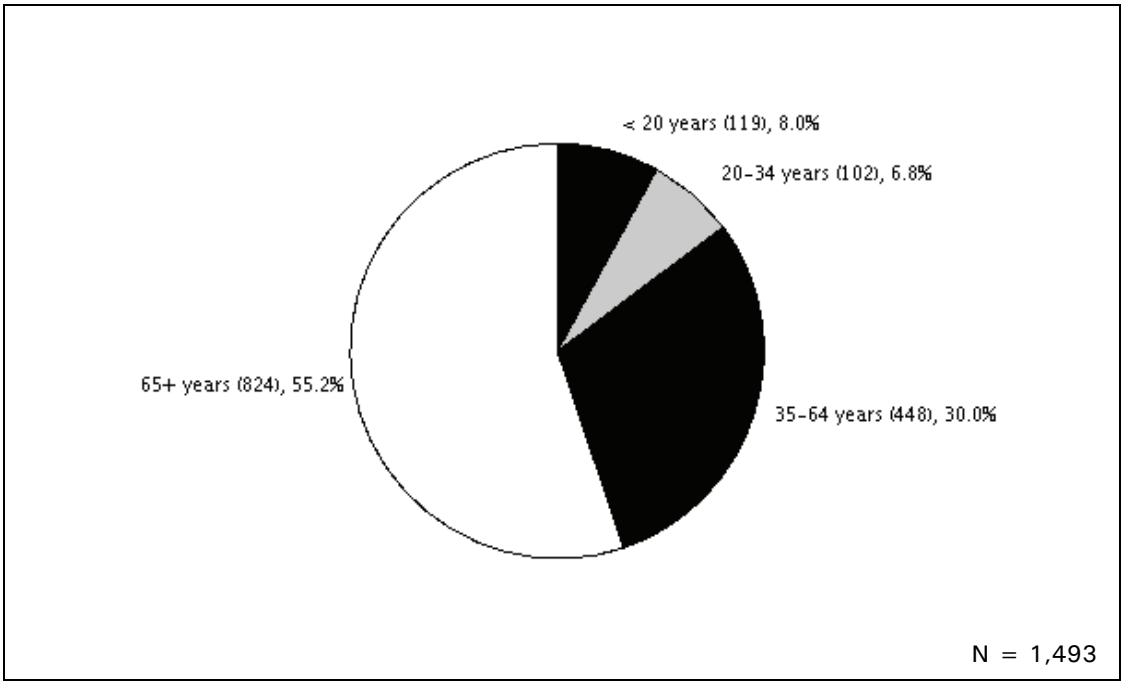
Figure 16 shows cases of unintentional falls by age group. More than half of the unintentional falls were cases age 65 and older (55%, n = 824). The most commonly specified cause of falls in this age group was falls caused on or from stairs (22%, n = 179).

Cases age 35 to 64 comprised 30% (n = 448) of all unintentional falls. The most commonly specified cause of falls in this age group was falls on or from stairs or steps (23%, n = 104).

Eight percent (n = 119) of the injuries occurred among persons younger than 20 years of age. The most commonly specified causes of falls in this age group were falls from one level to another (38%, n = 45).

Only 7% (n = 102) of all cases due to unintentional falls occurred among those between 20 and 34 years of age. The most common cause of major injury hospitalization due to falls in this age group was falls from, out of or through buildings or other structures (33%, n = 34).

Figure 16 Unintentional Falls by Age Group, 2007–2008



Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

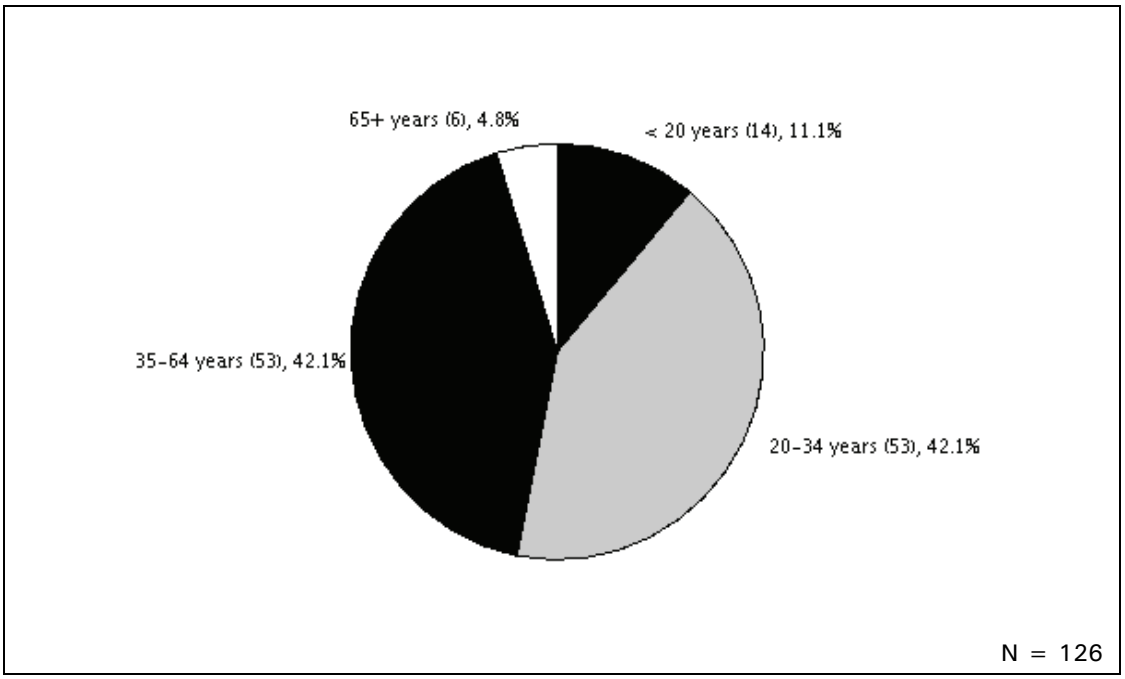
4.5 Intentional Injuries

4.5.1 Suicide and Self-Inflicted Injury (Excluding Poisoning)

There were 126 cases admitted to lead trauma hospitals due to suicide and self-inflicted injury (excluding poisoning) in the 2007–2008 OTR CDS, accounting for 3% of cases and 7% (n = 37) of all injury deaths. The majority of self-inflicted injuries admitted to lead trauma hospitals were males (66%, n = 83). The mean length of stay for suicide and self-inflicted injury (excluding poisoning) was 22 days (median = 15). The mean ISS was 28 (median = 26).

Figure 17 shows self-inflicted injury cases by age group. The largest number (42%, n = 53) of cases occurred among the 35-to-64 age group and the 20-to-34 age group (42%, n = 53). The mean age for self-inflicted injury was 36 (median = 34).

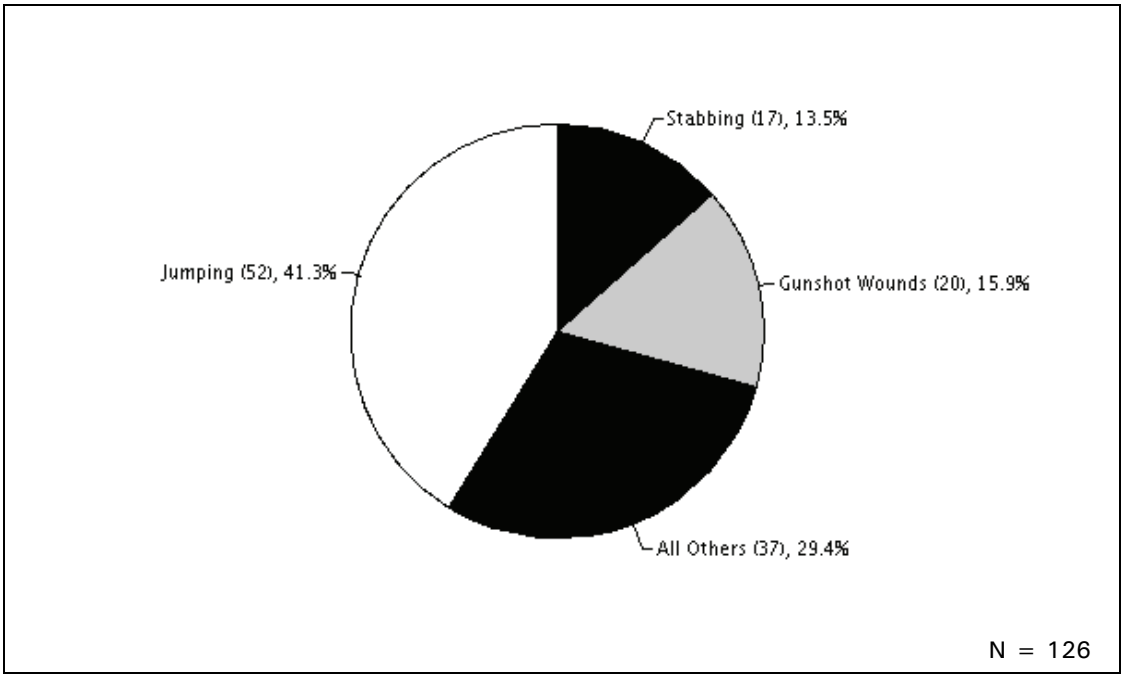
Figure 17 Suicide and Self-Inflicted Injury (Excluding Poisoning) (X70 to X84) by Age Group, 2007–2008



Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

As seen in Figure 18, the most commonly specified means of self-inflicted injury (excluding poisoning) were jumping (41%, n = 52), followed by gunshot wounds (16%, n = 20) and stabbing (13%, n = 17).

Figure 18 Means of Suicide and Self-Inflicted Injury (Excluding Poisoning) (X70 to X84), 2007–2008



Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

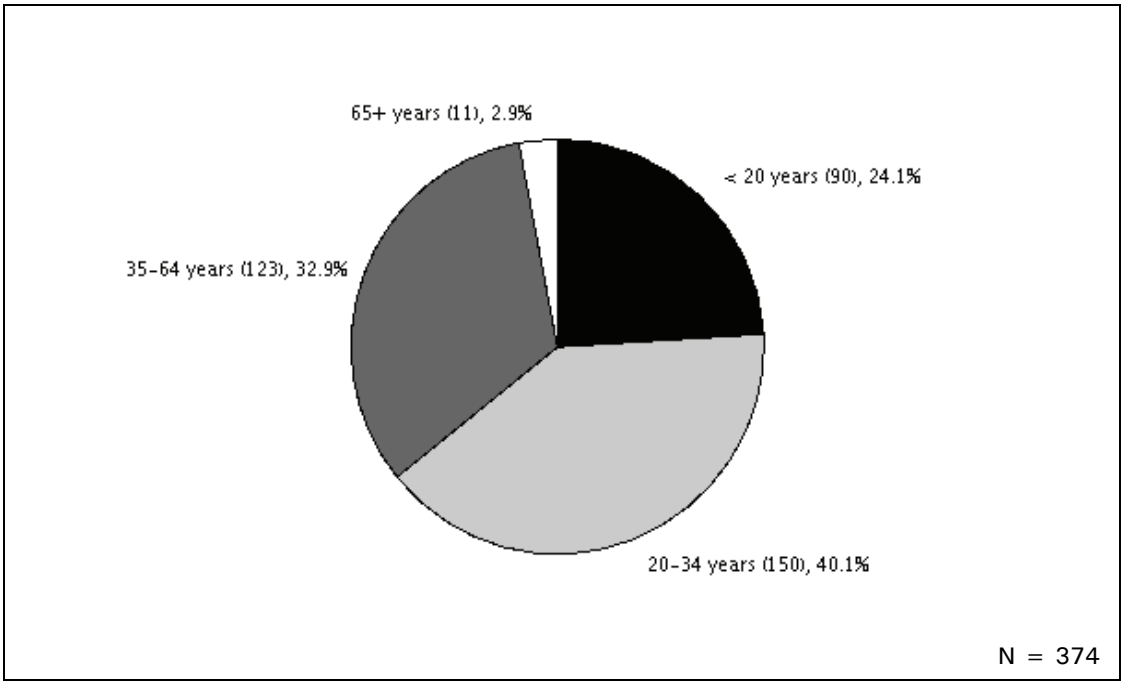
4.5.2 Assault and Injury Purposely Inflicted by Another Person

There were 374 cases admitted due to assault and injury purposely inflicted by another person in the 2007–2008 OTR CDS, accounting for 9% of cases and 10% (n = 52) of all injury deaths.

Figure 19 shows the distribution of these cases by age group. Almost half were age 20 to 34 (40%, n = 150), followed by cases age 35 to 64 (33%, n = 123). The mean age was 31 (median = 27).

The mean LOS was 9 days (median = 5). The mean ISS was 22 (median = 20). Eighty-nine percent (n = 333) of these cases were males.

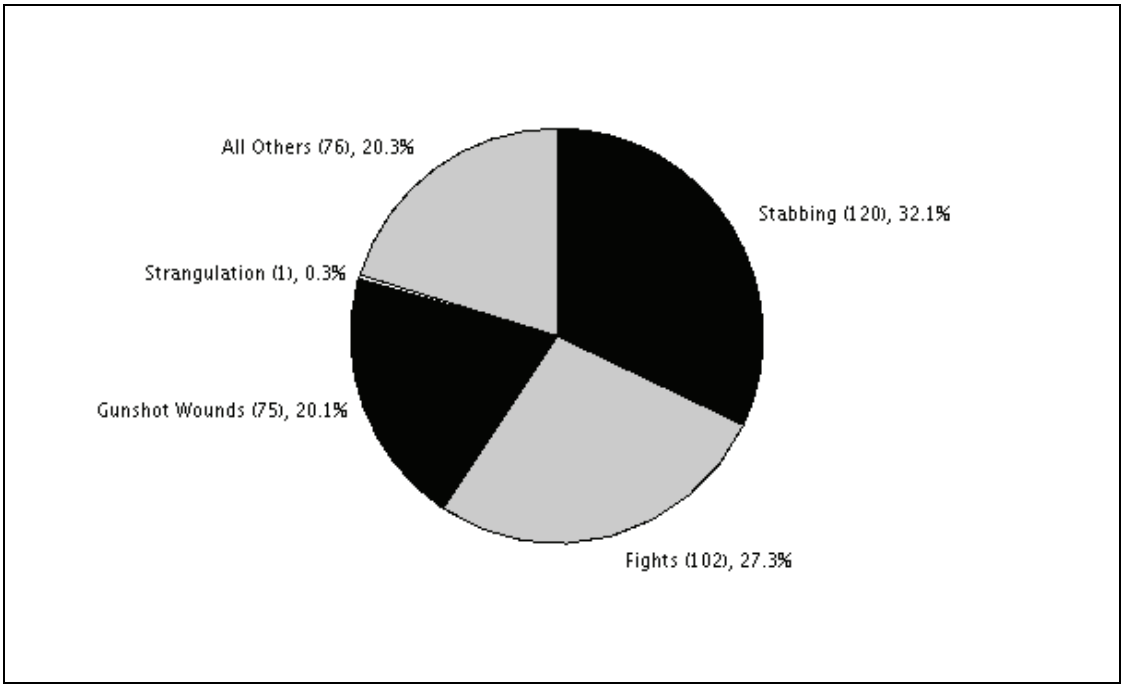
Figure 19 Injury Purposely Inflicted by Another Person (Excluding Poisoning) by Age Group, 2007–2008



Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

Figure 20 shows that the most commonly specified means of injury purposely inflicted by another person were stabbing (32%, n = 120) and fighting (27%, n = 102), followed by gunshot wounds (20%, n = 75).

Figure 20 Means of Injury Purposely Inflicted by Another Person (Excluding Poisoning), 2007–2008



Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

4.6 Cycling Injuries

Injuries due to cycling are defined using appropriate ICD-10-CA external cause of injury codes identifying the injured person as a cyclist.

In the 2007–2008 OTR CDS, cycling incidents accounted for 3% (n = 145) of all cases and 2% (n = 12) of all in-hospital deaths.

For these cases:

- The mean age was 36;
- The mean ISS was 24; and
- The mean LOS was 12 days.

4.7 Other Causes of Injury

In this report, 512 (12%) injury cases were reported as due to all other causes (other than motor vehicle collisions, unintentional falls and intentional injury). All other causes accounted for 49 (9%) deaths. All other causes included injuries due to railway incidents, motor vehicle boarding or alighting, other road vehicles, water transport, air and space transport, vehicle incidents not elsewhere classified, fire and flames, natural and environmental factors, drowning, suffocation, foreign bodies (excluding choking), injuries due to legal intervention, injuries in which the intentionality is undetermined and injuries due to operations of war.

5 Context of Injury

5.1 Place of Injury

Place of injury is documented in the OTR CDS based on ICD definitions. As seen in Table 7 of Appendix H, 4,343 cases (over 99%) were documented with a place of injury:

- 1,924 (44%) indicated a street or highway; and
- 1,074 (25%) indicated home as the place of injury.

There were 11 cases (less than 1%) that did not have a place of injury documented in the 2007–2008 OTR CDS.

5.2 Work-Related Injury

Work-related injuries accounted for 255 (6%) cases. Of these cases:

- The mean ISS was 24;
- The mean age was 43;
- The mean LOS in hospital was 15 days; and
- 239 (94%) were male.

5.3 Sports and Recreational Injury

The OTR CDS permits the documentation of whether the injured person was involved in a sports or recreational activity at the time of injury and, if so, specification of the type of activity. Currently, the sports and recreation code in the OTR CDS distinguishes 99 types of sports and recreational activities.

Ten percent (n = 435) of injury admissions were due to participation in sports and recreational activities as defined by the customized sports and recreational activity codes in the OTR CDS.

The most common sports and recreational injuries documented in the 2007–2008 OTR CDS were related to cycling (25%, n = 109), all-terrain vehicles (20%, n = 98), skiing (11%, n = 49), dirt biking/mini-biking/motocross (8%, n = 33) and horseback riding (3%, n = 13).

Table 1 provides further information about sports and recreational injuries and leading activities.

Table 1 Summary Statistics for Sport and Recreational Injury Activities, 2007–2008

Activity	Cases n (%*)	Mean			Males n (%†)	In-Hospital Deaths n (%†)	DIEs n (%†)
		Age (Years)	ISS	LOS (Days)			
Cycling	109 (25)	33	23	11	86 (80)	8 (7)	0 (0)
All-Terrain Vehicle	98 (20)	34	24	1	80 (82)	4 (4)	0 (0)
Skiing	49 (11)	32	26	17	45 (92)	3 (6)	1 (2)
Dirt Bike/Mini-Bike/ Motocross	33 (8)	26	24	9	32 (97)	1 (3)	1 (3)
Horseback Riding	13 (3)	43	27	19	6 (46)	0 (0)	0 (0)
All Sports/Recreation	**435**	**41**	**26**	**15**	**349 (80)**	**21 (5)**	**4 (1)**

Notes

* Percent of all sports and recreational injuries (n = 435).

† Percent within cause of sport and recreational injury.

Source

Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

5.4 Blood Alcohol Concentration

TRAC recommended that blood alcohol concentration (BAC) be routinely collected at lead trauma hospitals on all trauma patients older than 10 years of age when the patient is admitted within 12 hours of the incident.

More than half (56%, n = 2,446) of the cases had blood alcohol testing. Of those, 706 (29%) had a blood alcohol concentration greater than zero, and 526 (22%) had a positive alcohol concentration, defined as greater than or equal to 17.4 mmol/L and reflecting the legal positive blood alcohol limit. Cases with a positive alcohol concentration represent 12% (n = 526) of all cases. Among these cases, 50% (n = 262) were admitted due to motor vehicle collisions, 26% (n = 139) were admitted due to unintentional falls and 19% (n = 99) were admitted due to injury purposely inflicted by another person.

Table 2 provides further information about cases with BAC greater than or equal to 17.4 mmol/L and the leading causes of injury among these cases.

Table 2 Summary Statistics for Cases With Blood Alcohol Concentration Greater Than or Equal to 17.4 mmol/L, 2007–2008

Cause	Cases n (%*)	Mean			Males n (%†)	In-Hospital Deaths n (%†)	DIEs n (%†)
		Age (Years)	ISS	LOS (Days)			
Motor Vehicle Collision	262 (50)	35	28	16	221 (84)	21 (8)	4 (2)
Unintentional Fall	139 (26)	48	23	16	116 (83)	23 (17)	0 (0)
Intentionally Inflicted by Others	99 (19)	32	21	11	93 (94)	4 (4)	2 (2)
All Positive BAC	**526**	**38**	**25**	**15**	**451 (86)**	**51 (10)**	**6 (1)**

Notes

* Percent of all positive BAC cases (n = 526).

† Percent within cause of injury.

Source

Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

6 Clinical Aspects of Injury

6.1 Type of Injury

Blunt injury accounted for 4,039 (93%) cases, penetrating injury for 251 (6%) and burns for 64 (1%).

6.2 Pre-Hospital Care

COLLECTOR was customized to include several data elements to describe the patient's care at the scene and en route to hospital. Included in pre-hospital care data elements are mode of transport information, vital signs and non-operative procedures at the scene.

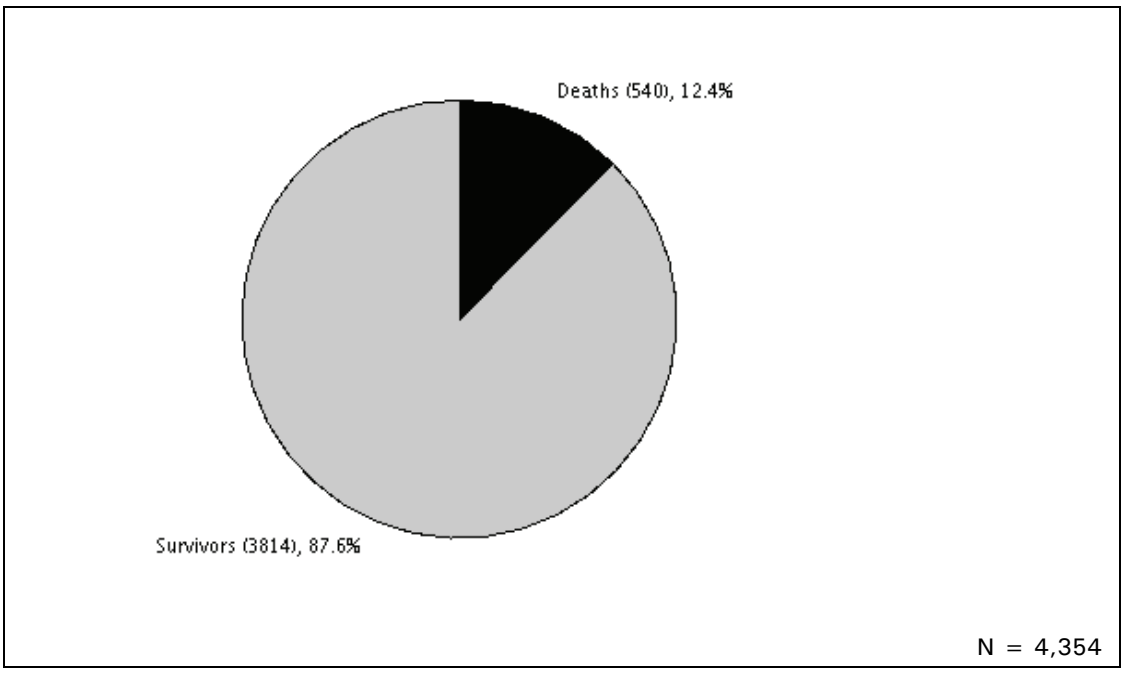
As seen in Table 9 of Appendix H:

- 630 cases (14%) required extrication from the scene;
- The mean scene time was 20 minutes (defined as the time the ambulance arrived at the scene to the time the ambulance left the scene) (median = 18); and
- The mean pre-hospital time was 76 minutes (defined as the time of incident to the time the ambulance arrived at the first hospital) (median = 53).

6.3 Discharge Disposition

Figure 21a shows the discharge disposition of all cases. In the 2007–2008 OTR CDS, 12% (n = 540) of the 4,354 cases died, either in hospital or DIE.

