

### Definition/Description:

Unintentional injury can be defined as “events in which (1) injury occurs over a relatively short period of time –at most, seconds or minutes, (2) the harmful outcome was not sought, and (3) the injury resulted either from one of the forms of physical energy in the environment (kinetic, chemical, thermal, electrical, or ionizing radiation) or because normal body mechanisms for using such energy were blocked by external means (such as by drowning).”<sup>1</sup>

This indicator reports the *Leading Causes of Unintentional Injury* in the Winnipeg Health Region. For each leading unintentional injury cause, the counts, crude rate of hospitalization per 100,000 population, and the percentage of all unintentional injuries is provided. Unintentional injury is one of the five intent/manner categories within the “Injury Matrix” that is recommended by Health Canada for use when compiling injury data. The injury matrix aligns categories of injuries into five intent-manner categories by mechanism or cause of the injury. Unintentional injury corresponds to injuries coded using ICD-9 E-codes: E800-E869.9 and E880-E929.9. For descriptions of each unintentional injury cause, please see the *Table of Unintentional Injury E-code Groupings* (Method section).

### Method

Please refer to the *Injury Hospitalization* (indicator #46) for a detailed description of definitions and methods used for the analysis of injury hospitalization data.

#### *Technical note:*

In this analysis of unintentional injury causes, the leading causes were determined by examining the highest counts for specific unintentional injury causes listed in the injury matrix. Categories of injury causes that were non-specific in nature were excluded from the determination of leading cause due to the heterogeneity of injury causes that were grouped together in these categories. The reason for exclusion is that these “non-specific” cause categories cannot be easily targeted for an injury prevention effort, and may indicate an issue with injury coding methods. There are three categories that were excluded: *Unspecified; Other specified, Classifiable; and Other Specified, NEC (not elsewhere classifiable)*. There were a large number of events in the categories of *Other Specified, classifiable*; and *Other Specified, NEC*, (456 and 122, respectively between 2000 and 2002). However, the largest number of events occurred in the *Unspecified* category, (820 events between 2000 and 2002). The majority of these were *Fractures, Cause Unspecified* (ICD-9 E-code: E887). This category has particular issues since *Fractures, Cause Unspecified* (ICD-9 E-code: E887), is an ICD-9 *Fall* injury code. Therefore, the *Fall* injury hospitalization rates reported in this indicator may be somewhat under-reported. These issues will be further examined in a forth-coming report on injury in the WHR.

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<sup>1</sup> Waller, J. as cited in Christoffel and Gallagher. *Injury Prevention and Public Health*. (1999) Gaithersburg, Maryland, USA, Aspen Publishers.p.70.

Table of Unintentional Injury E-code Groupings<sup>2</sup>

Mechanism/Cause	ICD9 Code	MMWR Description
Cut/pierce	E920.0-9	Injuries caused by cutting and piercing instruments
Drowning/submersion	E830.0-9, E832.0-9, E910.0-9	Injuries from drowning and submersion with and without involvement of watercraft.
Fall	E880.0-E886.9, E888	Injuries from falls associated with various mechanisms. Excludes E887: Fracture, cause unspecified.
Fire/burn	E890.0-E899, E924.0-9	Injuries from fire and flames and from hot objects and substances.
Firearm	E922.0-.3, .8, .9	Includes injury codes related to firearms (excludes air guns).
Machinery	E919 (.0-9)	Includes injury codes associated with machinery used in various industrial and occupational activities (including agricultural).
Motor vehicle traffic	E810-E819 (.0-9)	Injuries resulting from motor-vehicle-traffic injuries involving automobiles, vans, trucks, motor cycles, and other motorized cycles known or assumed to be traveling on public roads or highways.
Pedal cyclist, other	E800-E807 (.3), E820-E825 (.6), E826.1, .9, E827-E829 (.1)	Injuries among pedal cyclists not involving motor-vehicle traffic accidents. Includes persons hit by a train or by a motor vehicle while not in traffic, or in collision with another pedal cycle.
Pedestrian, other	E800-807 (.2), E820-E825 (.7), E826-E829 (.0)	Includes codes for pedestrians hit by a train, a motor vehicle where the collision did not occur in traffic (i.e. on a public road or highway).
Transport, other	E800-E807 (.0, .1, .8, .9), E820-E825 (.0-5, .8, .9), E826.2-8, E827-E829 (.2-9), E831.0-9, E833.0-E845.9	Deaths associated with various other means of transportation: railway, off-road and other motor vehicles not in traffic. Includes other surface transport (e.g. snowmobiles), water, and aircraft.
Natural/environmental	E900.0-E909, E928.0-2	Includes, but is not limited to, injuries due to excessive heat, excessive cold, hunger, cataclysmic storms (e.g. tornados, floods, and hurricanes) as well as bites and stings from insects or animals.
Overexertion	E927	Examples include: excessive physical exercise, overexertion from lifting, pulling, pushing. Strenuous movements in: recreational activities, other activities.
Poisoning	E850.0-E869.9	Includes all injuries codes referring to poisoning. Includes drugs and medicinal substances, and gases.
Struck by, against	E916-E917.9	Injuries resulting from being struck by or striking against objects or persons.
Suffocation	E911-E913.9	Includes inhalation or ingestion of food or other objects that block respiration and by other mechanical means that hinder breathing (e.g. plastic bag over nose or mouth, suffocation by bedding, unintentional hanging or strangulation).
Other specified, classifiable	E846-E848, E914-E915, E918, E921.0-9, E922.4, E923.0-9, E925.0-E926.9, E928.3, E929.0-5	Causes of injury not assigned to the specific categories within the matrix. Includes (but not limited to) foreign body entering an orifice, caught accidentally between objects, explosions, electric current.
Other specified, NEC	E928.8, E929.8	Codes for mechanisms of injury that have been reported but for which no specified E-codes exists.
Unspecified	E887, E928.9, E929.9	Codes used to indicate cases where the injury mechanisms are not recorded. The largest contributor to this category is E887: Fracture, cause unspecified. Also includes: unspecified accidents (E928.9), and late effects of unspecified accidents (E929.9).

