

# Trauma Hospitalizations in Ontario

## Understanding the Issue

### What is Trauma?

A trauma is a serious physical injury resulting from a transfer of energy, such as blunt force or exposure to flame. Such injury puts the sufferer at risk of death or permanent disability.<sup>1</sup>

### What Does “Serious” Mean?

Injury is measured according to an **Injury Severity Score (ISS)** ranging from 1 (minor) to 75 (fatal). In Canada, an ISS greater than or equal to 12 indicates a major injury requiring specialized trauma care. Typically, these are multi-system injuries, meaning the individual has suffered multiple injuries to more than one body system (for example: a broken bone and a punctured lung).

In Ontario, there are 11 facilities designated as Lead Trauma Hospitals (LTHs). These centres have the expertise and resources to treat severe injuries.

This issue of the Ontario Injury Compass presents data from the LTHs on hospitalizations related to traumatic injury in Ontario.

## Five-Year Trend

The number of hospitalizations due to trauma in Ontario remained relatively stable in the five years from 2006/07 to 2010/11 (Figure 1). The lowest count for hospitalizations was in 2008/09 (4,188) and the highest was in 2010/11 (4,482).

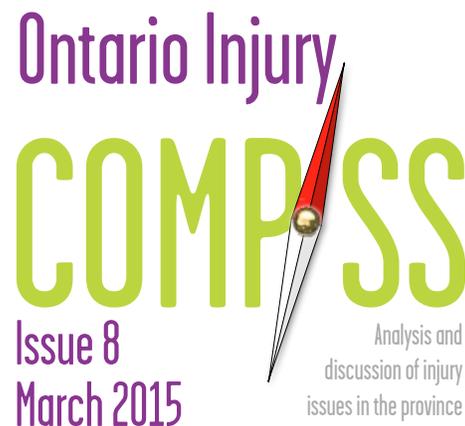
## Causes

Unintentional falls and motor vehicle traffic incidents were the leading causes of trauma-related hospitalizations in Ontario in 2010/11 (Table 1). When combined, these two causes accounted for 73% of all trauma hospitalizations that year. Of the 1,482 hospitalizations resulting from motor vehicle traffic incidents, 602 (41%) of the injured persons were drivers, 309 (21%) were passengers, and 279 (19%) were pedestrians.

## Injury Characteristics

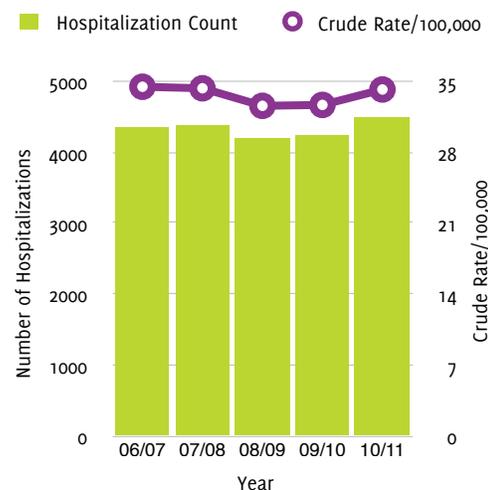
### Age

In terms of number of hospitalizations, the highest counts occurred in the 15-24 and 45-54 age groups (Figure 2).



For each of these groups there were 662 trauma-related hospitalizations, accounting for 30% of the 4,482 total hospitalizations. These groups were followed by the 75-84, 55-64, and 65-74 age groups, with 552, 534, and 514 hospitalizations respectively.

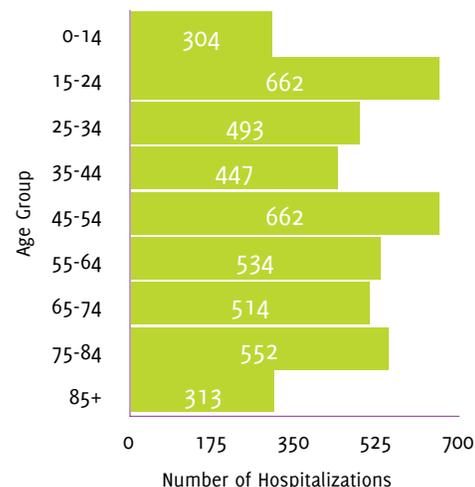
**FIGURE 1. Trauma-related hospitalizations, by year, OTR CDS, Ontario, 2006/07 - 2010/11**



**TABLE 1. Trauma-related hospitalizations, by sex and external cause, OTR CDS, Ontario, 2010/11**

External Cause	Female	Male	Total
Unintentional Falls	588	1,195	1,783
Motor Vehicle - Traffic	532	950	1,482
Assault & Injury Purposely Inflicted	38	328	366
Motor Vehicle - Non-traffic*	33	185	218
Other Road Vehicle**	37	98	135
Suicide & Self-inflicted	34	80	114
All Other Causes	80	34	384
<b>Total</b>	<b>1,342</b>	<b>3,140</b>	<b>4,482</b>

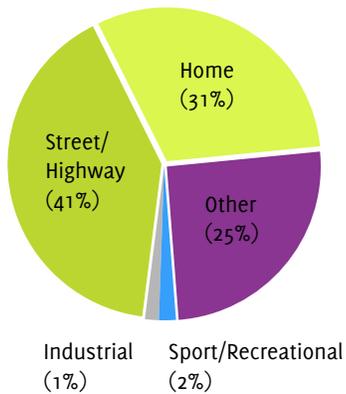
**FIGURE 2. Trauma-related hospitalizations, by age, OTR CDS, Ontario, 2010/11**



\*Non-traffic motor vehicle incidents are those occurring any place other than a public highway.