Figure 21a Discharge Disposition, All Cases, 2007–2008

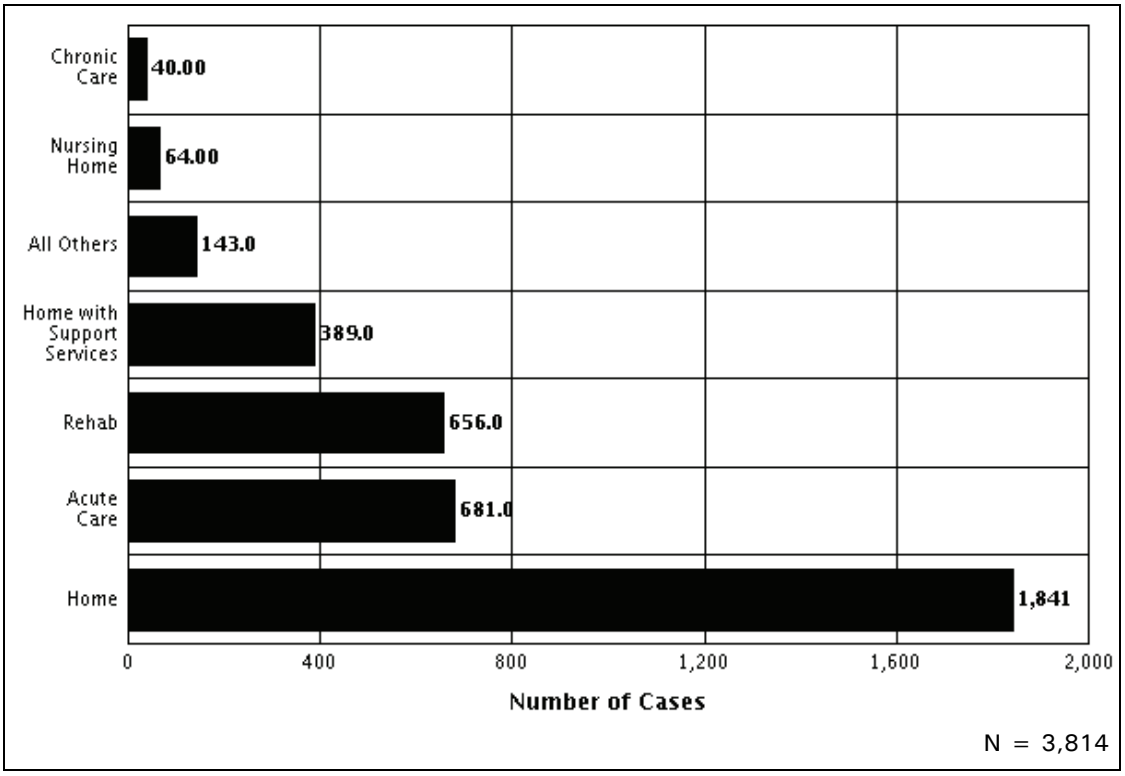


Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

Figure 21b shows the discharge disposition of the survivors:

- 58% (n = 2,230) were discharged home, including 389 discharged home with support services;
- 18% (n = 681) were discharged to an acute care facility;
- 17% (n = 656) were discharged to a rehabilitative facility; and
- 6% (n = 247) were discharged to chronic care, a nursing home or other facility.

Figure 21b Discharge Disposition, Survivors, 2007–2008



Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

6.4 Deaths

6.4.1 All Cases

In the 2007–2008 OTR CDS, there were 540 deaths (12% of all cases). These deaths included 440 in-hospital deaths (10% of all cases) and 99 DIEs (2% of all cases).

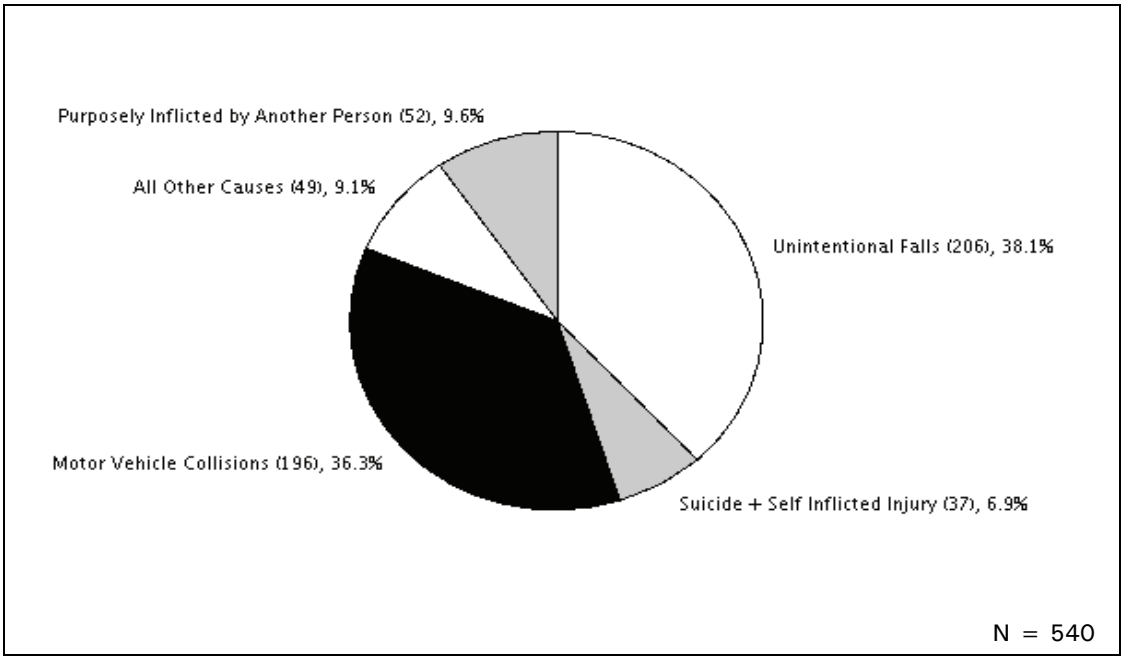
Figure 22 shows the causes of death for these cases:

- 36% (n = 196) were due to motor vehicle collisions; and
- 38% (n = 206) were due to unintentional falls.

Tables 11 and 13 in Appendix H show some statistics for all deaths:

- The mean age was 54 (median = 57);
- The mean ISS was 31 (median = 26);
- 66% (n = 359) were males;
- 87% (n = 469) of deaths had a blunt injury, 12% (n = 64) had a penetrating injury and 1% (n = 7) had a burn injury;
- The mean LOS was 11 days (median = 2);
- Deaths accounted for 8% of total hospital days (4,762 days); and
- 15% (n = 82) of the cases donated organs.

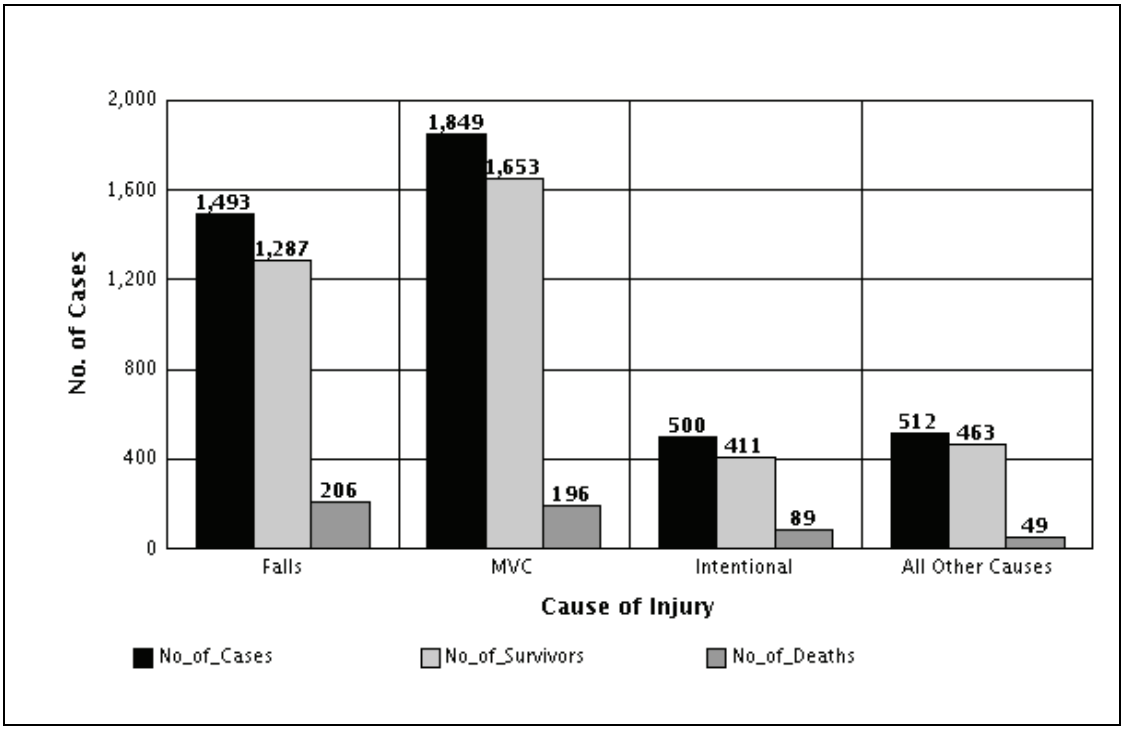
Figure 22 Causes of Death, All Cases, 2007–2008



Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

Figure 23 shows the causes of injury for cases who died compared to those who survived.

Figure 23 All Cases by Outcome and Cause of Injury, 2007–2008



Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

6.4.2 In-Hospital Deaths

In the 2007–2008 OTR CDS, there were 440 in-hospital deaths. In total, these cases were responsible for 4,762 hospital days (8% of total days). The mean LOS was 11 days (median = 2), the mean age was 57, and the mean ISS was 31. Almost two-thirds of the in-hospital deaths were male (65%, n = 287).

6.4.3 Died in Emergency

In the 2007–2008 OTR CDS, there were 99 DIEs. Of these cases:

- The mean ISS was 31;
- The mean age was 41 years; and
- 72% (n = 71) were male.

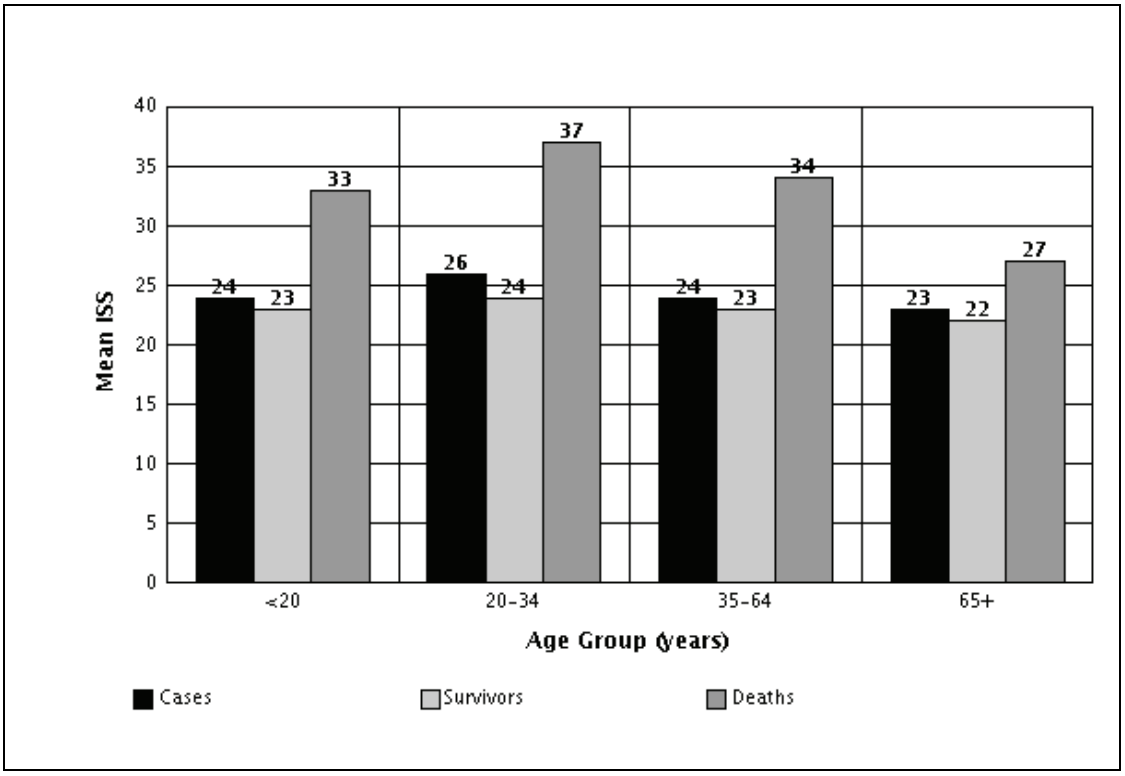
6.5 Injury Severity Score

The injury severity score (ISS) is an internationally recognized scoring system developed to assign a level of severity to injury. ISS scores range from 1 (minor) to 75 (major). Cases with an ISS greater than 12 are included in the OTR CDS.

In the 2007–2008, the mean ISS was 24 (median = 23).

Figure 24 shows the mean ISS by age group and outcome. Among all cases, the mean ISS was slightly higher in the 20-to-34 age group (ISS = 26). Among deaths, the mean ISS was considerably higher for all age groups compared to survivors. The highest mean ISS for deaths was seen in the 20-to-34 age group (ISS = 37).

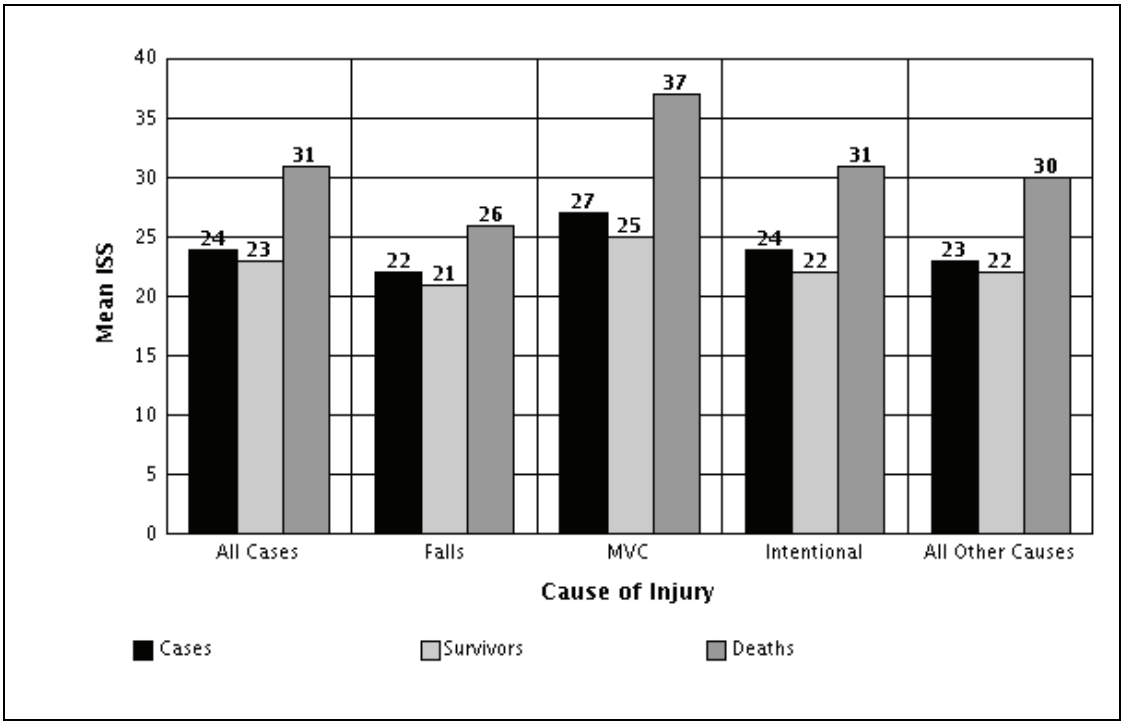
Figure 24 Mean Injury Severity Score by Outcome and Age Group, 2007–2008



Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

Figure 25 shows the mean ISS by outcome and cause of injury. Among all cases, survivors and deaths, the highest mean ISS was among motor vehicle collisions (ISS = 27, 25 and 37, respectively).

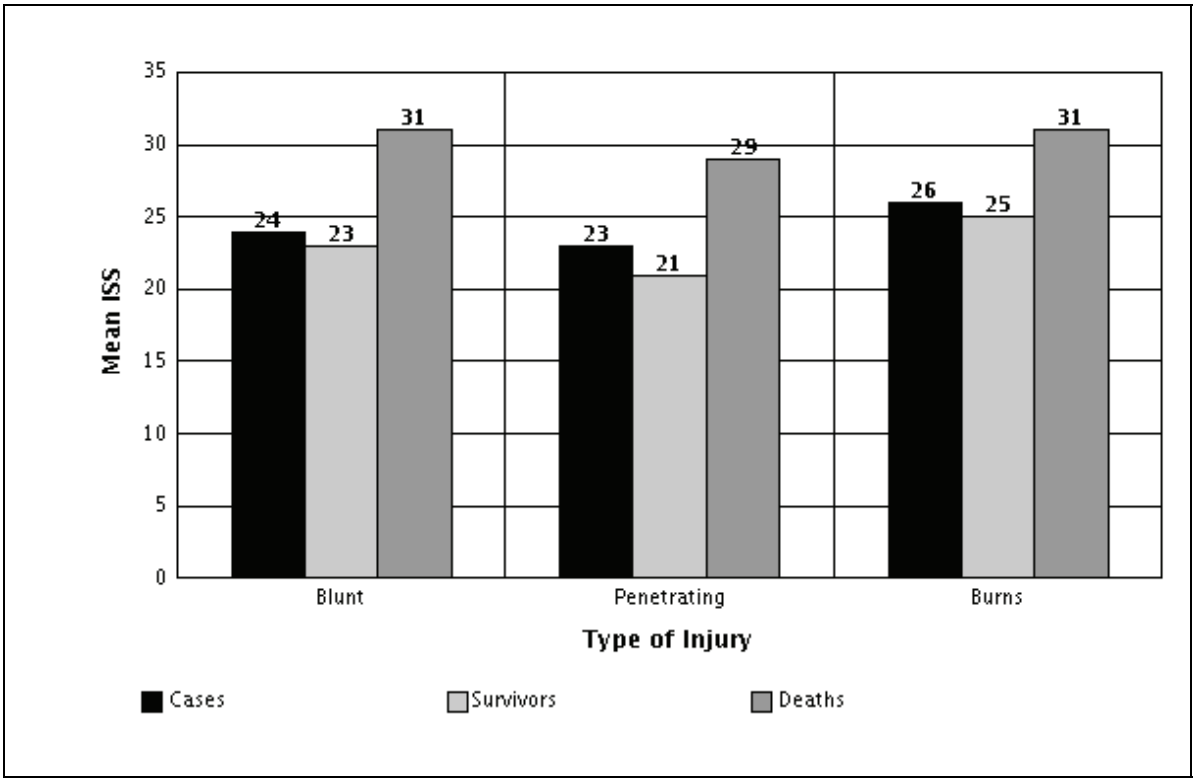
Figure 25 Mean Injury Severity Score by Outcome and Cause of Injury, 2007–2008



Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

Figure 26 shows the mean ISS by outcome and type of injury. Among all cases, survivors and deaths, the highest mean ISS was found among cases with burn injuries (ISS = 26, 25 and 31, respectively).

Figure 26 Mean Injury Severity Score by Outcome and Type of Injury, 2007–2008



Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

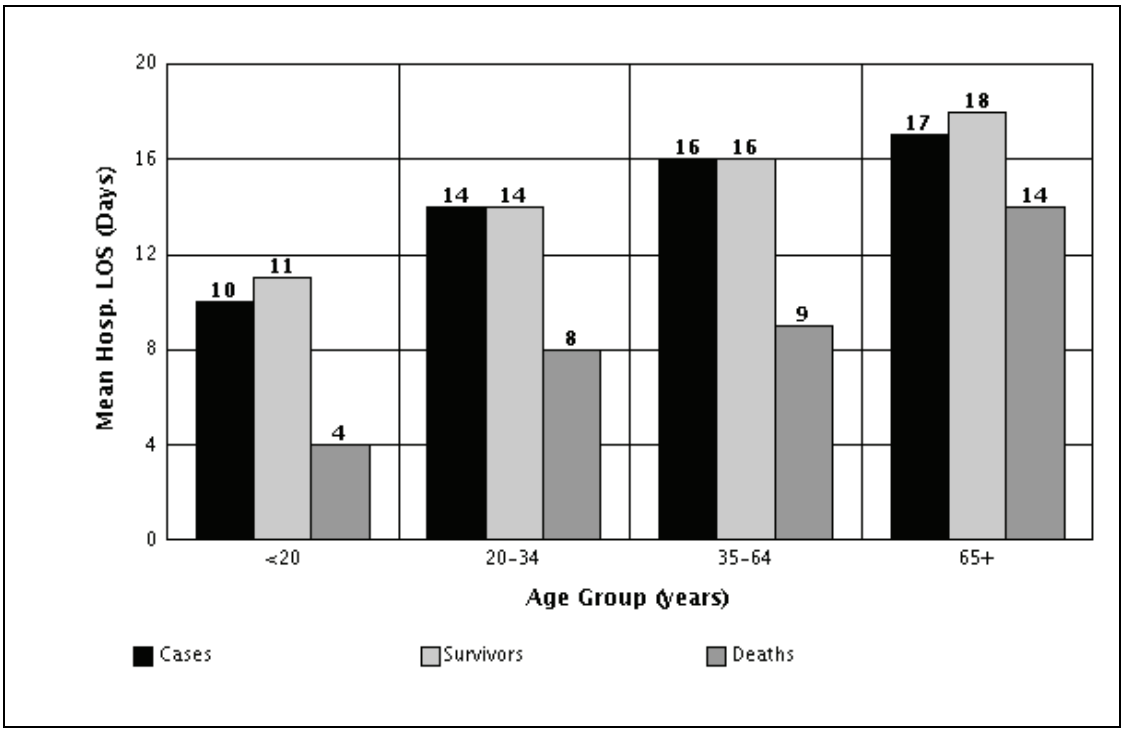
6.6 Length of Stay

LOS is defined as the total number of hospital days as calculated from date of admission to date of discharge or death. Patients who are not admitted are excluded from LOS calculations.

Injury cases in the 2007–2008 OTR CDS accounted for 62,568 hospital days with a mean LOS of 15 days (median = 8).

Figure 27 shows mean LOS by outcome and age group. Among all cases, the highest mean LOS was among cases 65 years of age and older (LOS = 17). Among survivors and deaths, the highest mean LOS was among cases 65 years of age and older (LOS = 18 and 14 days, respectively). There was a general trend of increasing LOS with increasing age.

