

Transport-Related Injuries in Ontario

Ontarians are at considerable risk of transport-related injury. Contributing factors include the significant time spent traveling as drivers, passengers, and vulnerable road users such as cyclists, pedestrians, and motorcyclists; the number of registered vehicles; environmental factors like road conditions and urban planning; and risk-taking behaviours, among others. The overview of transport injury data presented in this edition of the Ontario Injury Compass will assist healthcare and injury prevention practitioners in addressing this injury issue.

Definitions

This report highlights unintentional injuries sustained in transport-related events that required an emergency department (ED) visit in 2009/2010 in Ontario. Data are broken down into motor vehicle traffic (MVT) incidents, those occurring on a public highway or road, and non-traffic incidents, those occurring in another place, other than a public road. Within these two categories, data are further broken down by external cause, such as motor vehicle occupants, motorcyclists, pedal cyclists, pedestrians and others.

Etiology

An analysis of the National Ambulatory Care Reporting System (NACRS) database revealed 109,901 transport related injuries that were treated in an Ontario ED in the 2009-2010 fiscal year; 65,219 (59%) of these injuries were MVT-related and 44,682 (41%) were non-traffic. Table 1 presents the external causes of transport-related ED visits, and demonstrates that traffic-related injuries among motor vehicle occupants were the main contributor to ED visits, accounting for 46%. Non-traffic pedal cyclist

incidents were second to occupant, making up 20% of ED visits. Pedal cyclist injuries that occurred in traffic represented 2% of all transport-related injuries, and although less frequent than non-traffic pedal cyclist injuries, research indicates most fatalities from bicycling-related injuries are caused by collisions with motor vehicles.¹

Age & Gender

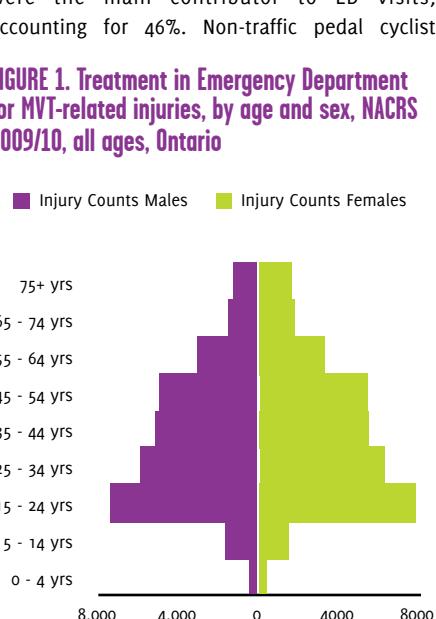
Figure 1 illustrates trends related to age and gender for motor vehicle transport (MVT)-related injuries. Looking at gender, it is apparent that females represent a greater number (52%) of ED visits than males (48%). Considering ED visits, hospital admissions and fatalities that were included in this series of Compass Reports, ED visits were the only indicator with females representing more cases than males. Please refer to the Canada Injury Compass, Issue 2, for more information on transport-related hospital admissions and fatalities.

In terms of age, there is a marked increase in MVT-related ED visits for both males and females in the 15 - 24 age group. Incident numbers reported within the 15 - 24 age grouping are higher than all other age groupings. Possible explanations for this observation include differing level of driver experience, and the increase in risk-taking behaviour among youth.² As shown in Figure 1, there are fewer ED visits for MVT-related injuries among the oldest adults and youngest children compared to the 15 - 24 age cohort.

Injury Mechanism

Table 2 presents MVT-related injuries by mechanism and indicates 15-24 year olds experience the highest injury rate among all age groups; this is illustrated by the MVT-occupant injury rate of 665.2 per 100,000, followed by MVT-pedestrian injury rate of 70.1 per 100,000 and MVT-pedal cyclist injury rate of 43.2 per 100,000.

TABLE 1. Emergency Department visits associated with transport-related injuries, NACRS 2009/10, all ages, Ontario



External Cause	Count	Percentage (%)
Motor Vehicle Traffic (MVT)	65,219	59%
<i>MVT Occupant</i>	51,071	46%
<i>MVT Motorcyclist</i>	3,480	3%
<i>MVT Pedal cyclist</i>	2,465	2%
<i>MVT Pedestrian</i>	4,844	4%
<i>MVT Other/unspecified</i>	3,359	3%
Non-traffic*	44,682	41%
<i>Non-traffic, Pedal cyclist</i>	22,442	20%
<i>Non-traffic, Pedestrian</i>	1,824	2%
<i>Non-traffic, ATV</i>	7,591	7%
<i>Non-traffic, Special AG vehicle</i>	347	0%
<i>Non-traffic, Other/unspecified</i>	12,478	11%
All Transport, Unintentional	109,901	100%

*For more information on non-traffic incidents, please contact the OIPRC - info@oninjuryresources.ca

Discussion

These data support previous research findings around the high risk of injury for young drivers, pedestrians and cyclists. Discussion and prevention strategies are provided below.

