



Economic Burden of Injury in British Columbia

A Brief Glance

August 2015

BC INJURY research and
prevention unit

Reducing the societal and economic burden of injury in BC

Injuries are a significant drain on the resources of the public health system, yet the vast majority are preventable. Therefore, injury prevention has been identified as an important priority in public health programming in British Columbia (BC).



Though many attempts have been made to quantify the burden of injury, it is still a difficult task to quantify and attach economic costs to the greater burden of pain, diminished potential, and loss experienced by injured British Columbians and their families.

Economic models are limited in their ability to account for pain and suffering, and seldom ever include children and youth as factors to include in the economic calculation.

The BC Injury Research and Prevention Unit (BCIRPU) is pleased to present the *Economic Burden of Injury in British*

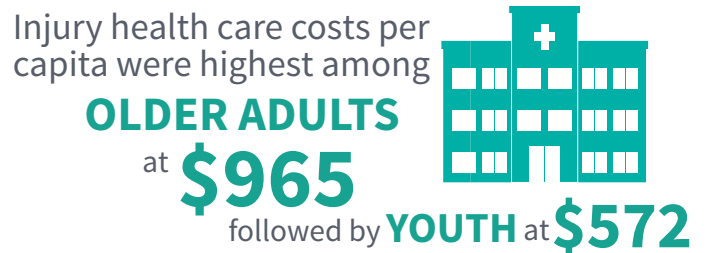
Columbia. In support of the promotion of injury prevention strategies, this report quantifies the annual burden of injury on the health care system through calculations that include the broader social burden of injury such as the human costs of years of life lost, and diminished labour market productivity and earnings.

Costs of injuries for males was higher at

\$2.2
BILLION

than for females at

\$1.5
BILLION



Overview of the Costs of Injury

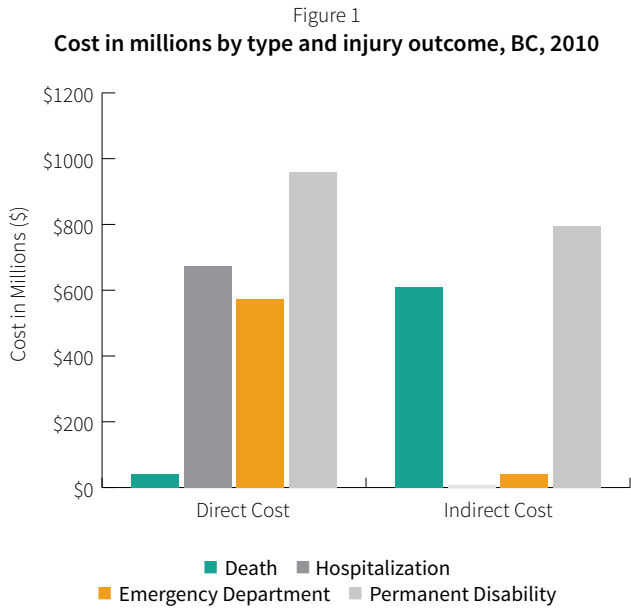
In 2010, 2,009 lives were lost, 34,998 people were hospitalized and 456,390 were treated in emergency departments as a result of injury. A further 8,582 people suffered from permanent disabilities.

The total economic burden of injury in BC amounted to \$3.7 billion in 2010. Unintentional injuries accounted for \$3.1 billion or 83% of the total cost and of that, \$2.0 billion were direct costs to the health care system.

Table 1: Total cost by cause and injury outcome, BC, 2010 (\$ millions)

Cause	Death Costs	Hospitalized Treatment Costs	Emergency Room Visit Costs	Permanent Disability Costs	Total Costs
Falls	\$38	\$415	\$193	\$577	\$1,222
Transport Incidents	\$153	\$109	\$69	\$327	\$658
Unintentional Poisoning	\$155	\$17	\$8	\$66	\$245
Suicide/Self-Harm-Poisoning	\$47	\$29	\$4	\$156	\$236
Suicide/Self-Harm-Other	\$162	\$7	\$2	\$18	\$188
Violence	\$26	\$18	\$14	\$98	\$157
Other Injuries	\$68	\$87	\$326	\$513	\$994
Total	\$649	\$682	\$615	\$1,756	\$3,701

Note: Numbers are rounded, therefore totals may not sum exactly. Other injuries include drowning, fire/burns, struck by/against sport equipment, other unintentional injuries and undetermined intent/other.



Cost of Injury by Injury Outcome

A majority of direct costs were attributable to injuries causing permanent disability at \$959 million, followed by injuries causing hospitalization at \$675 million, and injuries requiring emergency room treatment at \$573 million (Figure 1).

The leading contributors to total death costs were suicide other than poisoning at \$162 million, unintentional poisoning at \$155 million, and transport incidents at \$153 million. The top contributors to total hospitalized treatment costs were falls at \$415 million and transport incidents at \$109 million (Table 1).

Violence resulted in the highest cost per injury death, at \$463,804 per death. The second most costly cause of death was unintentional poisoning at \$440,268 followed by transport incidents at \$434,717 per death. The top three most expensive costs per hospitalized treatment were transport incidents (\$22,393), falls (\$21,807), and suicide other than poisoning (\$19,494) (Table 2).