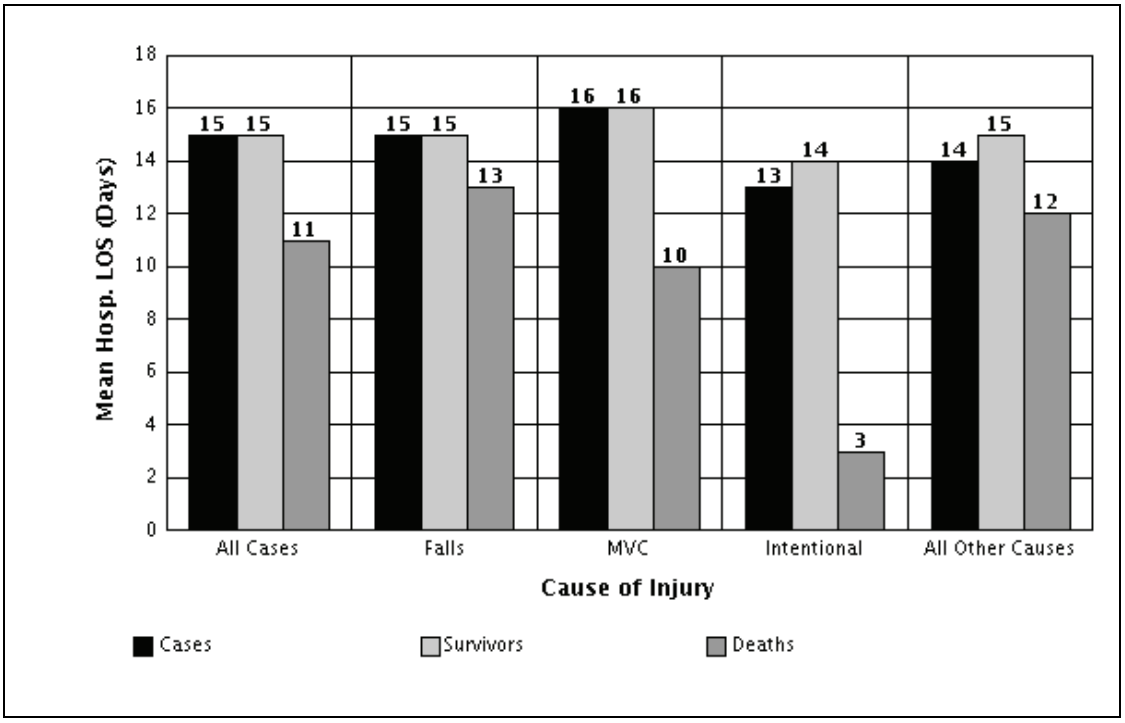
Figure 27 Mean Length of Stay by Outcome and Age Group, 2007–2008



Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

Figure 28 shows mean LOS by outcome and major cause of injury. For all cases and survivors, the highest mean LOS was for motor vehicle collisions and falls (LOS = 16 and 15 days, respectively). Among deaths, the highest mean LOS was for unintentional falls (LOS = 13 days).

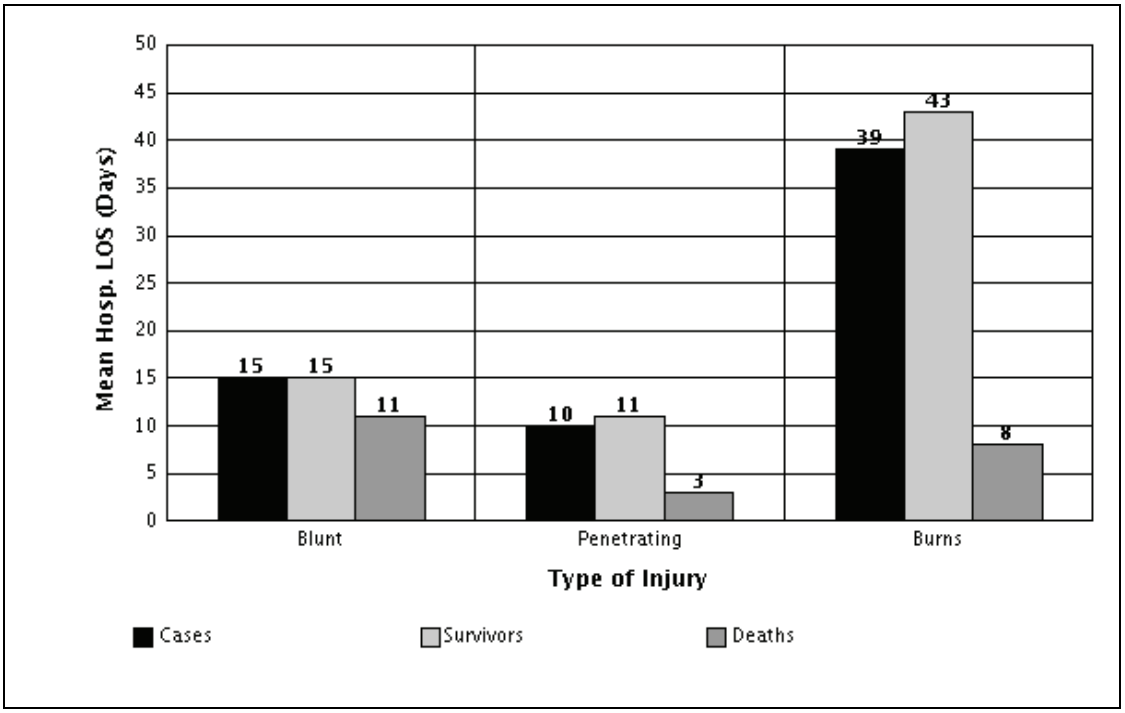
Figure 28 Mean Length of Stay by Outcome and Cause of Injury, 2007–2008



Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

Figure 29 shows mean LOS by outcome and type of injury. For all cases, survivors and deaths, the highest mean LOS was among cases with burn injuries (LOS = 39, 43 and 8, respectively).

Figure 29 Mean Length of Stay by Outcome and Type of Injury, 2007–2008



Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

6.7 Special Care Units

For the purposes of the OTR CDS, special care units (SCUs) include intensive care and observation units with a normal patient-to-nurse ratio of at least 2:1.

Of the 2,525 cases (58% of all cases) in the OTR CDS who stayed in a special care unit in 2007–2008, 86% (n = 2,161) were discharged from hospital alive and 14% (n = 364) died.

Table 3 shows further information for cases treated in special care units.

Table 3 Summary Statistics for Special Care Unit Cases, 2007–2008

Discharge Status	Cases n (%*)	Mean			
		Age (Years)	ISS	SCU LOS (Days)	Hospital LOS (Days)
Discharged Alive	2,161 (86)	44	26	8	19
Died in Hospital	364 (14)	55	31	8	11
All SCU Cases	**2,525**	**45**	**26**	**8**	**18**

Note

* Percent of all special care unit cases (n = 2,525).

Source

Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

6.8 PRE Analysis

PRE analysis is a methodology that can be used by a trauma institution for self-audit. To implement PRE using the Trauma and Injury Severity Score (TRISS),[iii] each patient is characterized by the revised trauma score (RTS) measured at hospital admission and the ISS based on surgery, CT scan, autopsy or definitive diagnosis. Each patient's values are plotted on a graph with ISS and RTS axes. Survivors (L) and non-survivors (D) have different plotting symbols. The sloping line identified as "P_s50" represents the combinations of RTS and ISS, which have a 0.50 probability of survival for patients in the baseline population (see Appendix G).

Patients whose RTS–ISS coordinates are above the P_s50 line (non-shaded region) have probabilities of survival less than 0.50. Patients whose coordinates are below the line (shaded region) have survival probabilities that exceed 0.50. Survivors whose coordinates are above the P_s50 line (non-shaded region) and non-survivors whose coordinates are below the line (shaded region) are considered atypical (unexpected in a statistical sense) and worthy of medical review. Data from such non-survivors may be reviewed for the possibility of predictive index failure, health care system failure or therapeutic failure. Reviews for exceptional survivors may provide guidelines for future patient management.

iii. TRISS is a calculated field by COLLECTOR based on the first recorded set of vital signs at the lead trauma hospital. It combines both physiologic and anatomic indices to characterize the severity of injury and estimate patient survival probability.

Appendix G shows PRE analyses for adult patients 15 to 54 years of age and 55 years of age and older for blunt and penetrating wounds. PRE analysis for pediatric patients (younger than 15 years of age) is also shown. Due to the current software specifications, PRE analyses were conducted on cases in 2007–2008 based on fiscal year of admission and not on fiscal year of discharge.

6.8.1 Blunt Injuries: 2003–2004 Through 2007–2008

As indicated above, PRE analyses are available for five different groups. However, only blunt injuries to adults offer enough cases to provide meaningful comparison across the five years of data since 2003–2004.

Table 4 shows that over the past five years, the proportion of unexpected deaths among adults age 15 to 54 hospitalized with blunt injuries fluctuated from a low of 0.8% (n = 15) in 2004–2005 to a high of 1.2% (n = 28) in 2007–2008. The percentage of unexpected survivors ranged from a high of 0.6% (n = 11) in 2004–2005 to a low of 0.4% (n = 9) in 2006–2007.

Table 4 PRE Analyses of Adult (Age 15 to 54) Blunt Injuries, 2003–2004 to 2007–2008

	2003–2004 n (%)	2004–2005 n (%)	2005–2006 n (%)	2006–2007 n (%)	2007–2008 n (%)
Unexpected Deaths	22 (1.2)	15 (0.8)	19 (0.9)	24 (1.1)	28 (1.2)
Unexpected Survivors	9 (0.5)	11 (0.6)	9 (0.4)	9 (0.4)	10 (0.5)
Eligible Cases	1,869	1,951	2,048	2,202	1,931

Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

PRE analyses indicate that the percentage of unexpected deaths among cases 55 years of age and older fluctuated from a low of 7.0% in 2004–2005 (n = 96) to a high of 8.2% in 2003–2004 (n = 100). The proportion of unexpected survivors also fluctuated, with a low of 1.1% (n = 15) in 2004–2005 and a high of 1.5% (n = 22) in 2006–2007 (Table 5).

Table 5 PRE Analyses of Adult (Age 55+) Blunt Injuries, 2003–2004 to 2007–2008

	2003–2004 n (%)	2004–2005 n (%)	2005–2006 n (%)	2006–2007 n (%)	2007–2008 n (%)
Unexpected Deaths	100 (8.2)	96 (7.0)	102 (7.1)	118 (7.8)	120 (7.5)
Unexpected Survivors	17 (1.4)	15 (1.1)	18 (1.3)	22 (1.5)	19 (1.2)
Eligible Cases	1,225	1,374	1,432	1,517	1,608

Source
Ontario Trauma Registry, 2007–2008, Canadian Institute for Health Information.

Appendix A—Definition of Terms

Note: In this report, the terms "accident" and "accidentally" used in the International Classification of Diseases have been replaced with "incident" and "unintentionally."

abbreviated injury scale (AIS)
The abbreviated injury scale was developed to provide researchers with a numeric method of ranking and comparing injuries by severity, and to standardize the terminology used to describe injuries. The AIS is a consensus-derived, anatomically based system that classifies individual injuries by body region on a six-point ordinal severity scale ranging from AIS 1 (minor) to AIS 6 (currently untreatable).

acute care hospital
A hospital in which active treatment is received.

admission
An admission to a participating acute care hospital in Ontario as a result of injury, defined by an appropriate ICD external cause of injury code and an ISS greater than 12. Admissions include hospital deaths. For more information on inclusion criteria for admissions in the Comprehensive Data Set, refer to appendices B and C.

admission day
The day of the week the patient is admitted to hospital.

age groups
The age groups used by the OTR for reporting were selected for comparability to other sources of information and to report on specific trends such as injury in children, young adults and the elderly. Generally, the age groups reported are younger than 1; 1 to 4; 5 to 9; 10 to 14; 15 to 19; 20 to 24; 25 to 34; 35 to 44; 45 to 54; 55 to 64; 65 to 74; 75 to 84; and older than 85 years of age. Age groups were adjusted in Table 17 to match the *Ontario Road Safety Annual Report* from the Ministry of Transportation.

aircraft
Any device for transporting passengers or goods in the air, including airplanes, balloons, bombers, gliders, parachutes and military aircraft.

autopsy
Refers to a case for which a post-mortem examination or autopsy was completed.

blood alcohol concentration (BAC)
A positive blood alcohol concentration is greater than or equal to 17.4 mmol/L. The Trauma Registry Advisory Committee recommends that BAC be routinely collected on all trauma patients 10 years of age and older with an ISS greater than 12 who are admitted within 12 hours of the incident.

blunt injury type
Injury type reflects the cause of injury (such as a motor vehicle collision or a blow to the head). Blunt injury may include deep lacerations but does not include any injury in which a missile such as a knife or bullet enters the body.

burn injury type
Isolated burns with an ISS greater than 12 or burns with AIS = 1 are documented as a burn injury. These cases would not be included in a TRISS analysis. A burn injury with another injury AIS greater than 1 should be documented as a blunt or penetrating injury type, depending on the other injury.

Canadian Institute for Health Information (CIHI)
The Canadian Institute for Health Information was established in February 1994. This not-for-profit corporation was created by integrating the Hospital Medical Records Institute, the MIS Group and specific health information programs from Health Canada and Statistics Canada.

case
A case in the Comprehensive Data Set is any patient who has an ISS greater than 12 and an appropriate external cause of injury code and who meets one of the following criteria:

- Admitted to a lead trauma hospital; or
- Treated in the emergency department of a lead trauma hospital (not admitted); or
- Died in the emergency department of a lead trauma hospital after treatment was initiated (not admitted).

chronic care
The level of care required by a person who is chronically ill or has a functional disability (physical or mental) whose acute phase of illness is over, whose vital processes may or may not be stable, whose potential for rehabilitation may be limited and who requires a range of therapeutic services, medical management and/or skilled nursing care plus provision for meeting psychosocial needs. The period of time during which care is required is unpredictable but usually consists of months or years.

COLLECTOR
Specialized software from Digital Innovation, Inc. and Tri-Analytics, Inc. used by participating hospitals to collect pre-hospital, demographic, nature and cause of injury and follow-up information on severely injured patients. This software was customized for use in Ontario.

Comprehensive Data Set
One of three major data sets of the OTR that includes data on severely injured patients admitted to trauma hospitals in the province. Inclusion in the Comprehensive Data Set is based on injury severity.

cyclist
Any person riding on a pedal cycle or in a sidecar or trailer attached to such a vehicle.

death data set from the Office of the Chief Coroner
One of three major data sets of the OTR that includes data on all injury deaths in the province of Ontario. These data are provided by the Office of the Chief Coroner.

deaths
All deaths occurring in participating hospitals with an ISS greater than 12. Those patients who are dead on arrival are excluded.

died in emergency (DIE)
A DIE (died in emergency) is defined as a patient who dies in the emergency department after any active treatment or resuscitation by the trauma team or emergency department physician after the patient enters the emergency department. DIEs may include patients who arrive VSA (vital signs absent) if treatment or resuscitation is initiated. Patients who are admitted to hospital and die in the emergency department while waiting for transfer are considered an in-hospital death rather than a DIE.

direct admission
A direct admission is defined as a patient whose first contact with a hospital is at a participating hospital (not referred).

discharge disposition
A patient's discharge disposition is the location to which the patient is discharged or the services arranged for the patient immediately upon discharge from the lead trauma hospital. Discharge disposition is documented as inappropriate for deaths. Menu options for discharge disposition include home, home with support services, another acute care facility, general rehabilitation facility, chronic care facility, nursing home, special rehabilitation facility, foster care/children's aid and other.

discharged alive
An admitted patient who is discharged from hospital alive, including those patients who sign themselves out against medical advice.

driver
A driver of a motor vehicle is the occupant of the motor vehicle operating it or intending to operate it.

English-speaking
Refers to patients who are reasonably conversant in the English language and do not require an interpreter.

external cause of injury
The external cause of injury codes in the ICD coding system allow the classification and analysis of environmental events and circumstances as the cause of injury. External cause of injury codes vary depending on the coding system (for example, unintentional falls are coded as E880 to E888 in the ICD-9 coding system and as W00 to W19 in ICD-10-CA.) Please see the definition ICD (International Classification of Diseases) for an explanation of the various coding systems. All OTR reports are based on the first valid external cause code recorded unless otherwise specified. COLLECTOR allows hospitals to document up to three external cause of injury codes. External cause codes that are *included* in the trauma definition are listed in Appendix B. Note that external cause codes are termed e*xternal causes of morbidity and mortality* (V01 to Y98) in the ICD-10-CA coding system.

extrication required
Extrication is documented if a patient was trapped and required release from the scene of the incident. Examples include extrication from motor vehicles, dwellings on fire and falls where extrication is required.

general rehabilitation
See *rehabilitation* definition. General rehabilitation involves less-intensive rehabilitation of shorter duration than special rehabilitation.

homicide
Injuries inflicted by another person with intent to injure or kill, by any means.

ICD (International Classification of Diseases)
The International Classification of Diseases is a World Health Organization (WHO) publication that classifies morbidity and mortality information for statistical purposes, indexing of hospital records by disease and operations and data storage and retrieval. ICD manuals may be located in hospital health record departments or in public libraries.

ICD-9
The International Classification of Diseases, 9th Revision is based on the official version of the World Health Organization's ninth revision.

ICD-9-CM
In 1977, a steering committee was convened by the National Centre for Health Statistics to provide advice on the development of a clinical modification of the ICD-9 with increased detail necessary for medical research. ICD-9-CM is totally compatible with ICD-9, meeting the need for comparability of morbidity and mortality statistics at the international level.

ICD-10-CA
The International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Canada is based on the World Health Organization's ICD-10 and is wholly comparable with that classification. ICD-10 is the official classification used for reporting mortality data in Canada; ICD-10-CA is the national standard for reporting morbidity statistics.

in-hospital deaths
A patient who dies after arrival at the participating hospital, excluding those patients who are dead on arrival (DOA).

intracranial pressure (ICP) days
Refers to the number of days that intracranial pressure is monitored. ICP days include any part of one day up to midnight including the days the ICP is discontinued (excluding the day ICP is begun). ICP monitoring is used to evaluate a head injury patient's response to therapy and may also be used as a treatment modality to vent cerebrospinal fluid.

injured person
An injured person is identified by a subdivision of the external cause of injury codes for all transport external cause codes. Injured persons include drivers, passengers, pedestrians, cyclists and other specified persons.

injury resulting from operations of war
An external cause of injury code category used to classify injuries to military personnel and civilians caused by war and civil insurrection and occurring during the time of war and insurrection.

injury severity score (ISS)
The injury severity score is an internationally recognized scoring system developed to assign a level of severity to injury. ISS scores range from 1 (minor) to 75 (major).

injury type
Refers to the patient's most serious injury; may be classified as blunt, penetrating or burns. In determining the type of injury, the cause of injury is considered. Also see definitions for *penetrating injury type*, *blunt injury type* and *burn injury type*.

injury undetermined whether unintentionally or purposely inflicted
An external cause of injury code category used when, after a thorough investigation by the medical examiner, coroner or other legal authority, it cannot be determined whether the injuries are unintentional, suicidal or intentional.

intentional injury
Intentional injury refers to injury purposely inflicted by another person or by the patient.

intubated
Refers to patients who are intubated for airway maintenance.

late effects
Conditions reported as such or occurring as sequelae one year or more after injury. Late effects are excluded from the definition of trauma.

legal intervention
An external cause of injury code category used to classify injuries inflicted by the police or other law enforcing agents, including military on duty, in the course of arresting or attempting to arrest lawbreakers, suppressing disturbances, maintaining order and other legal action.

length of stay (LOS)
Total number of hospital days as calculated from date of admission to date of discharge or death.

master numbering system
A system developed for the purpose of bringing together all health facilities and programs under one system of identification. Included are health and health-related units, facilities, clinics, programs and services. Each such organization has been assigned a unique four-digit identifying code. A two-digit alphabetic code is used to identify the type of institution.

mean
A measure of central tendency of a set of observations; the average.

median
A measure of central tendency of a set of observations; 50th percentile (the point above and below which 50% of data fall).

Minimal Data Set
One of three major data sets of the OTR that includes data on injury admissions to acute care hospitals in Ontario. Data are downloaded from CIHI's Discharge Abstract Database.

month of admission
Reports are generated by the month in which a patient was admitted to hospital rather than discharge date.

motor vehicle
Any mechanically or electrically powered device, not operated on rails, upon which any person or property may be transported or drawn upon a highway. Any object such as a trailer, coaster, sled or wagon being towed by a motor vehicle is considered a part of the motor vehicle. This category includes automobiles, buses, fire engines, motorcycles, mopeds or scooters, vans, trucks, construction machinery, farm and industrial machinery, steam rollers, tractors, army tanks, highway graders or similar vehicles on wheels or treads, while in transport under their own power.

motor vehicle incident
A transport incident involving a motor vehicle. It is defined as a motor vehicle traffic incident or as a motor vehicle non-traffic incident according to whether the incident occurs on a public highway or elsewhere.

motor vehicle non-traffic incident
Any motor vehicle incident that occurs entirely in any place other than a public highway.

motor vehicle traffic incident
Any motor vehicle incident occurring on a public highway (originating, terminating or involving a vehicle partially on the highway). A motor vehicle incident is assumed to have occurred on the highway unless another place is specified, except in the case of incidents involving only off-road motor vehicles, which are classified as non-traffic incidents unless the contrary is stated.

motorcycle
A two-wheeled motor vehicle having one or two riding saddles and sometimes having a third wheel for the support of a sidecar. The sidecar is considered part of the motorcycle.

nature of injury
Injury diagnosis codes have been divided into the following broad categories of injuries to accommodate the reporting of both ICD-9 and ICD-10-CA codes: superficial; musculoskeletal; burns and corrosion; internal organs; crushing; open wound (including traumatic amputation); blood vessels; nerves and spinal cord; other; and unspecified. The specific diagnosis codes that define these categories are found in Appendix E—Nature of Injury Reporting Categories.

off-road motor vehicle
A motor vehicle of special design, to enable it to negotiate rough or soft terrain or snow. Examples of special design are high construction, special wheels and tires, driven by treads or supported on a cushion of air. This category includes all-terrain vehicles, army tanks, hovercrafts and snowmobiles.

operative procedures
Up to 10 operative procedures may be documented for 5 operating room (OR) visits at the primary and secondary hospital and 10 OR visits at the participating hospital.