Young Drivers

Distracted driving and impaired driving are common high risk behaviours among young drivers. One main contributor to distracted driving is the prevalence of mobile phones. Today's younger adults are accustomed to being constantly 'plugged in' to their social networks, making it difficult to focus solely on driving.³ Impaired driving is also an issue. The Traffic Injury Research Foundation (2013) reported that in all fatal crashes among 20 - 25 year olds, alcohol was involved 56.8% of the time.⁴ Impaired driving also includes driving under the influence of drugs. In a 2011 survey of Ontario high school students, 12% reported driving within one hour of using cannabis.⁵

Injury prevention efforts can focus on enforcement of license restrictions for young drivers, such as zero tolerance for alcohol and passenger limits. Other strategies include promoting and enforcing seatbelt use, and ongoing evaluation and improvement of driver training in Ontario.⁶

Pedestrians

These data highlight the importance of preventing pedestrian-related injuries. One strategy to improve pedestrian safety is the 'complete streets' approach.⁷ As discussed in a 2012 review of pedestrian deaths in Ontario, this approach aims to consider the safety of all road users during the design of a community's transportation network. Many roads have been designed to accommodate motorists, with the safety of other road users considered afterwards.⁷ This limits the potential for effective and sustainable safety solutions. Urban sprawl contributes to this problem, as many residents rely on motor vehicles to get to and from urban centers on a daily basis.⁸ As a result of the reliance on cars, pedestrian safety becomes a low priority. While these strategies have the potential to be most effective, redesigning roads and combatting urban sprawl are long term solutions. In the short term, some evidence-informed strategies to prevent pedestrian injuries include: traffic calming measures (e.g., speed bumps, speed limits, one-way streets in select areas), public education around pedestrian safety (e.g., rules of the road, proper clothing to maximize visibility), and simple additions to roadways, such as raised medians and curbs.⁶

TABLE 2. MVT-Related Emergency Department visits, by age group and major external cause grouping, NACRS 2009/10, by age group, Ontario, Age-specific rates per 100,000

Age group (years)	MVT Occupant	MVT Motor-cyclist	MVT Pedal Cyclist	MVT Pedestrian	MVT Other
0 - 4	109.8	*	0.85	9.7	5.2
5 - 14	141.6	9.1	21.4	30.0	6.6
15 - 24	665.2	34.0	43.2	70.1	45.6
25 - 34	566.7	40.5	22.5	39.5	39.6
35 - 44	231.4	17.9	10.0	15.7	14.9
45 - 64	360.3	34.1	14.7	32.3	24.8
65 +	285.5	8.0	6.12	36.5	15.1
TOTALS	392.9	26.7	18.9	37.2	25.8

*Suppressed due to small number of cases or value of zero.

Cycling

Cycling injuries represent a large portion (20%) of non-traffic injuries (see table 1) and more than 2,400 injuries that occur in traffic. Considering primary prevention strategies - those that aim to prevent the injury causing event - evidence suggests that improvements to our transportation network must become a priority. Thus, the 'complete streets' vision applies to preventing cycling injuries as well as pedestrian injuries.⁷ In the short term, we can work to educate drivers around sharing the road with cyclists, educate cyclists on safe riding practices,⁹ promote the use of helmets among all cyclists,¹⁰ and advocate for better cycling infrastructure in our communities.¹¹

Methodology

Emergency department data were obtained from the National Ambulatory Care Reporting System (2009/10) collected by the Canadian Institute for Health Information. The **Public Health Agency of Canada** provided the data and the analysis for this report. The International Statistical Classification of Disease and Related Health Problems, 10th Revision (ICD-10) is an international standard for classifying diseases and external cause of injury. ICD-10 coding was used to isolate all emergency department visits, hospitalizations and deaths for transport-related injury events.

References

- 1 Injury in Review 2012 Edition: Spotlight on Road and Transport Safety. Public Health Agency of Canada. Retrieved February 11, 2014, from http://www.tirf.ca/publications/PDF_publications/Injury%20in%20Review%202012%20EN-WEB.pdf

2 Road Traffic Injury Prevention Training Manual. (2006). Unit 2: Risk factors for Road Traffic Injuries. World Health Organization, New Delhi.

3 Goodwin, A., Foss, R., Harrell, S., O'Brien, N.P. & the UNC Highway Safety Research Centre. (2012). Distracted driving among newly licensed teen drivers. AAA Foundation for Traffic Safety: Washington, DC.

4 Traffic Injury Research Foundation. (2013). The Alcohol Crash Problem in Canada: 2010. Retrieved January 29, 2014, from http://www.tirf.ca/publications/PDF_publications/2010_Alcohol_Crash_Problem_Report_4_FINAL.pdf

5 Paglia-Boak, A., Adlaf, E.M. & Mann, R.E. (2011). OSDUHS Highlights: Drug use among Ontario students 1977-2011. Centre for Addiction and Mental Health: Toronto, ON.

6 Ontario Injury Prevention Resource Centre (2013). Ontario Regional Injury Data Report. Parachute: Toronto, ON.

7 Office of the Chief Coroner of Ontario. (2012). Pedestrian Death Review. Toronto: ON.

8 Frumpkin, H. (2002). Urban Sprawl and Public Health. Public Health Reports, 117, 201-217.

9 Pucher, J. & Dijkstra, L. (2000). Making walking and cycling safer: Lessons from Europe. Transportation Quarterly, 54.

10 Thompson, D.C., Rivara, F. & Thompson, R. (1999). Helmets for preventing head and facial injuries in bicyclists. Cochrane Database of Systematic Reviews 1999, Issue 4. Art No: CD001855. doi:10.1002/14651858.CD001855

11 Teschke, K. et al., (2012). Route infrastructure and the risk of injuries to bicyclists: A case-crossover study. American Journal of Public Health, 102, 2336-2343.

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