Table 2: Cost per injury outcome and cause, BC, 2010

Cause	Cost per Death	Cost per Hospitalized Treatment	Cost per Emergency Room Visit	Cost per Permanent Disability
Transport Incidents	\$434,714	\$22,393	\$1,798	\$252,569
Falls	\$68,233	\$21,807	\$1,417	\$164,860
Unintentional Poisoning	\$440,268	\$12,624	\$1,088	\$221,808
Suicide/Self-Harm-Poisoning	\$367,912	\$11,381	\$1,019	\$272,780
Suicide/Self-Harm-Other	\$431,054	\$19,494	\$1,683	\$306,442
Violence	\$463,804	\$13,804	\$1,129	\$299,034
Other Injuries	\$351,332	\$15,714	\$1,264	\$202,782
Total	\$322,831	\$19,485	\$1,347	\$204,566

Note: Numbers are rounded, therefore totals may not sum exactly. Other injuries include drowning, fire/burns, struck by/against sport equipment, other unintentional injuries and undetermined intent/other.

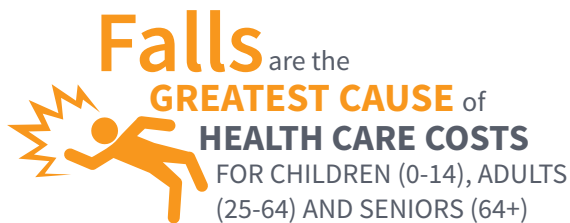
Table 3: Number of injury deaths, death rates, total costs, costs per capita and health care costs per capita by cause, BC, 2010

Cause	Deaths	Death Rate (per 100,000)	Total Costs (\$ millions)	Total Cost Per Capita	Health Care Cost Per Capita
Falls	552	12.36	\$1,222	\$274	\$215
Transport Incidents	352	7.88	\$658	\$147	\$83
Unintentional Poisoning	351	7.86	\$245	\$55	\$15
Suicide/Self-Harm-Poisoning	129	2.89	\$236	\$53	\$29
Suicide/Self-Harm-Other	375	8.40	\$188	\$42	\$5
Violence	57	1.28	\$157	\$35	\$19
Other Injuries	193	4.32	\$994	\$223	\$146
Total	2,009	44.99	\$3,701	\$829	\$512

Note: Health care cost per capita calculated using direct costs only. Other injuries include drowning, fire/burns, struck by/against sport equipment, other unintentional injuries and undetermined intent/other.

Cost of Injury by Cause

The majority of the total costs of injuries in BC in 2010 were due to falls at \$1.2 billion or 33% of total costs, while the costs for transport incidents were \$658 million or 18% of total costs. Costs for all forms of suicide and self-harm were \$424 million or 11% of total costs, costs for unintentional poisoning were \$245 million or 7% of total costs, and costs for violence were \$157 million or 4% of total costs (Table 3).



Costs of Injury by Health Authority

Table 4 presents the summary of the direct and indirect costs by health authority. A further breakdown for costs for each health authority is available in the report.

Conclusion

The key motivation in investment in injury prevention makes sense from an economic point of view. Research and experience have shown that the vast majority of injuries that occur are both predictable and preventable; hence increasing the level of prevention will produce savings. Data demonstrate who is at risk and when and under what conditions the injuries occur, which all assist in making strategic decisions regarding injury prevention strategy and actions. There is a wide range of ongoing efforts in injury prevention in BC, particularly in road safety, fall prevention and intentional injury prevention. The development and evaluation of future injury prevention interventions requires a national and provincial commitment.

The evidence presented in this report demands further attention and action in reducing the burden of injuries in British Columbia. Continued surveillance and research,

FALL-RELATED injuries resulted in the **HIGHEST HOSPITAL COSTS** at

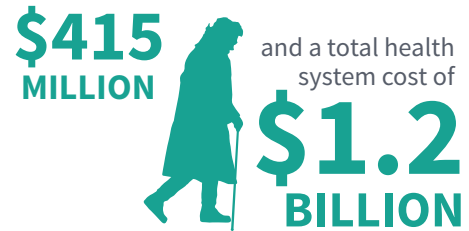


Table 4: Total, direct and indirect costs of injury by health authority, BC, 2010 (\$ millions)

Health Authority	Total Costs	Direct Costs	Indirect Costs
Interior	\$736	\$437	\$299
Fraser	\$1,225	\$767	\$457
Vancouver Coastal	\$664	\$423	\$241
Island	\$676	\$428	\$248
Northern	\$354	\$201	\$153
Unspecified	\$47	\$32	\$14
BC Total	\$3,701	\$2,289	\$1,412

Note: Numbers are rounded, therefore totals may not sum exactly.

together with the implementation of effective injury prevention education, engineering and enforcement strategies are necessary to stem the human and economic burden that injuries exact. Given that the vast majority of injuries are both predictable and preventable, support for injury prevention in BC represents a prudent investment.

Definitions

Direct costs include all goods and services used for the diagnosis, treatment, continuing care, rehabilitation, and terminal care of patients who suffered injuries. In addition, direct costs also include mortality costs, estimated on a complete episode of events due to an injury-related death.

Indirect costs are defined as the value of economic output lost because of illness, injury-related work disability, or premature death. These costs include all of the productivity lost to society due to injuries that prevent individuals from performing their regular activities. Indirect costs were not calculated for people aged 65 years and older as they were assumed to have left the work force.

Permanent disability is either able to return to some type of employment or unable to work.

The full report and infographic are available on our website at www.injuryresearch.bc.ca.