OR visits per admission
Refers to the number of operating room (OR) encounters for the patient's admission. Up to 99 OR visits may be documented for each patient. Detailed information is collected on 5 OR visits at the primary and secondary hospital and 10 OR visits at the participating hospital.

organ donations
Up to four specific organs or tissue samples may be documented. Participating hospitals may also document if more than four organs or tissue samples were procured.

other incidents
This category was created from several ICD-10-CA external cause of injury codes. For specific ICD-10-CA codes included in this category, please see the *External Cause Groupings* document.

other road vehicle
Any device, except a motor vehicle, in, on or by which any person or property may be transported on a highway. This category includes pedal cycles, animals carrying persons or goods, animal-drawn vehicles, animals harnessed to conveyances and streetcars.

outcome
Refers to whether the patient lived or died.

out-of-province residents
Defined as a patient whose province of residence is not Ontario.

paralytic agents
The purpose of collecting the number of paralytic agents in the Comprehensive Data Set is not to document the number of paralytic agents administered but the number of cases in which the Glasgow Coma Scale score could not be calculated because a paralytic agent was administered. Paralytic agents stop muscular activity and help preserve or increase cerebral venous draining in severe head injury, helping to reduce or keep the intracranial pressure in the normal range.

participating hospital
One of 11 hospitals (14 sites) in the province that contributes data on severely injured patients to the Comprehensive Data Set using specialized software and dedicated staff.

patient days
The number of days a patient is hospitalized.

pedal cycle
Any road transport vehicle operated solely by pedals, including bicycles, pedal cycles and tricycles.

pedal cyclist
Any person riding on a pedal cycle or in a sidecar attached to such a vehicle. Also see definition for *cyclist*.

pedestrian
Any person involved in an incident who was not at the time of the incident riding in or on a motor vehicle, railroad train, streetcar, animal-drawn or other vehicle, bicycle or animal. The pedestrian category includes a person changing a tire on a vehicle, in or operating a pedestrian conveyance, making adjustments to the motor of a vehicle or on foot.

pedestrian conveyance
Any human-powered device by which a pedestrian may move other than by walking or by which a walking person may move another pedestrian, including baby carriages, wagons, ice skates, roller skates, scooters, skateboards, skis, sleds and wheelchairs.

penetrating injury type
Refers to an injury caused by a missile entering the body. Missiles include bullets, knives and items such as pieces of sharp glass or metal.

place of injury
The ICD options are used to specify place of injury for all cases in the Comprehensive Data Set. Options include home, farm, mine, industry, recreation, street, public building, residential institution, other and unspecified. A place of injury may be documented for the primary, secondary and tertiary external cause of injury codes.

pre-hospital time
Pre-hospital time is calculated based on the incident time to the time the ambulance arrived at the first hospital.

protective devices
Any devices in use or not in use by the injured patient at the time of the incident. Menu options for protective devices include none, lap and shoulder belt, lap belt only, lap belt only of combined assembly, child safety seat used incorrectly, child safety seat used correctly, air bag deployed, other passive restraint device, helmet, equipment available but not used, no equipment available, use unknown, other safety equipment used, infant seat (less than 20 pounds), child seat (between 20 and 40 pounds), booster seat (greater than 40 pounds), seatbelt NFS and helmet flew off. Up to four menu options may be documented.

public highway
A public highway or traffic way is the entire width between property lines of every way or place, of which any part is open to the use of the public for purposes of vehicular traffic as a matter of right or custom. This category excludes private driveways, parking lots and roads in airfields, farms, industrial premises, mines, private grounds or quarries.

railway incident
A transport incident involving a railway train or other railway vehicle operated on rails, whether in motion or not.

readmission
A readmission is an inpatient admission to the same participating hospital related to a previous trauma (ISS greater than 12) within unlimited time.

rehabilitation
That required by a person whose condition is relatively stable but unlikely to be resolved through convalescence or the normal healing process and who requires a specialized rehabilitation program to restore or improve functional ability. The intensity and duration of the type of care is dependent on the nature of the disability and patient progress, but maximum benefits usually can be expected within a period of several months. Also see *special rehabilitation* or *general rehabilitation*.

residence code
Unique four-digit numbers were assigned to each municipality and settlement in the province to classify patient residence information. The first two digits represent the county, district or regional municipality in which the place is located. Digits three and four identify municipalities within the county.

roadway
That part of the public highway designed, improved and ordinarily used for vehicular travel. This excludes driveways, parking lots, ramps, roads in farms, airfields, industrial premises, private grounds, mines and quarries.

scene time
Scene time is calculated based on the time the ambulance arrived at the scene to the time the ambulance left the scene.

single year of age
Individual values for ages less than 1 year through 100 years, which may be used rather than age groups.

small boat
Any watercraft propelled by paddle, oars or a small motor with a passenger capacity of less than 10.

special care unit (SCU)
A special care unit is any unit where the normal patient-to-nurse ratio is 2:1. Other beds, such as those in the emergency department or recovery room, may be documented as SCU beds if they are used for more than 24 hours as SCU beds. SCUs include surgical intensive care units (ICUs), pediatric ICUs, neuro ICUs, burn ICUs, ICU step-down/observation units or other designated SCUs. Up to five SCU visits may be documented.

special rehabilitation
See *rehabilitation* definition. Special rehabilitation involves more intensive rehabilitation of longer duration than general rehabilitation.

suicide
Self-inflicted injuries specified as intentional, excluding admissions that result from poisonings.

survivors
Refers to those patients who are discharged alive.

total admissions
Total number of patients admitted to hospital excluding those who are dead on arrival (DOA), died in emergency (DIE) and discharged from the emergency department.

total patient days
Sum of length of stay for all admissions.

transfers
A transferred patient is one whose first contact with a hospital is with a non-participating hospital and who is subsequently transferred to a participating hospital.

transport incident
Any incident (ICD-9 codes E800 to E848 and ICD-10-CA codes V01 to V99) involving a device designed primarily for, or being used at the time primarily for, conveying persons or goods from one place to another. In classifying incidents which involve more than one kind of transport, the following order of precedence of transport incidents should be used: aircraft and spacecraft, watercraft, motor vehicle, railway, other road vehicles.

Incidents involving agricultural and construction machines, such as tractors, cranes and bulldozers, are regarded as transport incidents only when these vehicles are under their own power on a highway; otherwise, the vehicles are regarded as machinery. Vehicles that can travel on land or water, such as hovercraft and other amphibious vehicles, are regarded as watercraft when on the water, as motor vehicles when on the highway and as off-road vehicles when on land but off the highway.

trauma
Injury resulting from the transfer of energy (for example, kinetic or thermal). See Appendix B for external cause of injury codes used to define trauma.

Trauma Injury Severity Score (TRISS)
The TRISS is a calculated score that estimates the probability of survival using Injury Severity Score and Revised Trauma Score.

Trauma Registry Advisory Committee (TRAC)
The multidisciplinary group responsible for guiding the implementation and operation of the OTR.

ventilator days
The number of days the patient was intubated and mechanically ventilated intermittently or continuously, excluding non-intubated patients on BIPAP and intubated patients on CPAP. Ventilator days include any part of one day up to midnight, including the day the ventilator is discontinued and excluding the day the ventilator is begun. A ventilator day is counted if a ventilated patient is admitted and discharged in the same day or if the ventilation is started and discontinued in the same day. Routine intubation for operating room is not included.

watercraft
Any device for transporting passengers or goods on the water.

Appendix B—Trauma Definition: External Cause of Injury Code Inclusions and Exclusions

The definition of trauma as injury resulting from the transfer of energy was approved by the Ontario Trauma Registry Advisory Committee.

The following lists the categories used for trauma reporting purposes based on this definition. "Incident" and "unintentional" have been substituted for the terms "accidents" and "accidental" used in the ICD definitions.

A. OTR CDS ICD-10-CA Inclusions

External Cause Code Category	Definition
V01 to V99	Transport incidents
V01 to V06, V09 to V90	Land transport incidents
V91 to V94	Water transport incidents
V95 to V97	Air and space transport incidents
V98 to V99	Other and unspecified transport incidents
W00 to W19	Unintentional falls
W20 to W45, W49	Exposure to inanimate mechanical forces
W50 to W60, W64	Exposure to animate mechanical forces
W65 to W70, W73, W74	Unintentional drowning and submersion
W75 to W77, W81, W83, W84	Other unintentional threats to breathing except due to inhalation of gastric contents, food or other objects
W85 to W94, W99	Exposure to electric current, radiation and extreme ambient air temperature and pressure
X00 to X06, X08, X09	Exposure to smoke, fire and flames
X10 to X19	Contact with heat and hot substances
X30 to X39	Exposure to forces of nature
X50	Overexertion and strenuous or repetitive movements
X52	Prolonged stay in weightless environment
X58 to X59	Unintentional exposure to other and unspecified factors
X70 to X84	Intentional self-harm, excluding poisoning
X86, X91 to X99, Y00 to Y05, Y07 to Y09	Assault, excluding poisoning
Y20 to Y34	Event of undetermined intent, excluding poisonings
Y35, Y36	Legal intervention and operations of war

B. OTR CDS ICD-9 Inclusions

External Cause Code Category	Definition
E800 to E807	Railway incidents
E810 to E819	Motor vehicle traffic incidents
E820 to E825	Motor vehicle non-traffic incidents
E826	Pedal cycles
E827 to E829	Other road vehicle incidents
E830 to E838	Water transport incidents
E840 to E845	Air and space transport incidents
E846 to E848	Vehicle incidents not elsewhere classifiable
E880 to E888	Unintentional falls
E890 to E899	Incidents caused by fire and flame
E900 to E902, E906 to E909	Incidents due to natural and environmental factors
E910, E913	Incidents caused by drowning and suffocation
E914, E915	Foreign bodies (excluding choking)
E916 to E928	Other incidents
E953 to E958	Suicide and self-inflicted injury (excluding poisoning)
E960, E961, E963 to E968	Homicide and injury purposely inflicted by other persons (excluding poisoning)
E970 to E976, E978	Legal intervention
E983 to E988	Injury undetermined whether unintentionally or purposely inflicted
E990 to E998	Injury resulting from operations of war

Trauma Definition: External Cause of Injury Code Exclusions

The following lists the ICD-9 and ICD-10-CA external cause codes that are *excluded* from the Ontario Trauma Registry based on the definition of trauma.

ICD-10-CA Code Exclusions	Definition	ICD-9 Code Exclusions	Definition
W78 to W80	W78 Inhalation of gastric contents; W79 Inhalation and ingestion of food causing obstruction of respiratory tract; W80 Inhalation and ingestion of other objects causing obstruction of respiratory tract	E911, E912	Inhalation and ingestion of food and other objects causing obstruction
X20 to X29	Contact with venomous animals and plants	E905	Venomous animals and plants
X40 to X49	Unintentional poisoning and exposure to noxious substances	E850 to E858, E860 to E869	Poisonings by drugs or gases
X51	Travel and motion	E903	Travel and motion
X53, X54, X57, Y06	X53 Lack of food; X54 Lack of water; X57 Unspecified privation; Y06 Neglect and abandonment	E904	Hunger, thirst, exposure, neglect
X60 to X69	Intentional self-harm by poisoning	E950 to E952	Suicide and self-inflicted injury (poisonings)
X85, X87 to X90	Assault by poisoning	E962	Assault by poisoning
Y10 to Y19	Poisonings of undetermined intent	E980 to E982	Poisoning undetermined whether unintentionally or purposely inflicted
Y40 to Y59	Drugs, medicaments and biological substances causing adverse effects in therapeutic use	E930 to E949	Drugs, medicinal and biological substances causing adverse effects
Y60 to Y69	Misadventures to patients during surgical and medical care	E870 to E876	Misadventures
Y70 to Y82	Medical devices associated with adverse incidents in diagnostic and therapeutic use	New Category—No ICD-9 Equivalent	
Y83, Y84	Surgical and other medical procedures as the cause of abnormal reaction of the patient or of later complication, without mention of misadventure at the time of the procedures	E878, E879	Complications
Y85 to Y89	Sequelae of external causes of morbidity and mortality	E929, E959, E969, E977, E989, E999	Late effects
Y90 to Y98	Supplementary factors related to causes of morbidity and mortality classified elsewhere	New Category—No ICD-9 Equivalent	

Appendix C—Definition of Trauma

The following points are guidelines for inclusion criteria for the OTR CDS. The inclusion and exclusion criteria for the OTR CDS listed below reflect discussion by TRAC, the TRAC subcommittee and the OTR CDS Working Group.

Inclusion criteria are effective for patients admitted on and after April 1, 1995.

1. Patients included in the Comprehensive Data Set must have an ISS greater than 12 with an appropriate external cause of injury code as defined by the Minimal Data Set Trauma Patient Definition (attached). In addition to the included external cause of injury codes, patients admitted with the following external cause of injury codes may also be included in the OTR CDS (as of April 1, 1995):

   External Cause of Injury Code Exceptions

   - Inhalation injury as defined in the *AIS Dictionary* should be used as a reference when there is documentation of the carboxyhemoglobin level. Inhalation injury should not be used in drowning or hanging cases.
   - Ingestion poisoning resulting in a physical injury with an ISS greater than 12 can be included. An example is a perforated esophagus due to chemical ingestion. If the perforated esophagus was due to vomiting, the case would not be included.
   - AIS 90 injuries describing length of unconsciousness and level of consciousness (includes response to painful stimuli) found in the Head section of the *AIS Dictionary* can be used for hypoxic injury, including hanging, strangulation and near drowning. Any documented head injury (hypoxic brain injury, cerebral edema) from the post-mortem report or diagnostic tests (CT, X-ray) must be included for these cases. If there is no documented head injury, either from diagnostic tests or a post-mortem examination, level of consciousness cannot be used. As stated in the *AIS Dictionary*, length of unconsciousness should always be used in preference to level of consciousness. Length of unconsciousness is defined from the first time the patient is known to be unconscious to the time the patient wakes up or is pronounced dead.

2. Patients who are DIEs (died in emergency) are included and will be included in reports created centrally. A DIE is defined as a patient who dies in the emergency department after any active treatment or resuscitation by the trauma team or emergency department physician after the patient enters the emergency department. DIEs may include patients who arrive VSA (vital signs absent) if treatment or resuscitation is initiated. Patients who are admitted to hospital and die in the emergency department while waiting for transfer are considered an in-hospital death rather than a DIE.
3. Patients who are DOA (dead on arrival) are excluded. A DOA is defined as a patient who has not had active treatment by the trauma team or emergency department physician and is pronounced dead in the emergency department.

4. The injury must have occurred within one year of hospital admission and be the first admission to the lead trauma hospital. Patients admitted with chronic subdurals are included in the OTR CDS as a new record if the injury occurred within one year and the admission is the first to the lead trauma hospital.
5. The trauma team leader or trauma team need not be activated.
6. Patients may bypass the emergency department and be admitted directly to a service.
7. Patients with an ISS greater than 12 and an appropriate external cause of injury code who are treated in the emergency department at a lead trauma hospital and transferred to another lead trauma hospital for admission should be included in both lead trauma hospitals.
8. These cases will be reported centrally in the lead trauma hospital where the majority of the critical care is given rather than using the longest length of stay.
9. Only cases being given active care should be included. Patients who are admitted to a lead trauma hospital for convalescence or rehabilitation because the facility is closer to home should not be included.
10. If a trauma patient with an ISS less than 12 is admitted to hospital and then is further injured in hospital (ISS less than 12), the case should not be included in either instance. Injuries should not be combined. If the second incident results in an ISS greater than 12 the case should be included; however, the injuries from the first incident should not be included but should be listed as a comorbidity if they contribute to the patient's LOS. The only injuries used for scoring are the ones sustained related to the incident resulting in an ISS greater than 12.
11. A trauma patient (ISS greater than 12) admitted to a lead trauma hospital who is further injured in hospital (ISS greater than 12) should be considered two separate incidents and would require two records in the OTR CDS.

General Coding Guidelines

1. Every data element in the OTR CDS should be documented. As of April 1, 1995, blanks are not acceptable except in cases where data elements are skipped by COLLECTOR. All menus include "unknown" and "inappropriate" as a menu selection to facilitate documenting every data element.

   Unknown should be used in cases where the information is not documented. Unknown should also be used if there are two conflicting sources of information that cannot be verified or for data elements where the information is expected to be made available but has not arrived at the time the record is closed. In cases where there are conflicting sources of information, the medical director should be consulted.

   Inappropriate is used when the information would not be meaningful or appropriate for a specific case. An example is a BAC in a child younger than 10 years of age or occupation in a non-work-related injury.

2. Dates and times should be documented whenever they are known. Many calculations are done in COLLECTOR, including pre-hospital time, scene time and length of stay. It is important that all dates and times be entered sequentially for these calculations to be done. Data checks have been built in to alert the user to times that are not sequential. For example, the time the ambulance call is received and the time the ambulance is dispatched (Screen 3.3) must be sequential. If these times are documented as the same on the Ambulance Call Report, the second time should be documented as one second later. A best guess should not be used in order to maintain the integrity of the data. It is possible to enter "U" in portions of the date and time data elements in COLLECTOR when all the information is not available. A data element has been added to COLLECTOR to document the approximate date of injury (within one week, within one month, within three months, within one year) when the actual date is not available.

3. Old injuries such as healing fractures should not be included. Only injuries that are related to the cause of admission should be documented.

4. When patients are readmitted to a participating hospital with a missed injury, the missed injury should be added to the original list of injuries. If the patient is admitted for the first time to the lead trauma hospital with a missed injury, all injuries relating to the ISS greater than 12 incident should be documented.

Appendix D—External Cause of Injury Reporting Categories

External Cause Code Groups	ICD-10-CA Codes	ICD-9 Codes
Motor Vehicle Traffic—Driver	V30.5, V31.5, V32.5, V33.5, V34.5, V35.5, V36.5, V37.5, V38.5, V39.4, V40.5, V41.5, V42.5, V43.5, V44.5, V45.5, V46.5, V47.5, V48.5, V49.4, V50.5, V51.5, V52.5, V53.5, V54.5, V55.5, V56.5, V57.5, V58.5, V59.4, V60.5, V61.5, V62.5, V63.5, V64.5, V65.5, V66.5, V67.5, V68.5, V69.4, V70.5, V71.5, V72.5, V73.5, V74.5, V75.5, V76.5, V77.5, V78.5, V79.4, V83.0, V84.0, V85.0, V86.00, V86.08	E810 to E816, E818 to E819 (.0)
Motor Vehicle Traffic—Passenger	V30.6, V31.6, V32.6, V33.6, V34.6, V35.6, V36.6, V37.6, V38.6, V39.5, V40.6, V41.6, V42.6, V43.6, V44.6, V45.6, V46.6, V47.6, V48.6, V49.5, V50.6, V51.6, V52.6, V53.6, V54.6, V55.6, V56.6, V57.6, V58.6, V59.5, V60.6, V61.6, V62.6, V63.6, V64.6, V65.6, V66.6, V67.6, V68.6, V69.5, V70.6, V71.6, V72.6, V73.6, V74.6, V75.6, V76.6, V77.6, V78.6, V79.5, V83.1, V84.1, V85.1, V86.10, V86.18	E810 to E816, E818, E819 (.1)
Motor Vehicle Traffic—Motorcycle Driver	V20.4, V21.4, V22.4, V23.4, V24.4, V25.4, V26.4, V27.4, V28.4, V29.4	E810 to E816, E818, E819 (.2)
Motor Vehicle Traffic—Motorcycle Passenger	V20.5, V21.5, V22.5, V23.5, V24.5, V25.5, V26.5, V27.5, V28.5, V29.5	E810 to E816, E818, E819 (.3)
Motor Vehicle Traffic—Pedestrian	V02.1, V02.9, V03.1, V03.9, V04.1, V04.9, V09.2	E810 to E816, E818, E819 (.7)
Motor Vehicle Traffic—Pedal Cyclist	V12 (.4, .5, .9), V13 (.4, .5, .9), V14 (.4, .5, .9), V19 (.4, .5, .6)	E810 to E816, E818, E819 (.6)

External Cause Code Groups	ICD-10-CA Codes	ICD-9 Codes
Motor Vehicle Traffic—Other/Unspecified	V20.9, V21.9, V22.9, V23.9, V24.9, V25.9, V26.9, V27.9, V28.9, V29.6, V29.8, V29.9, V30.7, V30.9, V31.7, V31.9, V32.7, V32.9, V33.7, V33.9, V34.7, V34.9, V35.7, V35.9, V36.7, V36.9, V37.7, V37.9, V38.7, V38.9, V39.6, V39.8, V39.9, V40.7, V40.9, V41.7, V41.9, V42.7, V42.9, V43.7, V43.9, V44.7, V44.9, V45.7, V45.9, V46.7, V46.9, V47.7, V47.9, V48.7, V48.9, V49.6, V49.8, V49.9, V50.7, V50.9, V51.7, V51.9, V52.7, V52.9, V53.7, V53.9, V54.7, V54.9, V55.7, V55.9, V56.7, V56.9, V57.7, V57.9, V58.7, V58.9, V59.6, V59.8, V59.9, V60.7, V60.9, V61.7, V61.9, V62.7, V62.9, V63.7, V63.9, V64.7, V64.9, V65.7, V65.9, V66.7, V66.9, V67.7, V67.9, V68.7, V68.9, V69.6, V69.8, V69.9, V70.7, V70.9, V71.7, V71.9, V72.7, V72.9, V73.7, V73.9, V74.7, V74.9, V75.7, V75.9, V76.7, V76.9, V77.7, V77.9, V78.7, V78.9, V79.6, V79.8, V79.9, V82.1, V83.2, V83.3, V84.2, V84.3, V85.2, V85.3, V86 (.2, .30, .38), V87 (.0, .1, .2, .3, .4, .5, .6, .7, .8), V89.2	E810 to E816, E818, E819 (.4, .5, .8, .9)
Motor Vehicle Non-Traffic—Driver	V30.0, V31.0, V32.0, V33.0, V34.0, V35.0, V36.0, V37.0, V38.0, V39.0, V40.0, V41.0, V42.0, V43.0, V44.0, V45.0, V46.0, V47.0, V48.0, V49.0, V50.0, V51.0, V52.0, V53.0, V54.0, V55.0, V56.0, V57.0, V58.0, V59.0, V60.0, V61.0, V62.0, V63.0, V64.0, V65.0, V66.0, V67.0, V68.0, V69.0, V70.0, V71.0, V72.0, V73.0, V74.0, V75.0, V76.0, V77.0, V78.0, V79.0, V83.5, V84.5, V85.5, V86.50, V86.51, V86.58	E820 to E823, E825 (.0)
Motor Vehicle Non-Traffic—Passenger	V30.1, V31.1, V32.1, V33.1, V34.1, V35.1, V36.1, V37.1, V38.1, V39.1, V40.1, V41.1, V42.1, V43.1, V44.1, V45.1, V46.1, V47.1, V48.1, V49.1, V50.1, V51.1, V52.1, V53.1, V54.1, V55.1, V56.1, V57.1, V58.1, V59.1, V60.1, V61.1, V62.1, V63.1, V64.1, V65.1, V66.1, V67.1, V68.1, V69.1, V70.1, V71.1, V72.1, V73.1, V74.1, V75.1, V76.1, V77.1, V78.1, V79.1, V83.6, V84.6, V85.6, V86.60, V86.61, V86.68	E820 to E823, E825 (.1)
Motor Vehicle Non-Traffic—Motorcycle Driver	V20.0, V21.0, V22.0, V23.0, V24.0, V25.0, V26.0, V27.0, V28.0, V29.0	E820 to E823, E825 (.2)
Motor Vehicle Non-Traffic—Motorcycle Passenger	V20.1, V21.1, V22.1, V23.1, V24.1, V25.1, V26.1, V27.1, V28.1, V29.1	E820 to E823, E825 (.3)

External Cause Code Groups	ICD-10-CA Codes	ICD-9 Codes
Motor Vehicle Non-Traffic—Pedestrian	V02.0, V03.0, V04.0, V09.0	E820 to E823, E825 (.7)
Motor Vehicle Non-Traffic—Pedal Cyclist	V12 (.0, .1, .2), V13 (.0, .1, .2), V14 (.0, .1, .2), V19 (.0, .1, .2)	E820 to E823, E825 (.6)
Motor Vehicle Non-Traffic—Other/ Unspecified	V20.2, V21.2, V22.2, V23.2, V24.2, V25.2, V26.2, V27.2, V28.2, V29.2, V29.3, V30.2, V30.3, V31.2, V31.3, V32.2, V32.3, V33.2, V33.3, V34.2, V34.3, V35.2, V35.3, V36.2, V36.3, V37.2, V37.3, V38.2, V38.3, V39.2, V39.3, V40.2, V40.3, V41.2, V41.3, V42.2, V42.3, V43.2, V43.3, V44.2, V44.3, V45.2, V45.3, V46.2, V46.3, V47.2, V47.3, V48.2, V48.3, V49.2, V49.3, V50.2, V50.3, V51.2, V51.3, V52.2, V52.3, V53.2, V53.3, V54.2, V54.3, V55.2, V55.3, V56.2, V56.3, V57.2, V57.3, V58.2, V58.3, V59.2, V59.3, V60.2, V60.3, V61.2, V61.3, V62.2, V62.3, V63.2, V63.3, V64.2, V64.3, V65.2, V65.3, V66.2, V66.3, V67.2, V67.3, V68.2, V68.3, V69.2, V69.3, V70.2, V70.3, V71.2, V71.3, V72.2, V72.3, V73.2, V73.3, V74.2, V74.3, V75.2, V75.3, V76.2, V76.3, V77.2, V77.3, V78.2, V78.3, V79.2, V79.3, V80 (.3, .4, .5), V82.0, V83.7, V83.9, V84.7, V84.9, V85.7, V85.9, V86.7, V86.90, V86.91, V86.98, V88 (.0, .1, .2, .3, .4, .5, .6, .7, .8), V89.0	E820 to E823, E825 (.4, .5, .8, .9)
Motor Vehicle Boarding or Alighting	V20.3, V21.3, V22.3, V23.3, V24.3, V25.3, V26.3, V27.3, V28.3, V30.4, V31.4, V32.4, V33.4, V34.4, V35.4, V36.4, V37.4, V38.4, V40.4, V41.4, V42.4, V43.4, V44.4, V45.4, V46.4, V47.4, V48.4, V50.4, V51.4, V52.4, V53.4, V54.4, V55.4, V56.4, V57.4, V58.4, V60.4, V61.4, V62.4, V63.4, V64.4, V65.4, V66.4, V67.4, V68.4, V70.4, V71.4, V72.4, V73.4, V74.4, V75.4, V76.4, V77.4, V78.4, V83.4, V84.4, V85.4, V86.4	E817 (all 4th digits), E824 (all 4th digits)
Railway—Occupant	V81 (.0, .1, .2, .3, .4, .5, .6, .7, .8, .9)	E800 to E807 (.0, .1)
Railway—Pedestrian	V05 (.0, .1, .9)	E800 to E807 (.2)
Railway—Pedal Cyclist	V15 (.0, .1, .2, .3, .4, .5, .9)	E800 to E807 (.3)
Railway—Other	V80.6	E800 to E807 (.8, .9)
Other Road Vehicle—Pedestrian	V01 (.0, .1, .9), V06 (.0, .1, .9), V09.1, V09.3, V09.9	E826 to E829 (.0)
Other Road Vehicle—Pedal Cyclist	V10 (.0, .1, .2, .3, .4, .5, .9), V11 (.0, .1, .2, .3, .4, .5, .9), V12.3, V13.3, V14.3, V16 (.0, .1, .2, .3, .4, .5, .9), V17 (.0, .1, .2, .3, .4, .5, .9), V18 (.0, .1, .2, .3, .4, .5, .9), V19 (.3, .8, .9)	E826 to E829 (.1)