\*\*Examples of vehicles included in this category are pedal cycles, animal-drawn vehicles and streetcars.

FIGURE 3. Injuries by place, OTR CDS, Ontario, 2010/11



## Place

In 2010/11, most traumatic injuries requiring hospitalization (41%) were sustained in incidents occurring on streets or highways (Figure 3). The second-highest number of injuries (31%) occurred in the home. These figures are not surprising considering the proportion of hospitalized injuries attributable to road incidents and falls, as discussed above (Table 1). A small portion of hospitalized injuries occurred in sport/recreational (2%) and industrial (1%) settings.

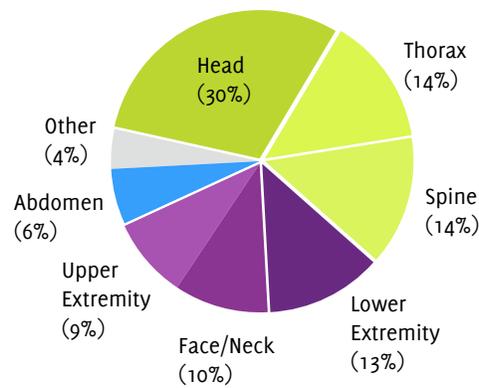
## Body Region

Revisiting the notion that trauma cases involve multiple injuries, usually to more than one body system, among the 4,482 trauma hospitalizations in 2010/11 there were a total of 26,879 identified injuries. As illustrated in Figure 4, the majority of these were head injuries (30%), followed by injuries to the thorax (14%), spine (14%), and lower extremities (13%). In terms of severity, injuries to the neck and to the head had the highest mortality rates, at 20.7% and 20% respectively.

## Trauma & Injury Prevention

The Trauma Association of Canada (TAC) recognizes that injury surveillance and prevention are components of a “fully comprehensive and inclusive trauma system.”<sup>2</sup> Ontario’s Lead Trauma Hospitals have a role to play for injury prevention in the province, including col-

FIGURE 4. Injuries by body region, OTR CDS, Ontario, 2010/11



lecting and reporting on data trends and supporting injury prevention programs and research.

In terms of tertiary prevention, achieving optimal outcomes for Ontarians who sustain traumatic injuries requires timely access to appropriate trauma care.<sup>3</sup>

## Lead Trauma Hospitals

Ontario’s designated LTHs are:

### Adult

- ▶ Hamilton Health Sciences Corporation
- ▶ Health Sciences North
- ▶ Kingston General Hospital
- ▶ London Health Sciences Centre
- ▶ The Ottawa Hospital
- ▶ St. Michael’s Hospital
- ▶ Sunnybrook Health Sciences Centre
- ▶ Thunder Bay Regional Health Sciences Centre
- ▶ Windsor Regional Hospital, Oullette Campus

### Paediatric

- ▶ Children’s Hospital of Eastern Ontario
- ▶ Hospital for Sick Children

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## Methodology

Hospitalization data were obtained from the Ontario Trauma Registry Comprehensive Data Set (OTR CDS) at the Canadian Institute for Health Information (CIHI) for fiscal year (April 1 - March 31) 2010/11. Data and analysis were provided via the *Ontario Trauma Registry 2012 Report: Hospitalizations for Major Injury in Ontario, 2010-2011 Data*. The International Statistical Classification of Disease and Related Health Problems, 10th Revision, is an international standard for classifying diseases and external cause of injury. ICD-10, Canada (ICD-10-CA) coding was used to select trauma cases based on specific external cause of injury codes.

## References

1. McGill University Health Centre. (n.d.) *What is a trauma?* Retrieved from: <http://muhc.ca/trauma/page/what-trauma>.
2. Trauma Association of Canada. (2011). *Trauma System Accreditation Guidelines*. Retrieved from: [http://www.traumacanada.ca/accreditation\\_committee/Accreditation\\_Guidelines\\_2011.pdf](http://www.traumacanada.ca/accreditation_committee/Accreditation_Guidelines_2011.pdf).
3. Haas, B., Gomez, D., Zagorski, B., Stukel, TA., Rubenfeld, GD., & Nathens, AB. (2010). Survival of the Fittest: The Hidden Cost of Undertriage of Major Trauma. *Journal of the American College of Surgeons*, 211(6), 804-811.



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