External Cause Code Groups	ICD-10-CA Codes	ICD-9 Codes
Other Road Vehicle—Animal Rider/Occupant of Animal-Drawn Vehicle	V80.0, V80.1, V80.2, V80.7, V80.8, V80.9	E826 to E829 (.2, .3)
Other Road Vehicle—Occupant of Streetcar	V82 (.2, .3, .4, .5, .6, .7, .8, .9)	E826 to E829 (.4)
Other Road Vehicle—Other	V87.9, V88.9, V89 (.1, .3)	E826 to E829 (.8, .9)
Water Transport—Involving Drowning/Submersion	V90 (.0, .1, .2, .3, .4, .5, .6, .7, .8, .9), V92 (.0, .1, .2, .3, .4, .5, .6, .7, .8, .9)	E830, E832 (.0, .1, .2, .3, .4, .5, .6, .8, .9)
Water Transport—Incident to/on Watercraft Not Causing Drowning and Submersion	V91 (.0, .1, .2, .3, .4, .5, .6, .7, .8, .9), V93 (.0, .1, .2, .3, .4, .5, .6, .7, .8, .9)	E831, E833, E834 to E837 (.0, .1, .2, .3, .4, .5, .6, .8, .9)
Water Transport—Other/Unspecified	V94 (.0, .1, .2, .3, .4, .5, .6, .7, .8, .9)	E838 (.0, .1, .2, .3, .4, .5, .6, .8, .9)
Air and Space Transport	V95 (.0, .1, .2, .3, .4, .8, .9), V96 (.0, .1, .2, .8, .9), V97 (.0, .1, .2, .3, .8)	E840 to E845 (.0, .1, .2, .3, .4, .5, .6, .7, .8, .9)
Vehicle Incidents Not Elsewhere Classified	V89.9, V98, V99	E846 to E848
Unintentional Falls—Slipping, Tripping and Stumbling	W01	E885
Unintentional Falls—Collision With/Pushed by Another Person	W03	E886
Unintentional Falls—Fall on/From Stairs and Steps	W10	E880
Unintentional Falls—Fall on/From Ladder or Scaffolding	W11, W12	E881
Unintentional Falls—Fall From, out of or Through Building or Structure	W13	E882
Unintentional Falls—Other Fall From One Level to Another	W06 to W09, W14 to W17	E883, E884
Unintentional Falls—Other/Unspecified Fall	W00, W02, W04, W05, W18, W19	E888
Fire and Flames	X00 to X06, X08, X09	E890 to E899
Drowning	W65 to W70, W73, W74	E910
Operations of War	Y36	E990 to E998
Legal Intervention	Y35	E970 to E976, E978

External Cause Code Groups	ICD-10-CA Codes	ICD-9 Codes
Attempted Suicide and Self-Inflicted Injury (Excluding Poisoning)	X70 to X84	E953 to E958
Undetermined Whether Unintentionally or Purposely Inflicted (Excluding Poisonings)	Y20 to Y34	E983 to E988
Assault and Injury Purposely Inflicted (Excluding Poisonings)	X86, X91 to X99, Y00 to Y05, Y07 to Y09	E960, E961, E963 to E968
Suffocation	W75 to W77, W81, W83, W84	E913
Foreign Bodies (Excluding Choking)	W44, W45	E914, E915
Cutting and Piercing	W25 to W29, W60	E920
Unintentional Firearm Injuries	W32 to W34	E922
Machinery-Related Injuries	W24, W30, W31	E919
Overexertion and Strenuous/Repetitive Movements	X50	E927
Struck by or Against Objects and Persons	W20 to W22, W50 to W52	E916, E917
Explosive Material	W39, W40	E923
Hot Substances	X10 to X19	E924
Electric Current	W85 to W87	E925
Caught, Crushed, Jammed or Pinched in or Between Objects	W23	E918
Explosion of Pressure Vessel	W35 to W38	E921
Exposure to Radiation	W88 to W91, X32	E926
Other/Unspecified	W41 to W43, W49, X58, X59	E887, E928
Natural and Environmental Factors	W53 to W59, W64, W92 to W94, W99, X30, X31, X33 to X39, X52	E900 to E902, E906 to E909

Appendix E—Nature of Injury Reporting Categories

Description	ICD-10 Code Range	ICD-9 Code Range
Superficial	S00, S05.0, S05.1, S05.8, S05.9, S10, S20, S30, S40, S50, S60, S70, S80, S90, T00, T09.0, T11.0, T13.0, T14.0	910 to 924
Musculoskeletal	S02, S12, S22, S32, S42, S52, S62, S72, S82, S92, T02, T08, T10, T12, T14.2, S03, S13, S23, S33, S43, S53, S63, S73, S83, S93, T03, T11.2, T13.2, T14.3, S09.10, S09.18, S16, S29.00, S29.08, S39.00, S39.08, S46, S56, S66, S76, S86, S96, T06.4, T09.5, T11.5, T13.5, T14.6	800 to 848
Burns and Corrosion	T20 to T32	940 to 949
Internal Organ	S06, S09.7, S09.8, S09.9, S26, S27, S36, S37, S39.6, T06.5	850 to 854, 860 to 869
Crushing	S07, S17, S28.0, S38.0, S38.1, S47, S57, S67, S77, S87, S97, T04	925 to 929
Open Wound, Including Traumatic Amputation	S01, S05.2 to S05.7, S09.2, S11, S21, S31, S41, S51, S61, S71, S81, S91, T01, T09.1, T11.1, T13.1, T14.1, S08, S18, S28.1, S38.2, S38.3, S48, S58, S68, S78, S88, S98, T05, T11.6, T13.6, T14.7	870 to 887, 890 to 897
Blood Vessels	S09.0, S15, S25, S35, S45, S55, S65, S75, S85, S95, T06.3, T11.4, T13.4, T14.5	900 to 904
Nerves and Spinal Cord	S04, S14, S24, S34, S44, S54, S64, S74, S84, S94, T06.0, T06.1, T06.2, T11.3, T13.3, T14.4	950 to 957
Other and Unspecified	S19, S29.7, S29.8, S29.9, S39.7, S39.8, S39.9, S49, S59, S69, S79, S89, S99, T06.8, T07, T09.8, T09.9, T11.8, T11.9, T13.8, T13.9, T14.8, T14.9, T15, T16, T18, T19, T33, T34, T35, T66, T67, T68, T69, T70, T71, T73 (Excludes T73.0, T73.1), T75 (Excludes T75.3)	930 to 939, 959, 990 to 994 (excludes 933.1, 994.2, 994.3, 994.6)

Appendix F—Comprehensive Data Set Data Elements

"Restricted" in the Comments column means that the specific data element is unavailable to researchers.

Data Element—Group/Single	Data Element—Single	Comments
Accident Number		
ACS Filters		
Address (Legal Next of Kin)	Street Address City Province Country Postal Code Postal Code (Other Country)	**Restricted**
Address (Patient)	Street Address City Province Country Postal Code Postal Code (Other Country)	**Restricted**
Admission Date		
Admitting Service		
Age		
Age Units		
AIS Code		
AIS Version		
ALC Days: Number of, Reasons for, Form Completed, Date Ready		
BAC (mmol/L)	Primary Hospital Secondary Hospital Lead Trauma Hospital	
Campus Number		
Cause of Injury: Specify		
Chart Number		**Restricted**
Collision Detail Comorbidities	Primary Impact Secondary Impact	
Complications		
Coroner Notified?		
CT Scan Location	Primary Hospital Secondary Hospital Lead Trauma Hospital	

Data Element—Group/Single	Data Element—Single	Comments
Date of Arrival	Primary Hospital Secondary Hospital Lead Trauma Hospital Lead Trauma Hospital ED	
Date of Birth		
Date of Departure	Primary Hospital Secondary Hospital Lead Trauma Hospital ED	
Dates: Scene	Date Call Received Date Dispatched Date Arrived at Scene Date Arrived at Patient Date Departed From Scene	
Direct Admission to Service (Bypass ED)		
Disposition		
Disposition: Other		
Distance Ejected (in Metres)		
External Cause of Injury Codes (ICD-9-CM)	Primary, Secondary, Tertiary, Sports/Recreational	
External Cause Codes (ICD-10-CA)		
ED Physician (Lead Trauma Hospital)		**Restricted**
Ejected From Vehicle		
Extrication Required?		
Extrication Time		
Follow-Up: Admissions Related to Injury in Six Months Post-Discharge?		
Follow-Up: Contact		
Follow-Up: Date		
Follow-Up: Hospital Admitted To		
Follow-Up: Level of Employment		
Follow-Up: Level of Study		
Follow-Up: Percent of Previous Income		
Follow-Up: Therapy Received After Discharge?		
Follow-Up: Therapy Type (Other)		
Follow-Up: Therapy Type		
Geocode of Incident Location		

Data Element—Group/Single	Data Element—Single	Comments
Glasgow Coma Scale	**Scene, Primary Hospital, Secondary Hospital, Lead Trauma Hospital** Eye Opening Motor Response Verbal Response Total GCS	
Health Number (Ontario)		**Restricted**
Health Number (Other Than Ontario)		**Restricted**
Heart Rate	Scene Primary Hospital Secondary Hospital Lead Trauma Hospital	
Height (Not Collected as of April 1, 1995)		
Home With Support Services		
Home With Support Services: Other		
ICD-9-CM Injury Codes		
ICD-10-CA Injury Codes		
ICP Days	Primary Hospital Secondary Hospital Lead Trauma Hospital	
Impact Location	Primary Impact Secondary Impact	
Impact Type		
Incident Date		
Incident Location (If out of Province): Other		
Incident Location (If out of Province)		
Incident Time		
Injury Text		**Restricted**
Injury Type (Primary)		
Institution Discharged to Outside of Ontario		**Restricted**
Institution Discharged to Outside of Canada		**Restricted**
Institution Discharged to Inside of Ontario		**Restricted**
Institution Transferred To	Primary Hospital Secondary Hospital Second Secondary Hospital Lead Trauma Hospital	**Restricted** **Restricted** **Restricted** **Restricted**

Data Element—Group/Single	Data Element—Single	Comments
Intentional Injury		
Intubated (Was the Patient)?	Scene Primary Hospital Secondary Hospital Lead Trauma Hospital	
Is This a Readmission?		
ISS		
IV Lines	Primary Hospital Secondary Hospital Lead Trauma Hospital	
Language Spoken	Patient, Legal Next of Kin	
Legal Next of Kin: Relationship to Patient		
Length of Stay	Special Care Units Lead Trauma Hospital	
MAIS		
Memo Fields	Demographic Follow-Up Injury Lead Trauma Hospital Lead Trauma Hospital Care Nursing Outcome Primary Hospital Quality Assurance Readmission Scene Secondary Hospital System	**Restricted** **Restricted** **Restricted** **Restricted** **Restricted** **Restricted** **Restricted** **Restricted** **Restricted** **Restricted** **Restricted** **Restricted** **Restricted**
Modes of Transport	**Scene, From Primary Hospital, From Secondary Hospital** First Provider Second Provider Third Provider	
Name: Legal Next of Kin (Middle Name Not Collected as of April 1, 1995)	Surname, First Name, Middle Name	**Restricted**
Name: Patient	Surname, First Name, Middle Name	**Restricted**
Non-Operative Procedures	Scene Primary Hospital Secondary Hospital Lead Trauma Hospital	
Occupation		
Occupation (Other)		

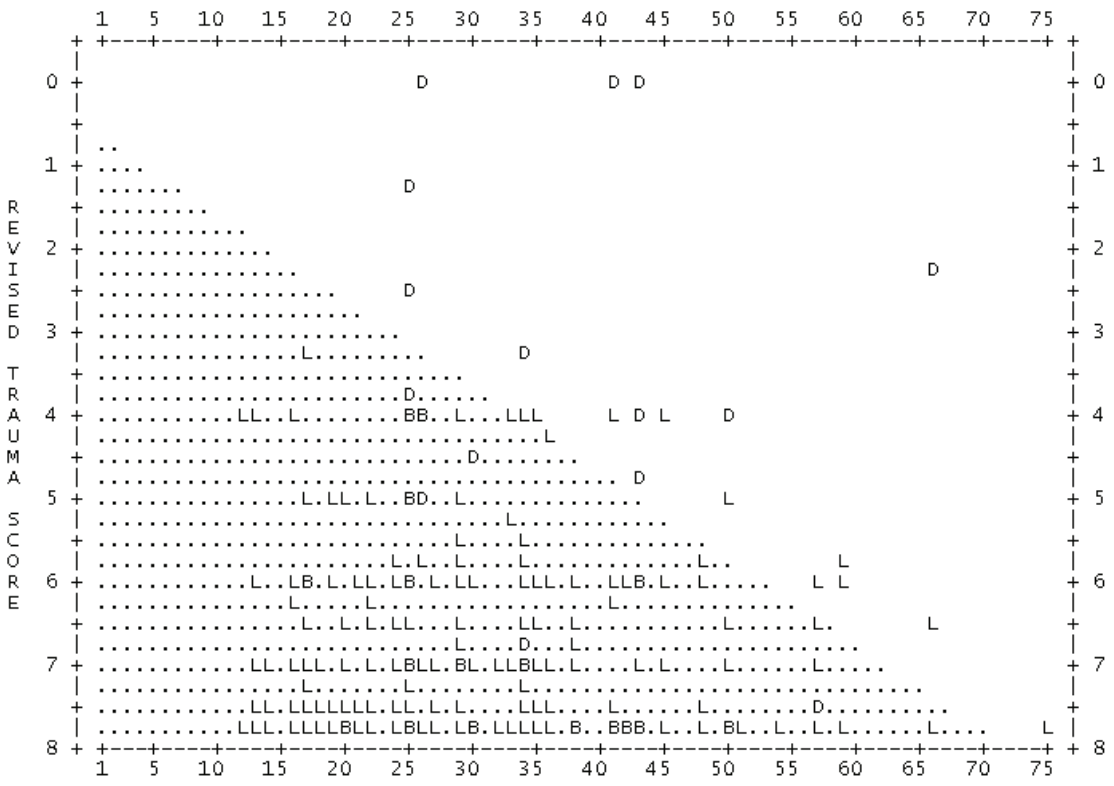
Data Element—Group/Single	Data Element—Single	Comments
OR Visits: Dates	Primary Hospital (5 Visits) Secondary Hospital (5 Visits) Lead Trauma Hospital (10 Visits)	
OR Visits: Elapsed Times	Primary Hospital (5 Visits) Secondary Hospital (5 Visits) Lead Trauma Hospital (10 Visits)	
OR Visits: Finish Time	Primary Hospital (5 Visits) Secondary Hospital (5 Visits) Lead Trauma Hospital (10 Visits)	
OR Visits: Number Of	Primary Hospital Secondary Hospital Lead Trauma Hospital	
OR Visits: Procedures	Primary Hospital (5 Visits) Secondary Hospital (5 Visits) Lead Trauma Hospital (10 Visits)	
OR Visits: Services Performing Operation Procedures	Primary Hospital (5 Visits) Secondary Hospital (5 Visits) Lead Trauma Hospital (10 Visits)	
OR Visits: Start Time	Primary Hospital (5 Visits) Secondary Hospital (5 Visits) Lead Trauma Hospital (10 Visits)	
Organ Donation: Was Family Approached?		
Organs Donated: List Of		
Organs Donated: Were Organs Donated?		
Overflow		
Paralytic Agents in Effect	Scene Primary Hospital Secondary Hospital Lead Trauma Hospital	
Pediatric Trauma Score	Scene Primary Hospital Secondary Hospital Lead Trauma Hospital	
Place of Death		
Place of Injury	Primary, Secondary, Tertiary	
Place of Injury: Specify		
Police Force		**Restricted**
Police Force Division		**Restricted**
Position in Vehicle		
Post-ED Destination		
Post-Mortem Examination Done?		

Data Element—Group/Single	Data Element—Single	Comments
Post-Mortem Report Received?		
Post-OR Destination		
Post-OR Destination: SCU		
Predot Code		
Pre-Hospital Number	**First, Second and Third Provider** From Scene From Primary Hospital From Secondary Hospital	
Pre-Hospital Time: Total		
Protective Devices		
Protective Devices (Other)		
Qualified Personnel (Number of)	**First, Second and Third Provider** From Scene From Primary Hospital From Secondary Hospital	
RANCHOS at Discharge		
Readmission	Number of Readmissions	
Referring Physician	Primary Hospital Secondary Hospital	**Restricted**
Residence Code		
Residence: Province Of		
Respiration Rate (Unassisted)	Scene Primary Hospital Secondary Hospital Lead Trauma Hospital	
Revised Trauma Score: Total	Scene Primary Hospital Secondary Hospital Lead Trauma Hospital	
Runsheet Available	**First, Second and Third Provider** From Scene From Primary Hospital From Secondary Hospital	
Scene Time: Total		
Separation	Date, Time, Status	
Service Transfers	**Type of Service, Date Admitted, Date Discharged, Length of Stay** Up to Six Service Transfers	
Sex		

Data Element—Group/Single	Data Element—Single	Comments
Special Care Units	**Type of Special Care Unit, Date Admitted, Date Discharged, Length of Stay** Up to Five SCUs	
Systolic Blood Pressure	Scene Primary Hospital Secondary Hospital Lead Trauma Hospital	
Telephone Number (Patient)		**Restricted**
Temperature	Primary Hospital Secondary Hospital Lead Trauma Hospital	
Time of Arrival	Primary Hospital Secondary Hospital Lead Trauma Hospital Lead Trauma Hospital ED	
Time of Departure	Primary Hospital Secondary Hospital Lead Trauma Hospital ED	
Times: Scene	Time Call Received Time Call Dispatched Time Arrived at Scene Time Arrived at Patient Time Departed From Scene	
Transport Mode to Discharge Care Facility (Not Collected as of April 1, 1995)		
Trauma Number		
Trauma Team Activated		
Trauma Team Leader		**Restricted**
TRISS		
Vehicle Type		
Vehicle Type: Other		
Ventilator Days	Primary Hospital Secondary Hospital Lead Trauma Hospital	
Weight		
Work-Related?		

Appendix G—PRE Analysis

PRECHART Adult Blunt (15 to 54) 2007–2008 Data

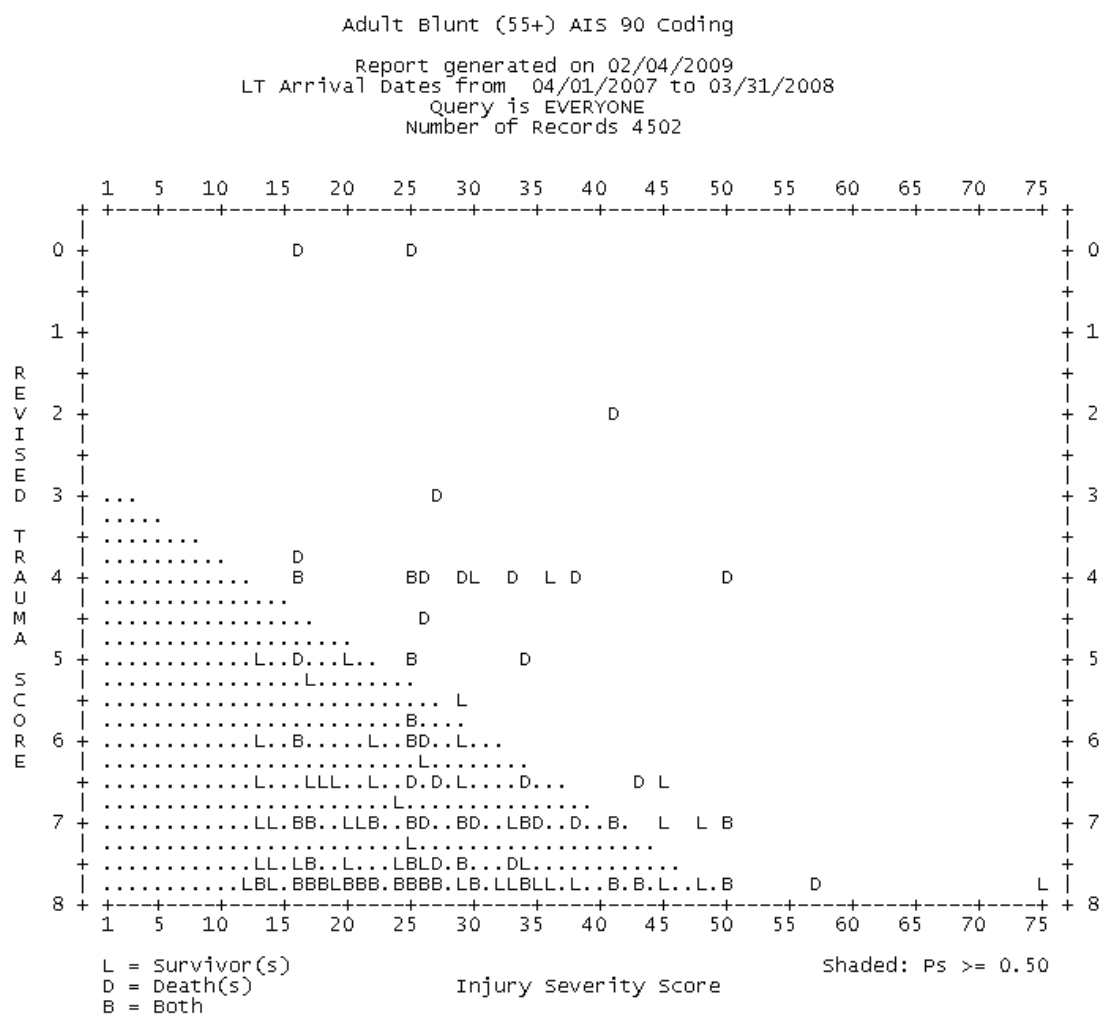


Number of unexpected deaths: 28

Number of unexpected survivors: 10

Note
PRE analyses were conducted on cases in 2007–2008 based on fiscal year of admission and not on fiscal year of discharge.

PRECHART Adult Blunt (15+) 2007-2008 Data



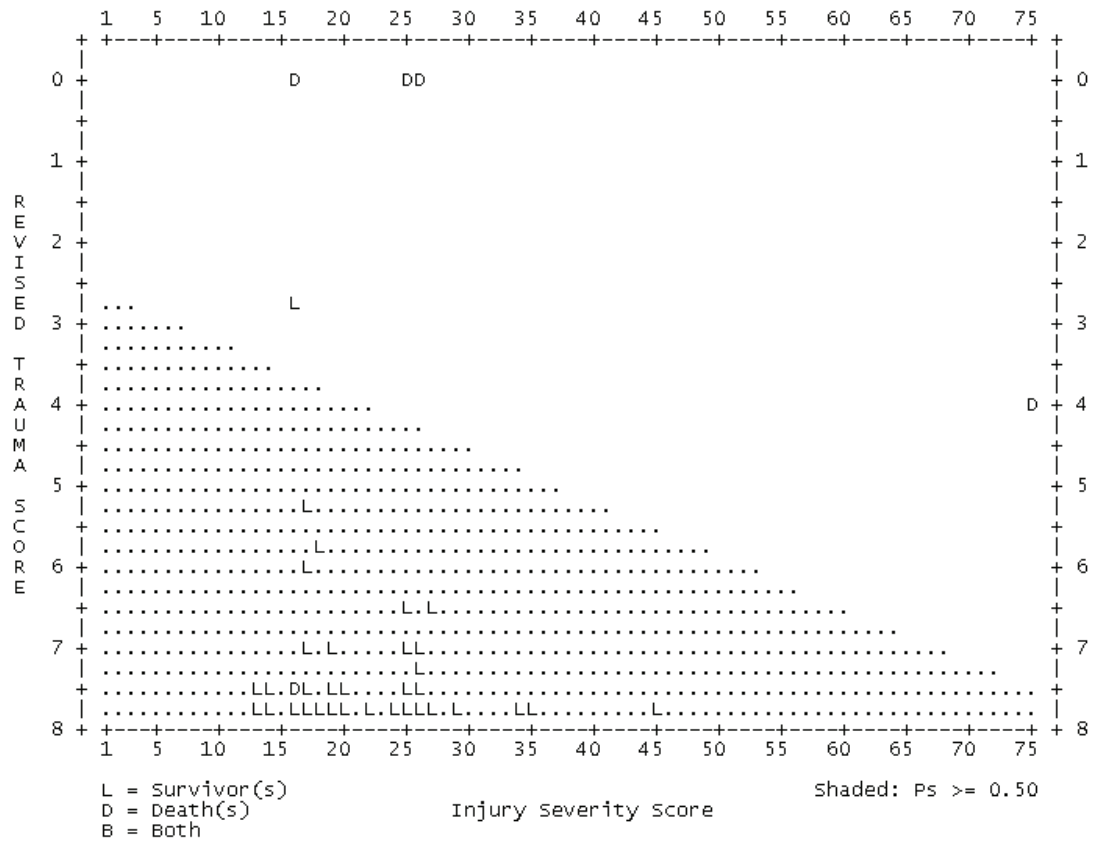
Number of unexpected deaths: 120

Number of unexpected survivors: 19

Note

PRE analyses were conducted on cases in 2007–2008 based on fiscal year of admission and not on fiscal year of discharge.

PRECHART Adult Penetrating (15 to 54) 2007-2008 Data



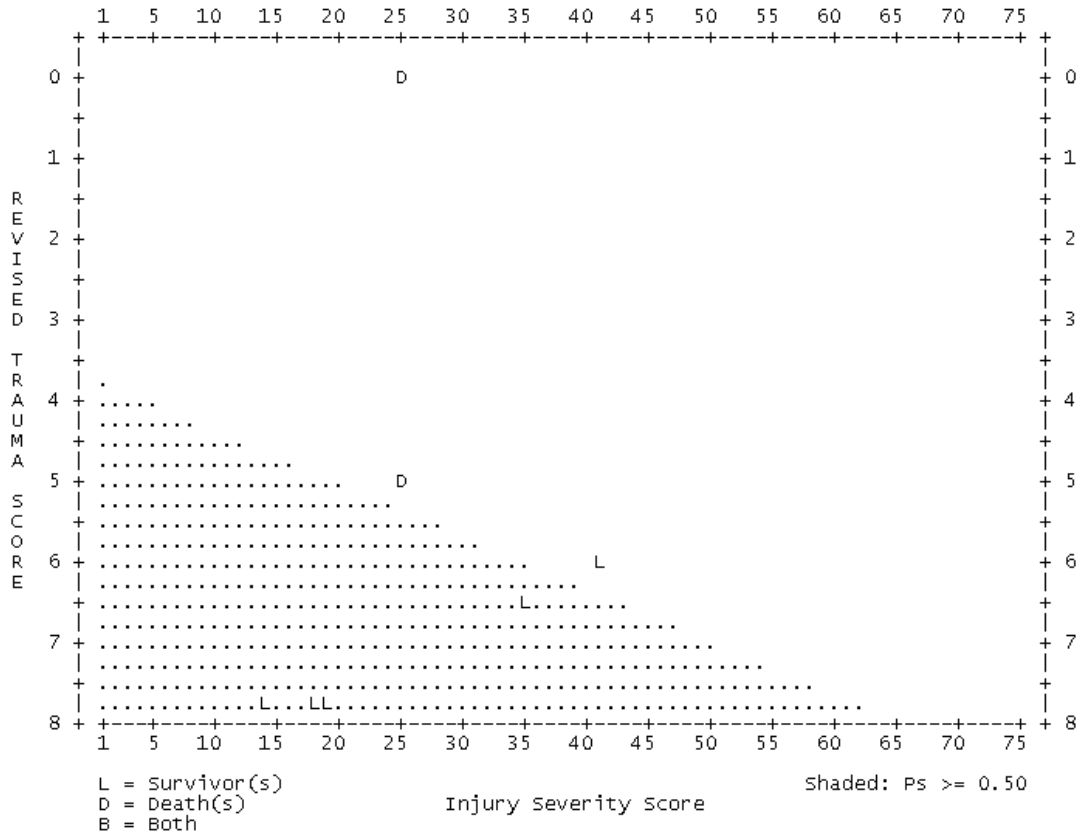
Number of unexpected deaths: 1

Number of unexpected survivors: 1

Note

PRE analyses were conducted on cases in 2007–2008 based on fiscal year of admission and not on fiscal year of discharge.

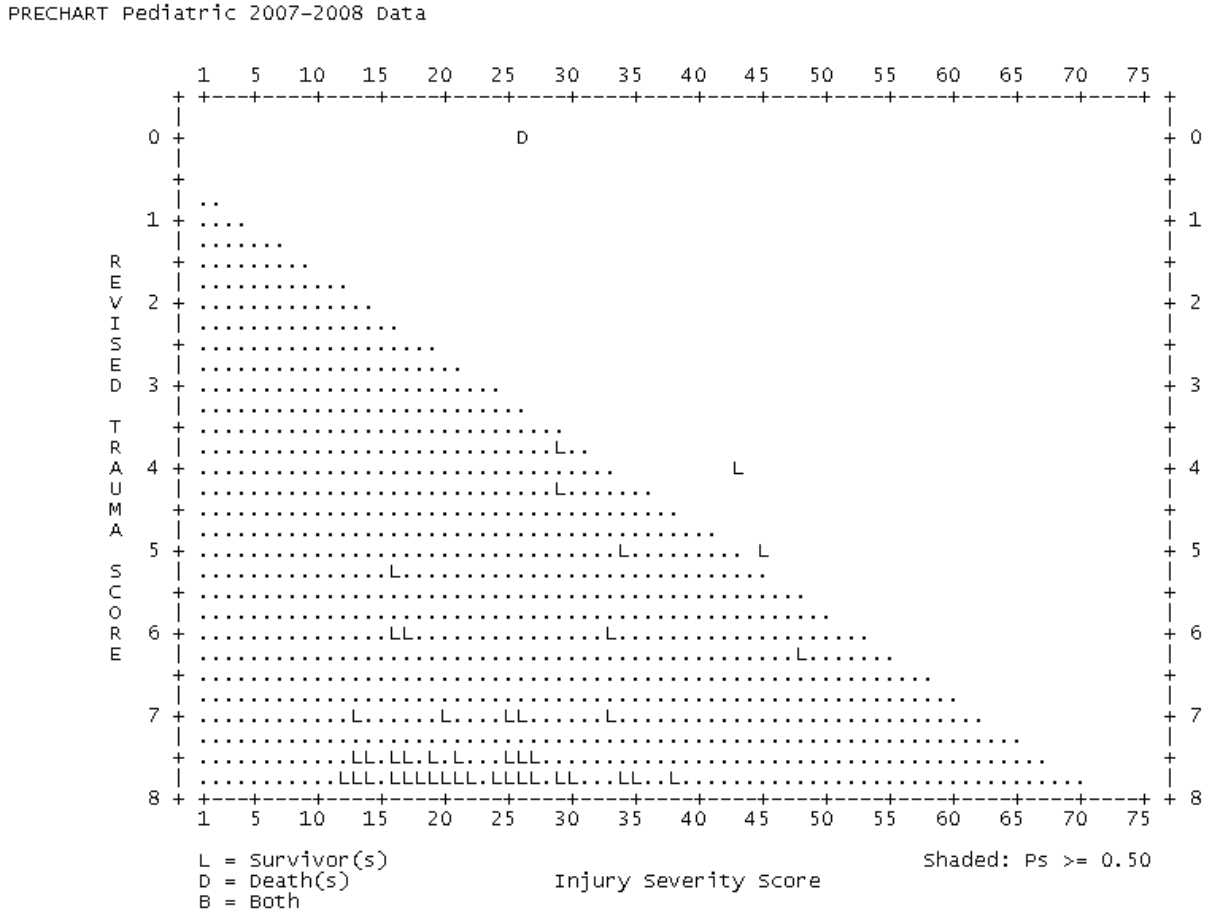
PRECHART Adult Penetrating (55+) 2007-2008 Data



Number of unexpected deaths: 0

Number of unexpected survivors: 1

Note
PRE analyses were conducted on cases in 2007–2008 based on fiscal year of admission and not on fiscal year of discharge.



Number of unexpected deaths: 0

Number of unexpected survivors: 2

Note

PRE analyses were conducted on cases in 2007–2008 based on fiscal year of admission and not on fiscal year of discharge.

Appendix H—2007–2008 Data Tables

Table of Contents

Table 1 Trend Analysis Report, 2003–2004 to 2007–2008

		2003–2004		2004–2005		2005–2006		2006–2007		2007–2008	
		No.	%	No.	%	No.	%	No.	%	No.	%
Number of Cases		3,784	–	3,986	–	4,151	–	4,354	–	4,354	–
In-Hospital Deaths		450	11.9	426	10.7	454	10.9	461	10.6	440	10.1
Died in Emergency Room		112	3.0	120	3.0	119	2.9	91	2.1	99	2.3
Direct Admissions		1,957	51.7	2,038	51.1	2,116	51.0	2,292	52.6	2,275	52.3
Males		2,735	72.3	2,818	70.7	2,965	71.4	3,123	71.7	3,054	70.1
Age Groups	**<20 Years**	687	18.2	678	17.0	742	17.9	736	16.9	679	15.6
	20–34 Years	801	21.2	845	21.2	825	19.9	920	21.1	905	20.8
	35–64 Years	1,360	35.9	1,436	36.0	1,565	37.7	1,605	36.9	1,553	35.7
	65+ Years	931	24.6	1,025	25.7	1,019	24.5	1,091	25.1	1,216	27.9
	Unknown Age	5	0.1	2	0.1	–	–	2	0.0	1	0.0
Type of Injury	**Blunt**	3,506	92.7	3,714	93.2	3,795	91.4	4,033	92.6	4,039	92.8
	Penetrating	196	5.2	203	5.1	251	6.0	242	5.6	251	5.8
	Burns	82	2.2	69	1.7	105	2.5	79	1.8	64	1.5
External Cause of Injury	**MVC**	1,754	46.4	1,762	44.2	1,873	45.1	1,898	43.6	1,849	42.5
	Falls	1,225	32.4	1,357	34.0	1,314	31.7	1,469	33.7	1,493	34.3
	Intentional	388	10.3	421	10.6	468	11.3	470	10.8	500	11.5
	All Other	417	11.0	446	11.2	496	11.9	517	11.9	512	11.8

Table 1 Trend Analysis Report, 2003–2004 to 2007–2008 (cont'd)

		2003–2004		2004–2005		2005–2006		2006–2007		2007–2008	
		No.	%	No.	%	No.	%	No.	%	No.	%
Discharge Disposition	**Deaths***	562	14.9	546	13.7	574	13.8	555	12.7	540	12.4
	Home	1,543	40.8	1,565	39.3	1,661	40.0	1,712	39.3	1,841	42.3
	Home With Support Services	448	11.8	482	12.1	470	11.3	471	10.8	389	8.9
	Other Acute Care Facility	495	13.1	599	15.0	596	14.4	670	15.4	681	15.6
	General Rehab	325	8.6	349	8.8	312	7.5	353	8.1	360	8.3
	Chronic Care	26	0.7	36	0.9	44	1.1	53	1.2	40	0.9
	Nursing Home	58	1.5	65	1.6	95	2.3	85	2.0	64	1.5
	Special Rehab	236	6.2	231	5.8	254	6.1	329	7.6	296	6.8
	Foster Care	14	0.4	16	0.4	18	0.4	14	0.3	9	0.2
	Other	75	2.0	97	2.4	127	3.1	111	2.5	129	3.0
	Unknown	2	0.1	–	–	–	–	1	0.0	5	0.1
Injury Severity Score	**Mean**	25	–	24	–	25	–	24	–	24	–
	Standard Deviation	10	–	10	–	10	–	10	–	10	–
	Median	24	–	22	–	22	–	22	–	23	–
Age (Years)	**Mean**	44	–	45	–	45	–	45	–	47	–
	Standard Deviation	24	–	24	–	24	–	24	–	24	–
	Median	43	–	43	–	44	–	44	–	46	–
Length of Stay (Days)	**Mean**	15	–	15	–	15	–	15	–	15	–
	Standard Deviation	26	–	23	–	21	–	22	–	22	–
	Median	8	–	8	–	8	–	8	–	8	–

Notes

Intentional injury includes:

– Suicide excluding poisoning (ICD-10-CA: X70–X84)

– Injury purposely inflicted by other person (ICD10-CA: X86, X91–X99, Y00–Y05, Y07–Y09)

* Number of deaths is greater than the total of in-hospital deaths and DIEs due to coding discrepancy.

Table 2 Patient Days, Mean and Median Length of Stay by Sex and Age, 2007–2008 Cases

			<1	1–4	5–9	10–14	15–19	20–24	25–34	35–44	45–54	55–64	65–74	75–84	85+	Un-known	Total
Number of Cases	Females	Count	12	21	22	33	111	89	116	121	157	127	159	217	115	N/A	1,300
		Percent	0.9	1.6	1.7	2.5	8.5	6.8	8.9	9.3	12.1	9.8	12.2	16.7	8.8	N/A	100
	Males	Count	26	39	38	85	292	318	382	403	430	315	303	314	108	1	3,054
		Percent	0.9	1.3	1.2	2.8	9.6	10.4	12.5	13.2	14.1	10.3	9.9	10.3	3.5	0.0	100
	Total	Count	38	60	60	118	403	407	498	524	587	442	462	531	223	1	4,354
		Percent	0.9	1.4	1.4	2.7	9.3	9.3	11.4	12.0	13.5	10.2	10.6	12.2	5.1	0.0	100
Length of Hospital Stay	Females	Number of Days	45	158	164	407	1,269	1,094	1,613	2,151	2,611	1,758	2,282	3,313	1,766	N/A	18,631
		Percent*	0.2	0.8	0.9	2.2	6.8	5.9	8.7	11.5	14.0	9.4	12.2	17.8	9.5	N/A	100
		Mean	3.8	7.9	8.2	12.3	12.0	13.3	14.8	18.9	16.8	14.0	14.6	15.5	16.1	N/A	15
		SD	3.9	13.3	16.6	17.6	15.7	15.0	18.7	27.1	24.3	17.2	17.7	19.0	17.7	N/A	20
		Median	2.0	3.5	4.5	6.0	7.0	7.0	9.0	10.0	8.0	8.0	9.0	9.0	10.0	N/A	8
	Males	Number of Days	115	454	319	610	3,201	4,719	4,487	5,784	6,286	4,893	4,840	6,087	2,142	N/A	43,937
		Percent*	0.3	1.0	0.7	1.4	7.3	10.7	10.2	13.2	14.3	11.1	11.0	13.9	4.9	N/A	100
		Mean	4.6	13.4	8.9	7.6	11.5	15.4	12.4	15.1	15.1	15.8	16.3	20.1	20.0	N/A	15
		SD	6.4	20.1	12.3	8.0	17.3	27.9	15.7	23.8	19.4	20.0	22.3	36.4	29.4	N/A	23
		Median	2.0	6.0	4.0	5.0	6.0	8.0	7.0	9.0	9.0	9.0	9.0	9.0	10.0	N/A	8
	Total	Number of Days	160	612	483	1,017	4,470	5,813	6,100	7,935	8,897	6,651	7,122	9,400	3,908	N/A	62,568
		Percent*	0.3	1.0	0.8	1.6	7.1	9.3	9.7	12.7	14.2	10.6	11.4	15.0	6.2	N/A	100
		Mean	4.3	11.3	8.6	9.0	11.6	15.0	12.9	15.9	15.6	15.3	15.7	18.2	18.0	N/A	15
		SD	5.7	17.9	13.9	11.8	16.9	25.7	16.5	24.6	20.9	19.2	20.8	30.5	24.2	N/A	22
		Median	2.0	5.0	4.0	5.0	6.0	8.0	8.0	9.0	9.0	8.0	9.0	9.0	10.0	N/A	8

Note

* Percentage calculated within sex.

Table 3 Patient Days, Mean and Median Length of Stay by Sex and Age for In-Hospital Deaths, 2007–2008 Cases

			<1	1–4	5–9	10–14	15–19	20–24	25–34	35–44	45–54	55–64	65–74	75–84	85+	Total
Number of Cases	Females	Count	1	3	1	2	11	6	12	7	10	7	26	39	28	153
		Percent	0.7	2.0	0.7	1.3	7.2	3.9	7.8	4.6	6.5	4.6	17.0	25.5	18.3	100
	Males	Count	2	4	0	4	22	24	25	16	40	26	40	61	23	287
		Percent	0.7	1.4	0	1.4	7.7	8.4	8.7	5.6	13.9	9.1	13.9	21.3	8.0	100
	Total	Count	3	7	1	6	33	30	37	23	50	33	66	100	51	440
		Percent	0.7	1.6	0.2	1.4	7.5	6.8	8.4	5.2	11.4	7.5	15.0	22.7	11.6	100
Length of Hospital Stay	Females	Number of Days	15	3	1	2	43	17	139	40	121	63	244	490	250	1,428
		Percent*	1.1	0.2	0.1	0.1	3.0	1.2	9.7	2.8	8.5	4.4	17.1	34.3	17.5	100
		Mean	15.0	1.0	1.0	1.0	3.9	2.8	11.6	5.7	12.1	9.0	9.4	12.6	8.9	9
		SD	0	0.0	0	0.0	7.8	2.8	36.0	6.5	23.0	15.2	21.0	21.8	14.5	19
		Median	15.0	1.0	1.0	1.0	1.0	1.5	1.0	3.0	1.5	2.0	1.5	2.0	3.5	2
	Males	Number of Days	2	31	0	24	71	159	198	50	235	413	511	1,194	446	3,334
		Percent*	0.1	0.9	0	0.7	2.1	4.8	5.9	1.5	7.0	12.4	15.3	35.8	13.4	100
		Mean	1.0	7.8	0	6.0	3.2	6.6	7.9	3.1	5.9	15.9	12.8	19.6	19.4	12
		SD	0.0	11.0	0	9.3	6.6	23.6	13.5	3.4	9.0	28.8	21.4	41.4	28.6	26
		Median	1.0	3.0	0	1.5	1.0	1.0	2.0	1.0	2.0	6.0	6.0	7.0	9.0	3
	Total	Number of Days	17	34	1	26	114	176	337	90	356	476	755	1,684	696	4,762
		Percent*	0.4	0.7	0.0	0.5	2.4	3.7	7.1	1.9	7.5	10.0	15.9	35.4	14.6	100
		Mean	5.7	4.9	1.0	4.3	3.5	5.9	9.1	3.9	7.1	14.4	11.4	16.8	13.6	11
		SD	8.1	8.6	0	7.7	6.9	21.1	22.8	4.6	12.9	26.5	21.1	35.1	22.4	24
		Median	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	5.0	4.0	5.0	5.0	2

Notes

Cases with no LOS recorded are excluded from LOS calculations.

* Percentage calculated within sex.

Table 4 Denominators by Institution Code, 2007–2008

	Institution Code														
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Total
Number of Cases	142	634	424	52	55	574	226	145	72	229	972	199	578	52	4,354
Number of Cases Discharged Alive	117	553	370	46	50	503	198	133	68	200	837	177	514	48	3,814
Number of Deaths*	25	81	54	6	5	71	28	12	4	29	135	22	64	4	540
Number Who Died in Emergency Room	2	17	8	0	1	12	3	3	0	6	35	4	7	1	99
Number of Pediatric Cases (<18 Years of Age)	11	13	0	1	55	29	16	144	72	12	43	14	15	52	477
Number of Cases (>10 Years of Age)**	139	633	424	52	28	574	222	76	41	224	972	195	577	23	4,180
Number of Cases<20 (Years of Age)	18	51	34	1	55	57	28	145	72	19	88	23	36	52	679
Number of Cases 20–64 (Years of Age)	80	393	301	25	0	346	129	0	0	116	667	97	304	0	2,458
Number of Cases >64 (Years of Age)	44	189	89	26	0	171	69	0	0	94	217	79	238	0	1,216

Notes

This table provides denominators to allow calculation of percentages.

* The total number of deaths reported include in-hospital deaths and DIEs. Deaths occurring at the scene are excluded.

** Number of cases for pediatric >10 years of age can be used for BAC calculation.

Table 5 Demographics by Institution Code, 2007–2008 Cases

		Institution Code														
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	Total
Total Number of Cases	**Number**	142	634	424	52	55	574	226	145	72	229	972	199	578	52	4,354
	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Direct Admissions	**Number**	91	301	208	38	25	290	112	39	19	182	477	125	343	25	2,275
	Percent	64.1	47.5	49.1	73.1	45.5	50.5	49.6	26.9	26.4	79.5	49.1	62.8	59.3	48.1	52.3
Readmissions	**Number**	0	0	0	0	0	1	0	0	1	0	67	1	0	0	70
	Percent	0	0	0	0	0	0.2	0	0	1.4	0	6.9	0.5	0	0	1.6
< 20 Years of Age	**Number**	18	51	34	1	55	57	28	145	72	19	88	23	36	52	679
	Percent	12.7	8.0	8.0	1.9	100.0	9.9	12.4	100.0	100.0	8.3	9.1	11.6	6.2	100.0	15.6
≥ 65 Years of Age	**Number**	44	189	89	26	0	171	69	0	0	94	217	79	238	0	1,216
	Percent	31.0	29.8	21.0	50.0	0	29.8	30.5	0	0	41.0	22.3	39.7	41.2	0	27.9
Out-of-Province Residents	**Number**	11	11	12	5	11	5	9	6	1	1	14	5	47	1	139
	Percent	7.7	1.7	2.8	9.6	20.0	0.9	4.0	4.1	1.4	0.4	1.4	2.5	8.1	1.9	3.2
Positive BAC (≥ 17.4 mmol/L)	**Number**	21	96	65	2	0	87	28	0	3	39	99	23	62	1	526
	Percent	14.8	15.1	15.3	3.8	0	15.2	12.4	0	4.2	17.0	10.2	11.6	10.7	1.9	12.1
Age (Years)	**Mean**	49.4	49.6	46.3	63.7	9.4	49.0	48.2	9.1	10.2	55.4	45.5	52.5	55.1	8.6	46.5
	Standard Deviation	23.2	21.9	20.3	20.8	5.7	22.1	23.5	5.6	6.0	23.4	21.0	23.2	23.3	5.4	24.0
	Median	48.0	47.0	45.0	66.0	11.0	49.0	48.0	11.0	11.5	57.0	43.0	56.0	54.5	9.0	46.0

Table 6 Injury Severity Score and Glasgow Coma Score by Institution Code, 2006–2007 Cases

		Institution Code														
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	Total
ISS—All Cases	**Mean**	23.1	24.5	25.0	19.4	22.9	24.2	24.0	21.2	22.9	21.1	26.6	21.3	23.2	20.9	24.2
	SD	8.9	9.3	9.9	4.6	8.8	9.3	10.2	7.1	8.1	8.1	10.9	6.4	8.5	7.5	9.5
	Median	22.0	25.0	22.0	18.0	21.0	24.0	21.0	18.0	22.0	18.0	25.0	20.0	22.0	16.0	23.0
ISS—Survivors	**Mean**	22.5	23.5	24.1	19.3	22.1	23.4	22.9	20.4	22.3	19.8	25.1	20.9	22.6	20.2	23.2
	SD	9.4	8.7	9.5	4.3	8.5	8.6	9.1	6.4	7.4	6.0	9.5	6.2	8.2	7.0	8.7
	Median	20.0	24.0	21.0	18.0	18.5	22.0	20.0	17.0	20.0	17.0	24.0	20.0	21.0	16.0	21.0
ISS—Deaths	**Mean**	25.8	30.9	31.1	20.8	31.0	30.1	31.9	30.3	34.0	29.9	36.2	24.4	28.0	29.5	31.2
	SD	5.9	10.2	9.8	6.3	8.7	11.8	13.8	8.9	11.6	13.8	13.9	6.9	9.2	9.0	11.8
	Median	25.0	26.0	26.0	21.0	26.0	25.0	25.0	26.0	30.5	26.0	34.0	25.0	25.0	25.0	26.0
GCS	**Mean**	13.4	13.4	13.9	13.9	13.4	13.8	14.1	14.2	14.0	13.4	13.8	13.2	13.7	14.0	13.7
	SD	3.4	3.2	2.7	3.1	3.3	2.6	2.3	2.4	2.4	3.3	2.7	3.5	2.8	1.8	2.9
	Median	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
GCS Incomplete Due to Use of Paralytic Agents	**Number**	7.0	24.0	42.0	5.0	10.0	4.0	12.0	23.0	6.0	7.0	2.0	4.0	52.0	3.0	201.0
	Percent	4.9	3.8	9.9	9.6	18.2	0.7	5.3	15.9	8.3	3.1	0.2	2.0	9.0	5.8	4.6

Table 7 Type and Place of Injury by Institution Code, 2007–2008 Cases

Type of Injury		Institution Code														
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	Total
Blunt	Number	136	566	405	50	51	550	213	141	69	221	836	192	558	51	4,039
	Percent	95.8	89.3	95.5	96.2	92.7	95.8	94.2	97.2	95.8	96.5	86.0	96.5	96.5	98.1	92.8
Penetrating	Number	4	68	14	0	1	18	12	3	2	6	99	5	19	0	251
	Percent	2.8	10.7	3.3	0	1.8	3.1	5.3	2.1	2.8	2.6	10.2	2.5	3.3	0	5.8
Burns	Number	2	0	5	2	3	6	1	1	1	2	37	2	1	1	64
	Percent	1.4	0	1.2	3.8	5.5	1.0	0.4	0.7	1.4	0.9	3.8	1.0	0.2	1.9	1.5
Sports/Recreational Injuries	Number	19	20	49	0	18	46	31	54	34	15	85	27	24	13	435
	Percent	13.4	3.2	11.6	0	32.7	8.0	13.7	37.2	47.2	6.6	8.7	13.6	4.2	25.0	10.0
Work-Related	Number	6	37	24	3	0	35	16	0	0	16	86	7	25	0	255
	Percent	4.2	5.8	5.7	5.8	0	6.1	7.1	0	0	7.0	8.8	3.5	4.3	0	5.9

Place of Injury*		Institution Code														
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	Total
Home	Number	35	126	71	16	18	174	82	41	15	93	190	56	141	16	1,074
	Percent	24.6	19.9	16.7	30.8	32.7	30.3	36.3	28.3	20.8	40.6	19.5	28.1	24.4	30.8	24.7
Industrial	Number	4	32	13	1	0	14	3	0	1	6	57	1	14	0	146
	Percent	2.8	5.0	3.1	1.9	0	2.4	1.3	0	1.4	2.6	5.9	0.5	2.4	0	3.4
Recreation/Sport	Number	2	5	7	0	4	10	3	13	8	3	2	3	11	2	73
	Percent	1.4	0.8	1.7	0	7.3	1.7	1.3	9.0	11.1	1.3	0.2	1.5	1.9	3.8	1.7
Street/Highway	Number	54	265	231	7	23	278	87	41	22	91	531	56	215	23	1,924
	Percent	38.0	41.8	54.5	13.5	41.8	48.4	38.5	28.3	30.6	39.7	54.6	28.1	37.2	44.2	44.2
Other	Number	47	206	102	28	10	89	51	50	26	36	192	82	196	11	1,126
	Percent	33.1	32.5	24.1	53.8	18.2	15.5	22.6	34.5	36.1	15.7	19.8	41.2	33.9	21.2	25.9

Note

* Place of injury is documented for all cases in the Comprehensive Data Set using ICD categories. There are 11 cases that do not have a documented place of injury.

Table 8 External Cause of Injury by Institution Code, 2007–2008 Cases

			Institution Code														
			A	B	C	D	E	F	G	H	I	J	K	L	M	N	Total
Unintentional Falls	**Survivors**	**Number**	41	234	78	24	12	170	59	45	12	93	207	64	236	12	1,287
		Percent	28.9	36.9	18.4	46.2	21.8	29.6	26.1	31.0	16.7	40.6	21.3	32.2	40.8	23.1	29.6
	Deaths	**Number**	10	33	14	5	0	30	15	1	0	15	34	12	37	0	206
		Percent	7.0	5.2	3.3	9.6	0	5.2	6.6	0.7	0	6.6	3.5	6.0	6.4	0	4.7
	All	**Number**	51	267	92	29	12	200	74	46	12	108	241	76	273	12	1,493
		Percent	35.9	42.1	21.7	55.8	21.8	34.8	32.7	31.7	16.7	47.2	24.8	38.2	47.2	23.1	34.3
Motor Vehicle Traffic	**Survivors**	**Number**	36	168	194	7	19	227	71	32	18	59	386	41	160	18	1,436
		Percent	25.4	26.5	45.8	13.5	34.5	39.5	31.4	22.1	25.0	25.8	39.7	20.6	27.7	34.6	33.0
	Deaths	**Number**	4	17	28	0	1	27	5	4	2	9	61	4	19	1	182
		Percent	2.8	2.7	6.6	0	1.8	4.7	2.2	2.8	2.8	3.9	6.3	2.0	3.3	1.9	4.2
	All	**Number**	40	185	222	7	20	254	76	36	20	68	447	45	179	19	1,618
		Percent	28.2	29.2	52.4	13.5	36.4	44.3	33.6	24.8	27.8	29.7	46.0	22.6	31.0	36.5	37.2
Motor Vehicle Non-Traffic	**Survivors**	**Number**	13	19	33	1	6	16	20	13	7	8	24	23	31	3	217
		Percent	9.2	3.0	7.8	1.9	10.9	2.8	8.8	9.0	9.7	3.5	2.5	11.6	5.4	5.8	5.0
	Deaths	**Number**	2	2	2	0	0	4	1	0	0	1	1	1	0	0	14
		Percent	1.4	0.3	0.5	0	0	0.7	0.4	0	0	0.4	0.1	0.5	0	0	0.3
	All	**Number**	15	21	35	1	6	20	21	13	7	9	25	24	31	3	231
		Percent	10.6	3.3	8.3	1.9	10.9	3.5	9.3	9.0	9.7	3.9	2.6	12.1	5.4	5.8	5.3

Table 8 External Cause of Injury by Institution Code, 2007–2008 Cases (cont'd)

			Institution Code														
			A	B	C	D	E	F	G	H	I	J	K	L	M	N	Total
Assault and Injury Purposely Inflicted (Excluding Poisonings)	**Survivors**	**Number**	11	73	19	3	1	33	14	8	9	18	92	7	31	3	322
		Percent	7.7	11.5	4.5	5.8	1.8	5.7	6.2	5.5	12.5	7.9	9.5	3.5	5.4	5.8	7.4
	Deaths	**Number**	1	18	2	0	1	2	1	1	1	1	23	0	1	0	52
		Percent	0.7	2.8	0.5	0	1.8	0.3	0.4	0.7	1.4	0.4	2.4	0	0.2	0	1.2
	All	**Number**	12	91	21	3	2	35	15	9	10	19	115	7	32	3	374
		Percent	8.5	14.4	5.0	5.8	3.6	6.1	6.6	6.2	13.9	8.3	11.8	3.5	5.5	5.8	8.6
Suicide and Self-Inflicted Injury (Excluding Poisonings)	**Survivors**	**Number**	2	23	5	0	0	7	5	0	0	4	32	1	10	0	89
		Percent	1.4	3.6	1.2	0	0	1.2	2.2	0	0	1.7	3.3	0.5	1.7	0	2.0
	Deaths	**Number**	2	9	4	1	0	3	3	2	0	2	6	1	4	0	37
		Percent	1.4	1.4	0.9	1.9	0	0.5	1.3	1.4	0	0.9	0.6	0.5	0.7	0	0.8
	All	**Number**	4	32	9	1	0	10	8	2	0	6	38	2	14	0	126
		Percent	2.8	5.0	2.1	1.9	0	1.7	3.5	1.4	0	2.6	3.9	1.0	2.4	0	2.9
All Other	**Survivors**	**Number**	14	36	41	11	12	50	29	35	22	18	96	41	46	12	463
		Percent	9.9	5.7	9.7	21.2	21.8	8.7	12.8	24.1	30.6	7.9	9.9	20.6	8.0	23.1	10.6
	Deaths	**Number**	6	2	4	0	3	5	3	4	1	1	10	4	3	3	49
		Percent	4.2	0.3	0.9	0	5.5	0.9	1.3	2.8	1.4	0.4	1.0	2.0	0.5	5.8	1.1
	All	**Number**	20	38	45	11	15	55	32	39	23	19	106	45	49	15	512
		Percent	14.1	6.0	10.6	21.2	27.3	9.6	14.2	26.9	31.9	8.3	10.9	22.6	8.5	28.8	11.8

Table 9 Scene Information by Institution Code, 2007–2008 Cases

		Institution Code														
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	Total
Pre-Hospital Time (Minutes) 95th Percentile*	**Mean**	107.6	55.0	72.7	106.0	67.9	84.0	87.4	75.2	59.7	72.4	67.6	113.4	87.7	81.0	76.4
	Standard Deviation	113.2	57.7	82.0	144.2	55.5	102.2	84.9	100.3	63.1	76.8	91.0	132.9	109.7	106.4	94.2
	Median	67.0	45.0	55.0	65.0	53.0	62.0	65.0	46.5	45.5	56.5	49.0	69.0	57.0	59.0	53.0
Scene Time (Minutes)	**Mean**	19.3	19.6	18.8	24.3	17.0	22.7	22.1	15.9	14.4	20.6	19.9	23.5	21.1	18.6	20.4
	Standard Deviation	9.0	13.2	10.6	10.6	7.1	14.1	10.2	6.8	5.8	10.1	12.1	14.7	10.8	12.7	11.8
	Median	18.0	17.0	17.0	22.5	15.0	19.0	21.0	15.0	13.0	19.0	17.0	20.0	19.0	18.0	18.0
Admissions With Scene Time > 1 Hour	**Number**	0.0	2.0	2.0	0.0	0.0	6.0	1.0	0.0	0.0	2.0	5.0	2.0	5.0	0.0	25.0
	Percent	0.0	0.8	0.7	0.0	0.0	2.1	0.7	0.0	0.0	1.2	1.0	1.7	1.3	0.0	1.0
Admissions With Extrication Required	**Number**	31.0	59.0	135.0	2.0	3.0	104.0	31.0	5.0	5.0	29.0	103.0	43.0	77.0	3.0	630.0
	Percent	21.8	9.3	31.8	3.8	5.5	18.1	13.7	3.4	6.9	12.7	10.6	21.6	13.3	5.8	14.5

Note

* The 95th percentile is used for pre-hospital time calculations to exclude those who are not transported directly from the scene and therefore have long pre-hospital times (that is, days/weeks). Of the 2,735 cases with pre-hospital times in 2007–2008, 136 (5%) had times greater than 900 minutes.

Table 10 Participating Hospital Care, 2007–2008 Cases

		Institution Code														
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	Total
Length of Hospital Stay (Days)	**All Cases Mean**	11.0	13.3	11.1	13.7	12.1	16.5	18.3	7.9	9.5	12.9	17.4	17.3	16.8	8.5	14.9
	All Cases SD	11.9	16.9	13.6	15.2	20.3	22.8	23.4	10.1	10.8	16.3	25.3	36.0	26.8	11.9	22.2
	All Cases Median	7.0	7.0	7.0	8.0	5.0	9.0	8.0	4.5	6.0	8.0	9.0	8.0	9.0	4.0	8.0
	Survivors Mean	12.6	13.9	11.5	14.5	13.0	17.3	18.1	8.1	10.0	13.2	17.9	16.2	17.6	8.5	15.4
	Survivors SD	12.4	17.4	13.9	15.5	20.9	22.9	22.9	10.2	11.0	16.6	24.0	33.9	27.5	12.0	22.0
	Survivors Median	8.0	8.0	7.0	8.0	6.0	10.0	9.0	5.0	6.0	8.0	10.0	9.0	9.0	4.0	9.0
	Deaths Mean	2.9	8.2	8.3	7.2	1.3	9.3	19.9	4.7	2.0	10.2	13.5	27.6	9.5	8.7	10.8
	Deaths SD	2.6	11.1	11.0	10.8	0.5	20.7	27.5	7.4	2.0	13.6	33.9	51.9	17.8	13.3	23.9
	Deaths Median	2.0	3.0	3.0	1.5	1.0	3.0	4.0	1.0	1.0	5.0	1.0	4.0	3.0	1.0	2.0

Table 10 Participating Hospital Care, 2007–2008 Cases (cont'd)

		Institution Code														
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	Total
Length of SCU Stay (Days)	**All Cases Mean**	4.3	6.6	7.1	6.1	3.0	10.8	8.8	4.8	4.6	4.6	10.5	6.4	10.4	4.5	8.3
	All Cases SD	4.7	9.9	10.7	10.1	3.1	14.9	11.7	7.4	7.5	7.4	20.0	7.3	14.2	6.7	13.8
	All Cases Median	3.0	3.0	3.0	3.0	2.0	6.0	3.5	2.0	1.0	3.0	4.0	4.0	5.0	2.0	4.0
	Survivors Mean	5.2	6.4	7.1	6.8	3.2	11.2	8.1	4.9	4.9	4.6	10.5	6.3	10.9	4.3	8.4
	Survivors SD	5.3	10.1	10.8	10.7	3.2	13.1	10.2	7.5	7.8	7.8	19.8	7.2	14.4	6.6	13.6
	Survivors Median	3.0	3.0	4.0	4.0	2.0	7.0	3.5	2.0	1.0	3.0	4.0	4.0	5.0	2.0	4.0
	Deaths Mean	2.4	7.5	6.9	1.0	1.3	8.7	12.5	4.7	2.0	4.3	10.5	6.9	6.8	6.7	7.7
	Deaths SD	1.9	8.8	10.2	0.0	0.5	22.1	17.2	7.4	2.0	4.7	21.2	8.3	12.4	9.8	15.2
	Deaths Median	2.0	3.5	2.0	1.0	1.0	2.0	3.5	1.0	1.0	2.0	2.0	2.0	3.0	1.0	2.0
Length of Stay ≥ 3 Days	**Number**	114.0	512.0	331.0	41.0	38.0	478.0	198.0	98.0	60.0	177.0	785.0	160.0	463.0	35.0	3,490.0
	Percent	80.3	80.8	78.1	78.8	69.1	83.3	87.6	67.6	83.3	77.3	80.8	80.4	80.1	67.3	80.2
Number of OR Visits per Case	**Mean**	1.2	1.3	1.4	1.1	1.3	1.5	1.6	1.4	1.1	1.1	1.6	1.2	1.4	1.5	1.4
	SD	0.6	0.8	0.8	0.3	0.6	0.9	1.0	1.0	0.3	0.4	1.2	0.5	0.9	0.9	1.0
	Median	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Cases With ICP Days > 0	**Number**	2.0	47.0	1.0	0.0	5.0	13.0	0.0	7.0	4.0	17.0	41.0	1.0	22.0	2.0	162.0
	Percent	1.4	7.4	0.2	0.0	9.1	2.3	0.0	4.8	5.6	7.4	4.2	0.5	3.8	3.8	3.7

Table 10 Participating Hospital Care, 2007–2008 Cases (cont'd)

		Institution Code														
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	Total
ICP Days	**Mean**	3.5	3.4	2.0	0.0	2.4	4.8	0.0	5.0	9.8	2.8	4.2	23.0	4.5	5.0	4.1
	SD	2.1	3.3	0.0	0.0	1.7	3.3	0.0	3.3	8.3	2.6	3.4	0.0	4.3	0.0	3.9
	Median	3.5	2.0	2.0	0.0	2.0	4.0	0.0	4.0	6.5	2.0	3.0	23.0	3.0	5.0	3.0
Cases With Ventilation Days > 0	**Number**	46.0	276.0	137.0	8.0	19.0	157.0	57.0	19.0	21.0	44.0	386.0	52.0	144.0	17.0	1,383.0
	Percent	32.4	43.5	32.3	15.4	34.5	27.4	25.2	13.1	29.2	19.2	39.7	26.1	24.9	32.7	31.8
Ventilation Days	**Mean**	3.7	6.3	6.6	6.8	1.9	5.7	5.1	3.4	5.8	4.1	8.0	4.3	3.3	3.8	6.0
	SD	6.5	10.9	9.1	14.7	1.5	6.4	5.6	6.8	6.6	5.2	16.0	4.0	3.2	4.6	10.9
	Median	2.0	2.0	3.0	1.5	1.0	3.0	3.0	1.0	4.0	2.0	2.0	3.0	2.0	1.0	2.0

Table 11 Deaths by Institution Code, 2007–2008 Cases

		Institution Code														
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	Total
ISS for Deaths	**Mean**	25.8	30.9	31.1	20.8	31.0	30.1	31.9	30.3	34.0	29.9	36.2	24.4	28.0	29.5	31.2
	SD	5.9	10.2	9.8	6.3	8.7	11.8	13.8	8.9	11.6	13.8	13.9	6.9	9.2	9.0	11.8
	Median	25.0	26.0	26.0	21.0	26.0	25.0	25.0	26.0	30.5	26.0	34.0	25.0	25.0	25.0	26.0
In-Hospital Deaths	**Number**	23.0	63.0	46.0	6.0	4.0	59.0	25.0	9.0	4.0	23.0	100.0	18.0	57.0	3.0	440.0
	Percent	16.2	9.9	10.8	11.5	7.3	10.3	11.1	6.2	5.6	10.0	10.3	9.0	9.9	5.8	10.1
Die in Emergency Department (DIE)	**Number**	2.0	17.0	8.0	0.0	1.0	12.0	3.0	3.0	0.0	6.0	35.0	4.0	7.0	1.0	99.0
	Percent	1.4	2.7	1.9	0.0	1.8	2.1	1.3	2.1	0.0	2.6	3.6	2.0	1.2	1.9	2.3
Post-Mortem Examination	**Number**	9.0	43.0	16.0	2.0	3.0	25.0	14.0	10.0	4.0	13.0	70.0	6.0	13.0	3.0	231.0
	Percent	36.0	53.1	29.6	33.3	60.0	35.2	50.0	83.3	100.0	44.8	51.9	27.3	20.3	75.0	42.8
Patients Who Donate Organs	**Number**	4.0	8.0	9.0	1.0	3.0	11.0	3.0	7.0	2.0	4.0	19.0	0.0	8.0	3.0	82.0
	Percent	16.0	9.9	16.7	16.7	60.0	15.5	10.7	58.3	50.0	13.8	14.1	0.0	12.5	75.0	15.2

Notes

Percentage Denominators:

The denominator used in the percentage calculations is the total number of admissions for a specific institution. The only exception is the following: Denominator for Post-Mortem Examinations and Patients Who Donate Organs is the total number of deaths for a specific institution.

Table 12 Outcome Scores by Institution Code, 2007–2008 Cases

		Institution Code														
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	Total
Number of Cases		142.00	634.00	424.00	52.00	55.00	574.00	226.00	145.00	72.00	229.00	972.00	199.00	578.00	52.00	4,354.00
ISS	**Mean**	23.11	24.47	25.00	19.44	22.87	24.21	23.98	21.20	22.93	21.12	26.65	21.33	23.18	20.90	24.16
	SD	8.94	9.26	9.85	4.56	8.82	9.32	10.21	7.12	8.08	8.14	10.93	6.37	8.51	7.52	9.52
	Median	22.00	25.00	22.00	18.00	21.00	24.00	21.00	18.00	22.00	18.00	25.00	20.00	22.00	16.00	23.00
RTS @ L/T	**Mean**	7.47	7.56	7.65	7.49	7.60	7.57	7.64	7.66	7.64	7.44	7.68	7.46	7.56	7.63	7.59
	SD	0.89	0.75	0.64	1.12	0.63	0.74	0.63	0.60	0.45	0.97	0.55	0.96	0.74	0.70	0.73
	Median	7.84	7.84	7.84	7.84	7.84	7.84	7.84	7.84	7.84	7.84	7.84	7.84	7.84	7.84	7.84
TRISS	**Mean**	0.91	0.89	0.92	0.91	0.95	0.91	0.92	0.93	0.98	0.90	0.92	0.90	0.91	0.97	0.91
	SD	0.15	0.17	0.14	0.12	0.11	0.13	0.12	0.20	0.02	0.17	0.12	0.15	0.13	0.07	0.14
	Median	0.95	0.94	0.98	0.94	0.99	0.94	0.95	0.99	0.99	0.94	0.97	0.94	0.94	0.99	0.96
ASCOT	**Mean**	0.90	0.87	0.94	0.88	0.96	0.92	0.93	0.93	0.98	0.90	0.96	0.90	0.89	0.96	0.92
	SD	0.17	0.20	0.14	0.17	0.11	0.13	0.13	0.21	0.02	0.17	0.07	0.16	0.16	0.12	0.15
	Median	0.97	0.95	0.98	0.94	0.99	0.97	0.98	0.99	0.99	0.96	0.99	0.97	0.95	0.99	0.97

Notes

SD: standard deviation.

ISS: injury severity score.

RTS @ L/T: revised trauma score at lead/trauma hospital.

TRISS: Trauma and Injury Severity Score.

ASCOT: A Severity Characterization of Trauma.

Table 13 Total Injuries and Deaths by External Causes of Injury and Sex, 2007–2008 Cases

		Females				Males				Total			
		No. of Injuries	% of Injuries	No. of Deaths	% of Deaths	No. of Injuries	% of Injuries	No. of Deaths	% of Deaths	No. of Injuries	% of Injuries	No. of Deaths	% of Deaths
Total		1,300	100.0	181	100.0	3,054	100.0	359	100.0	4,354	100.0	540	100.0
Railway	**Pedestrians**	0	0	0	0	5	0.2	1	0.3	5	0.1	1	0.2
	Pedal Cyclists	0	0	0	0	0	0	0	0	0	0	0	0
	Occupants and Other	0	0	0	0	0	0	0	0	0	0	0	0
Motor Vehicle Traffic	**Pedestrians**	121	9.3	18	9.9	135	4.4	20	5.6	256	5.9	38	7.0
	Pedal Cyclists	15	1.2	2	1.1	41	1.3	6	1.7	56	1.3	8	1.5
	Drivers	222	17.1	23	12.7	530	17.4	51	14.2	752	17.3	74	13.7
	Passengers	177	13.6	23	12.7	158	5.2	22	6.1	335	7.7	45	8.3
	Motorcycle Drivers	16	1.2	0	0	165	5.4	13	3.6	181	4.2	13	2.4
	Motorcycle Passengers	13	1.0	2	1.1	1	0.0	0	0	14	0.3	2	0.4
	Other	7	0.5	0	0	17	0.6	2	0.6	24	0.6	2	0.4
	Subtotal	571	43.9	68	37.6	1,047	34.3	114	31.8	1,618	37.2	182	33.7

Table 13 Total Injuries and Deaths by External Causes of Injury and Sex, 2007–2008 Cases (cont'd)

		Females				Males				Total			
		No. of Injuries	% of Injuries	No. of Deaths	% of Deaths	No. of Injuries	% of Injuries	No. of Deaths	% of Deaths	No. of Injuries	% of Injuries	No. of Deaths	% of Deaths
Motor Vehicle Non-Traffic	**Pedestrians**	5	0.4	0	0	10	0.3	1	0.3	15	0.3	1	0.2
	Pedal Cyclists	1	0.1	0	0	1	0.0	0	0	2	0.0	0	0.0
	Drivers	20	1.5	0	0	144	4.7	8	2.2	164	3.8	8	1.5
	Passengers	11	0.8	0	0	9	0.3	1	0.3	20	0.5	1	0.2
	Motorcycle Drivers	0	0	0	0	9	0.3	1	0.3	9	0.2	1	0.2
	Motorcycle Passengers	0	0	0	0	0	0	0	0	0	0	0	0
	Other	3	0.2	0	0	18	0.6	3	0.8	21	0.5	3	0.6
	Subtotal	40	3.1	0	0	191	6.3	14	3.9	231	5.3	14	2.6
Motor Vehicle Boarding or Alighting		5	0.4	0	0	5	0.2	0	0	10	0.2	0	0.0
Other Road Vehicle	**Pedestrians**	3	0.2	0	0	5	0.2	1	0.3	8	0.2	1	0.2
	Pedal Cyclists	19	1.5	0	0	68	2.2	4	1.1	87	2.0	4	0.7
	Other	14	1.1	0	0	11	0.4	0	0	25	0.6	0	0.0
	Subtotal	36	2.8	0	0	84	2.8	5	1.4	120	2.8	5	0.9
Water Transport		2	0.2	0	0	9	0.3	0	0	11	0.3	0	0.0
Air and Space Transport		0	0	0	0	8	0.3	0	0	8	0.2	0	0.0
Vehicle Incidents Not Elsewhere Classified		0	0	0	0	2	0.1	0	0	2	0.0	0	0.0

Table 13 Total Injuries and Deaths by External Causes of Injury and Sex, 2007–2008 Cases (cont'd)

	Females				Males				Total			
	No. of Injuries	% of Injuries	No. of Deaths	% of Deaths	No. of Injuries	% of Injuries	No. of Deaths	% of Deaths	No. of Injuries	% of Injuries	No. of Deaths	% of Deaths
Unintentional Falls	485	37.3	79	43.6	1,008	33.0	127	35.4	1,493	34.3	206	38.1
Fire and Flames	19	1.5	6	3.3	41	1.3	4	1.1	60	1.4	10	1.9
Natural and Environmental Factors	8	0.6	2	1.1	13	0.4	0	0	21	0.5	2	0.4
Drowning	3	0.2	3	1.7	10	0.3	7	1.9	13	0.3	10	1.9
Suffocation	1	0.1	1	0.6	1	0.0	1	0.3	2	0.0	2	0.4
Foreign Bodies (Excluding Choking)	0	0	0	0	3	0.1	1	0.3	3	0.1	1	0.2
Suicide and Self-Inflicted Injury (Excluding Poisonings)	43	3.3	11	6.1	83	2.7	26	7.2	126	2.9	37	6.9
Assault and Injury Purposely Inflicted	41	3.2	8	4.4	333	10.9	44	12.3	374	8.6	52	9.6
Legal Intervention	0	0	0	0	7	0.2	2	0.6	7	0.2	2	0.4
Undetermined Whether Unintentionally or Purposely Inflicted	6	0.5	2	1.1	7	0.2	3	0.8	13	0.3	5	0.9
Operations of War	0	0	0	0	2	0.1	0	0	2	0.0	0	0.0
Other Incidents	40	3.1	1	0.6	189	6.2	10	2.8	229	5.3	11	2.0
All Other	0	0	0	0	6	0.2	0	0	6	0.1	0	0.0

Table 14 Injury Case Summary by External Causes of Injury and Sex, 2007–2008 Cases

		Females					Males					Total				
		Mean			Median	SD	Mean			Median	SD	Mean			Median	SD
		Age	ISS	LOS	LOS	LOS	Age	ISS	LOS	LOS	LOS	Age	ISS	LOS	LOS	LOS
Total		51.4	24.3	14.8	8.0	19.5	44.5	24.1	14.9	8.0	23.3	46.5	24.2	14.9	8.0	22.2
Railway	**Pedestrians**	0	0	0	0	0	30.0	31.4	32.4	25.0	32.5	30.0	31.4	32.4	25.0	32.5
	Pedal Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Occupants and Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Motor Vehicle Traffic	**Pedestrians**	45.6	27.7	15.1	10.0	19.0	45.2	28.2	22.5	13.0	29.3	45.4	27.9	19.0	11.0	25.1
	Pedal Cyclists	28.8	28.0	9.4	8.0	8.6	29.5	26.0	12.8	7.5	15.8	29.3	26.6	11.9	8.0	14.2
	Drivers	43.7	26.3	15.7	10.0	18.0	40.8	26.5	16.8	9.0	27.4	41.7	26.4	16.5	9.5	25.1
	Passengers	39.9	27.6	15.8	8.0	22.8	31.8	28.4	16.1	9.0	22.5	36.1	28.0	15.9	9.0	22.6
	Motorcycle Drivers	37.5	21.6	11.6	11.0	8.2	40.6	27.2	13.1	9.5	15.2	40.3	26.7	13.0	10.0	14.7
	Motorcycle Passengers	44.9	28.8	10.3	7.0	9.2	54.0	22.0	11.0	11.0	0	45.6	28.3	10.4	7.5	8.8
	Other	45.3	25.3	22.7	17.0	24.2	41.6	23.3	10.0	7.5	8.0	42.7	23.9	13.9	8.0	15.5
	Subtotal	42.4	26.9	15.3	9.0	19.5	39.6	27.0	16.6	10.0	24.9	40.6	27.0	16.1	9.0	23.1

Table 14 Injury Case Summary by External Causes of Injury and Sex, 2007–2008 Cases (cont'd)

		Females					Males					Total				
		Mean			Median	SD	Mean			Median	SD	Mean			Median	SD
		Age	ISS	LOS	LOS	LOS	Age	ISS	LOS	LOS	LOS	Age	ISS	LOS	LOS	LOS
Motor Vehicle Non-Traffic	**Pedestrians**	39.6	21.0	8.6	8.0	5.1	41.0	18.2	9.2	4.0	11.8	40.5	19.1	9.0	5.0	9.7
	Pedal Cyclists	6.0	24.0	11.0	11.0	0	11.0	38.0	11.0	11.0	0	8.5	31.0	11.0	11.0	0.0
	Drivers	34.7	20.7	12.7	9.5	10.8	36.5	24.6	11.8	7.0	14.9	36.3	24.1	11.9	7.0	14.5
	Passengers	23.9	23.5	9.0	6.0	9.9	27.9	22.7	21.1	9.5	25.9	25.7	23.1	14.1	6.0	18.8
	Motorcycle Drivers	0	0	0	0	0	31.1	23.9	8.2	5.0	8.6	31.1	23.9	8.2	5.0	8.6
	Motorcycle Passengers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	50.3	21.3	6.3	6.0	0.6	38.7	23.9	14.1	7.0	16.1	40.3	23.5	13.0	7.0	15.1
	Subtotal	32.8	21.6	10.6	7.5	9.5	36.2	24.2	12.1	7.0	15.2	35.6	23.7	11.8	7.0	14.4
Motor Vehicle Boarding or Alighting		56.2	26.6	10.8	10.0	7.4	60.4	23.6	11.6	3.0	18.9	58.3	25.1	11.2	8.0	13.5
Other Road Vehicle	**Pedestrians**	64.0	20.7	6.3	4.0	5.9	72.6	24.8	25.2	3.0	49.7	69.4	23.3	18.1	3.5	38.9
	Pedal Cyclists	41.9	21.4	13.5	6.0	18.8	40.2	21.7	11.2	5.0	19.7	40.6	21.6	11.7	5.0	19.5
	Other	35.6	27.4	22.0	18.0	20.6	46.7	19.1	11.0	9.0	10.2	40.5	23.7	16.7	14.0	17.0
	Subtotal	41.3	23.7	15.9	6.5	19.0	43.0	21.5	12.0	5.0	21.4	42.5	22.2	13.1	6.0	20.7
Water Transport		58.0	39.5	3.5	3.5	2.1	27.8	25.4	20.4	18.0	21.7	33.3	28.0	17.4	5.0	20.6
Air and Space Transport		0	0	0	0	0	49.1	20.9	11.0	7.5	11.2	49.1	20.9	11.0	7.5	11.2
Vehicle Incidents Not Elsewhere Classified		0	0	0	0	0	33.5	21.5	3.0	3.0	0	33.5	21.5	3.0	3.0	0
Unintentional Falls		68.4	21.3	13.8	7.0	18.4	57.9	22.0	15.5	8.0	24.8	61.3	21.8	15.0	7.0	22.9
Fire and Flames		55.5	28.1	28.6	13.0	27.6	45.0	25.0	36.2	22.0	48.6	48.3	26.0	33.7	22.0	42.9
Natural and Environmental Factors		43.8	19.4	9.1	4.0	9.7	47.8	18.7	4.0	3.0	2.9	46.3	19.0	5.8	4.0	6.4

Table 14 Injury Case Summary by External Causes of Injury and Sex, 2007–2008 Cases (cont'd)

		Females					Males					Total				
		Mean			Median	SD	Mean			Median	SD	Mean			Median	SD
		Age	ISS	LOS	LOS	LOS	Age	ISS	LOS	LOS	LOS	Age	ISS	LOS	LOS	LOS
Drowning		11.0	25.0	5.7	1.0	8.1	10.1	25.0	8.5	6.5	8.1	10.3	25.0	7.7	5.0	7.8
Suffocation		7.0	26.0	1.0	1.0	0	11.0	26.0	0	0	0	9.0	26.0	1.0	1.0	0
Foreign Bodies (Excluding Choking)		0	0	0	0	0	43.7	17.3	5.5	5.5	2.1	43.7	17.3	5.5	5.5	2.1
Suicide and Self-Inflicted Injury (Excluding Poisonings)		35.3	27.6	28.4	16.0	36.4	36.9	28.7	19.3	15.0	20.7	36.4	28.3	22.4	15.0	27.2
Assault and Injury Purposely Inflicted		37.8	23.4	10.7	5.0	13.7	30.1	22.0	9.3	5.0	13.9	31.0	22.2	9.5	5.0	13.9
Legal Intervention		0	0	0	0	0	37.2	22.4	20.6	24.0	13.6	37.2	22.4	20.6	24.0	13.6
Undetermined Whether Unintentionally or Purposely Inflicted		36.0	24.8	38.8	33.5	32.2	25.5	23.9	6.7	3.0	8.2	30.4	24.3	18.4	7.0	24.8
Operations of War		0	0	0	0	0	32.5	15.5	10.0	10.0	5.7	32.5	15.5	10.0	10.0	5.7
Other Incidents		36.2	21.9	8.5	6.0	8.4	41.3	22.2	11.7	7.0	16.6	40.4	22.2	11.1	6.0	15.6
All Other		0	0	0	0	0	39.0	18.3	5.0	2.0	5.8	39.0	18.3	5.0	2.0	5.8

Table 15 External Causes of Injury by Age Group, 2007–2008 Cases

		<1	1–4	5–9	10–14	15–19	20–24	25–34	35–44	45–54	55–64	65–74	75–84	85+	Un-known	Total	%
Number of Cases		38	60	60	118	403	407	498	524	587	442	462	531	223	1	4,354	100
Percent of Cases		0.9	1.4	1.4	2.7	9.3	9.3	11.4	12	13.5	10.2	10.6	12.2	5.1	0	100	0
Railway	**Pedestrians**	0	0	0	0	1	2	1	0	0	1	0	0	0	0	5	0.1
	Pedal Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Occupants and Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Subtotal	0	0	0	0	1	2	1	0	0	1	0	0	0	0	5	0.1
Motor Vehicle Traffic	**Pedestrians**	0	3	5	15	25	20	30	28	28	30	33	34	5	0	256	5.9
	Pedal Cyclists	0	0	3	9	15	3	7	6	5	4	3	1	0	0	56	1.3
	Drivers	0	0	0	2	88	116	116	113	130	62	73	44	8	0	752	17.3
	Passengers	2	6	8	12	69	57	45	23	38	21	24	26	4	0	335	7.7
	Motorcycle Drivers	0	0	1	2	8	20	35	40	41	26	4	4	0	0	181	4.2
	Motorcycle Passengers	0	0	0	0	0	1	0	5	6	2	0	0	0	0	14	0.3
	Other	0	0	0	0	2	4	3	6	3	3	1	1	1	0	24	0.6
	Subtotal	2	9	17	40	207	221	236	221	251	148	138	110	18	0	1,618	37.2

Table 15 External Causes of Injury by Age Group, 2007–2008 Cases (cont'd)

		<1	1–4	5–9	10–14	15–19	20–24	25–34	35–44	45–54	55–64	65–74	75–84	85+	Un-known	Total	%
Motor Vehicle Non-Traffic	**Pedestrians**	0	2	2	0	1	1	0	1	0	5	1	2	0	0	15	0.3
	Pedal Cyclists	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2	0
	Drivers	0	0	1	12	20	14	37	29	29	11	7	2	2	0	164	3.8
	Passengers	0	1	0	3	4	4	3	2	2	1	0	0	0	0	20	0.5
	Motorcycle Drivers	0	0	1	0	2	1	1	2	1	0	1	0	0	0	9	0.2
	Motorcycle Passengers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	1	3	2	4	2	3	3	2	1	0	0	21	0.5
	Subtotal	0	3	5	17	30	22	45	36	35	20	11	5	2	0	231	5.3
Motor Vehicle Boarding or Alighting		0	1	0	0	1	0	2	0	0	0	0	3	3	0	10	0.2
Other Road Vehicle	**Pedestrians**	0	0	0	0	0	0	0	1	0	1	2	4	0	0	8	0.2
	Pedal Cyclists	0	0	3	16	6	1	5	13	16	18	3	5	1	0	87	2
	Other	0	1	2	1	1	1	3	5	3	5	2	1	0	0	25	0.6
	Subtotal	0	1	5	17	7	2	8	19	19	24	7	10	1	0	120	2.8
Water Transport		0	0	1	1	1	1	1	4	1	1	0	0	0	0	11	0.3
Air and Space Transport		0	0	0	0	0	0	1	2	4	0	0	1	0	0	8	0.2
Vehicle Incidents Not Elsewhere Classified		0	0	0	0	1	0	0	0	1	0	0	0	0	0	2	0
Unintentional Falls		24	18	18	16	43	40	62	112	160	176	263	369	192	0	1,493	34.3
Fire and Flames		0	2	2	2	2	5	1	8	14	10	5	8	1	0	60	1.4

Table 15 External Causes of Injury by Age Group, 2007–2008 Cases (cont'd)

		<1	1–4	5–9	10–14	15–19	20–24	25–34	35–44	45–54	55–64	65–74	75–84	85+	Un-known	Total	%
Natural and Environmental Factors		0	1	2	1	0	0	2	1	5	5	2	1	1	0	21	0.5
Drowning		2	6	0	1	2	0	1	1	0	0	0	0	0	0	13	0.3
Suffocation		0	0	1	1	0	0	0	0	0	0	0	0	0	0	2	0
Foreign Bodies (Excluding Choking)		0	0	0	0	1	0	0	0	0	2	0	0	0	0	3	0.1
Suicide and Self-Inflicted Injury (Excluding Poisonings)		0	0	0	0	14	17	36	23	24	6	2	4	0	0	126	2.9
Assault and Injury Purposely Inflicted		6	6	1	4	73	74	76	64	38	21	4	5	2	0	374	8.6
Legal Intervention		0	0	0	0	0	2	1	2	0	1	0	0	0	1	7	0.2
Undetermined Whether Unintentionally or Purposely Inflicted		2	0	0	1	1	1	3	2	1	1	1	0	0	0	13	0.3
Operations of War		0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	0
Other Incidents		2	13	8	17	18	20	20	27	31	26	29	15	3	0	229	5.3
All Other		0	0	0	0	1	0	1	1	3	0	0	0	0	0	6	0.1

Table 16 External Causes of Injury by Age Group for Falls, 2007–2008 Cases (ICD 10-CA W00 to W19)

		<1	1–4	5–9	10–14	15–19	20–24	25–34	35–44	45–54	55–64	65–74	75–84	85+	Total	%
Number of Cases		24	18	18	16	43	40	62	112	160	176	263	369	192	1,493	100
Percent of Cases		1.6	1.2	1.2	1.1	2.9	2.7	4.2	7.5	10.7	11.8	17.6	24.7	12.9	100	0
W00 Involving Ice and Snow		0	0	0	0	0	0	1	1	4	12	12	19	4	53	3.5
W01 Slipping, Tripping and Stumbling		0	0	2	3	3	2	4	10	16	21	45	70	46	222	14.9
W02 Involving Skates, Skis, Sport Boards and Rollerblades	**Ice Skates**	0	0	0	0	0	0	0	1	0	0	2	0	0	3	0.2
	Skis	0	0	0	1	0	0	2	0	1	0	1	0	0	5	0.3
	Roller Skates/ Rollerblades	0	0	0	0	2	1	0	0	1	0	1	0	0	5	0.3
	Skateboards	0	0	0	1	4	0	1	0	0	0	0	0	0	6	0.4
	Snowboards	0	0	0	1	4	1	1	0	0	0	0	0	0	7	0.5
	Other Specified	0	0	2	0	1	0	2	0	0	0	0	0	0	5	0.3
	Subtotal	0	0	2	3	11	2	6	1	2	0	4	0	0	31	2.1
W03 Collision With/Pushing by Another Person		0	0	0	0	1	0	1	1	0	0	0	1	0	4	0.3
W04 While Being Carried or Supported by Other Persons		7	1	0	0	0	0	0	0	0	0	0	0	0	8	0.5
W05 Involving Wheelchair and Other Types of Walking Devices		2	3	0	0	0	0	0	0	0	1	3	3	4	16	1.1
W06 Involving Bed		4	2	1	0	0	1	0	0	2	0	2	16	8	36	2.4
W07 Involving Chair		1	0	0	0	0	0	0	1	0	0	3	2	1	8	0.5
W08 Involving Other Furniture		5	2	1	0	0	0	0	0	2	2	1	0	0	13	0.9

Table 16 External Causes of Injury by Age Group for Falls, 2007–2008 Cases (ICD 10-CA W00 to W19) (cont'd)

		<1	1–4	5–9	10–14	15–19	20–24	25–34	35–44	45–54	55–64	65–74	75–84	85+	Total	%
W09 Playground Equipment		0	0	3	0	0	0	1	0	0	0	0	0	0	4	0.3
W10 On/From Stairs/Steps		1	3	2	0	5	6	10	16	44	44	58	85	36	310	20.8
W11 On/From Ladder		0	0	0	0	1	4	4	19	25	33	24	13	4	127	8.5
W12 On/From Scaffolding		0	0	0	0	0	0	0	6	6	2	2	0	0	16	1.1
W13 From, out of or Through Building or Structure		0	6	3	2	6	14	20	25	19	11	11	5	0	122	8.2
W14 From Tree		0	0	3	4	0	0	0	4	0	1	5	0	0	17	1.1
W15 From Cliff		0	0	0	0	2	1	2	3	1	0	0	1	0	10	0.7
W16 Diving/Jumping Into Water		0	0	0	0	2	3	2	2	1	0	0	0	0	10	0.7
W17 Other Fall From One Level to Another		4	1	1	2	7	5	6	9	10	9	2	2	1	59	4
W18 Other Fall on Same Level		0	0	0	1	5	1	1	5	19	25	43	74	52	226	15.1
W19 Unspecified Fall		0	0	0	1	0	1	4	9	9	15	48	78	36	201	13.5

Table 17 External Causes of Injury by Age Group for Traffic, Non-Traffic and Other Road Vehicle Incidents, 2007–2008

		0–4	5–9	10–15	16	17	18	19	20	21–24	25–34	35–44	45–54	55–64	65–74	75+	Un-known	Total	%
Number of Admissions		16	27	103	38	52	64	62	55	190	291	276	305	192	156	152	0	1,979	100
Percent of Admissions		0.8	1.4	5.2	1.9	2.6	3.2	3.1	2.8	9.6	14.7	13.9	15.4	9.7	7.9	7.7	0	100	0
Motor Vehicle Traffic	**Drivers**	0	0	6	8	21	29	26	19	97	116	113	130	62	73	52	0	752	38
	Passengers	8	8	23	7	15	17	19	17	40	45	23	38	21	24	30	0	335	16.9
	Motorcycle Drivers	0	1	3	1	0	2	4	5	15	35	40	41	26	4	4	0	181	9.1
	Motorcycle Passengers	0	0	0	0	0	0	0	0	1	0	5	6	2	0	0	0	14	0.7
	Pedal Cyclists	0	3	11	4	2	6	1	0	3	7	6	5	4	3	1	0	56	2.8
	Pedestrians	3	5	20	3	7	5	5	6	14	30	28	28	30	33	39	0	256	12.9
	Other	0	0	0	1	0	0	1	1	3	3	6	3	3	1	2	0	24	1.2
	Subtotal	11	17	63	24	45	59	56	48	173	236	221	251	148	138	128	0	1,618	81.8
Motor Vehicle Non-Traffic	**Drivers**	0	1	14	7	2	3	6	5	9	37	29	29	11	7	4	0	164	8.3
	Passengers	1	0	5	1	0	1	0	1	3	3	2	2	1	0	0	0	20	1
	Motorcycle Drivers	0	1	1	1	0	0	0	0	1	1	2	1	0	1	0	0	9	0.5
	Motorcycle Passengers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pedal Cyclists	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1
	Pedestrians	2	2	0	0	1	0	0	0	1	0	1	0	5	1	2	0	15	0.8
	Other	0	0	1	2	1	0	0	0	2	4	2	3	3	2	1	0	21	1.1
	Subtotal	3	5	22	11	4	4	6	6	16	45	36	35	20	11	7	0	231	11.7

Table 17 External Causes of Injury by Age Group for Traffic, Non-Traffic and Other Road Vehicle Incidents, 2007–2008 (cont'd)

		0–4	5–9	10–15	16	17	18	19	20	21–24	25–34	35–44	45–54	55–64	65–74	75+	Un-known	Total	%
Motor Vehicle Boarding or Alighting		1	0	0	0	0	1	0	0	0	2	0	0	0	0	6	0	10	0.5
Other Road Vehicle	**Pedal Cyclists**	0	3	17	2	3	0	0	1	0	5	13	16	18	3	6	0	87	4.4
	Pedestrians	0	0	0	0	0	0	0	0	0	0	1	0	1	2	4	0	8	0.4
	Other	1	2	1	1	0	0	0	0	1	3	5	3	5	2	1	0	25	1.3
	Subtotal	1	5	18	3	3	0	0	1	1	8	19	19	24	7	11	0	120	6.1

Note
These age groups match the Ontario Road Safety Annual Report from the Ontario Ministry of Transportation.

Table 18 Total Injuries and Injury Type by Five-Year Age Group, 2007–2008 Cases

	<1	1–4	5–9	10–14	15–19	20–24	25–34	35–44	45–54	55–64	65–74	75–84	85+	Un-known	Total	%**
Total*	88	134	145	291	1,035	1,118	1,319	1,322	1,417	983	932	992	381	2	10,159	
Percent of Total**	2	3.1	3.3	6.7	23.8	25.7	30.3	30.4	32.5	22.6	21.4	22.8	8.8	0		
Superficial	19	28	21	65	131	157	175	178	186	137	113	121	42	0	1,373	31.5
Musculoskeletal	29	33	44	81	311	325	428	438	483	322	276	277	94	0	3,141	72.1
Burns and Corrosion	0	4	1	2	5	8	5	17	19	12	6	7	1	0	87	2
Internal Organ	37	52	57	105	357	355	432	406	471	358	391	462	197	1	3,681	84.5
Crushing	0	0	0	0	6	7	7	8	15	8	16	3	3	0	73	1.7
Open Wound, Including Traumatic Amputation	1	9	18	29	163	191	182	191	156	87	90	91	35	1	1,244	28.6
Blood Vessels	0	0	2	1	24	36	37	31	38	23	10	10	2	0	214	4.9
Nerves and Spinal Cord	0	2	2	8	34	35	46	46	43	32	26	18	6	0	298	6.8
Other and Unspecified	2	6	0	0	4	4	7	7	6	4	4	3	1	0	48	1.1

Notes

If an admission has injuries that fall into several of the injury types above, each type will be counted once. Otherwise, if a case has several injuries that all fall into one type then the case will only be counted once.

* "Total" refers to the total number of injury types.

** The denominator for the percentage calculations is the total number of cases for the year.