<sup>2</sup> References used : Centers for Disease Control and Prevention. Recommended Framework for Presenting Injury Mortality Data MMWR 1997;46 (No.RR-14) and International Classification of Diseases and Related Health Problems, Ninth Revision, Clinical Modification (ICD-9-CM), 1998.

**Source:**

The source data was the Hospital Abstract Database, provided by Decision Support Service, Manitoba Health. All numerical values, tables, and figures were generated by Population Health & Health System Analysis, Winnipeg Regional Health Authority, 2004.

**Findings:****Leading Causes of Unintentional Injury Hospitalization in the Winnipeg Health Region, 1997-1999 and 2000-2002****1997-1999**

Rank	Mechanism or Cause	Count	Rate per 100,000 population	Per cent of All Unintentional Injury
1	Fall	7410	381.26	59.6%
2	Motor vehicle traffic	1064	54.75	8.6%
3	Cut/pierce	484	24.90	3.9%
4	Struck by, against	406	20.89	3.3%
5	Poisoning	286	14.72	2.3%
6	Fire/burn	263	13.53	2.1%
7	Overexertion	238	12.25	1.9%
8	Natural/environmental	230	11.83	1.8%
9	Transport, other	194	9.98	1.6%
10	Pedal cyclist, other	160	8.23	1.3%
11	Machinery	153	7.87	1.2%
12	Suffocation	85	4.37	0.7%
13	Pedestrian, other	19	0.98	0.2%
14	Drowning/submersion	15	0.77	0.1%
15	Firearm	10	0.51	0.1%

**2000-2002**

Rank	Mechanism or Cause	Count	Rate per 100,000 population	Per cent of All Unintentional Injury
1	Fall	7255	369.87	59.9%
2	Motor vehicle traffic	1000	50.98	8.3%
3	Struck by, against	418	21.31	3.5%
4	Cut/pierce	409	20.85	3.4%
5	Poisoning	313	15.96	2.6%
6	Overexertion	258	13.15	2.1%
7	Fire/burn	233	11.88	1.9%
8	Transport, other	204	10.40	1.7%
9	Natural/environmental	192	9.79	1.6%
10	Machinery	158	8.06	1.3%
11	Pedal cyclist, other	143	7.29	1.2%
12	Suffocation	83	4.23	0.7%
13	Pedestrian, other	23	1.17	0.2%
14	Drowning/submersion	13	0.66	0.1%
15	Firearm	9	0.46	0.1%

### Leading Causes of Unintentional Injury Hospitalization for Females in the Winnipeg Health Region, 1997-1999 and 2000-2002

#### 1997-1999

Rank	Mechanism or Cause	Count	Rate per 100,000 population	Per cent of All Unintentional Injury
1	Fall	4821	482.22	71.5%
2	Motor vehicle traffic	471	47.11	7.0%
3	Poisoning	154	15.40	2.3%
4	Cut/pierce	130	13.00	1.9%
5	Natural/environmental	108	10.80	1.6%
6	Struck by, against	108	10.80	1.6%
7	Fire/burn	103	10.30	1.5%
8	Overexertion	100	10.00	1.5%
9	Transport, other	71	7.10	1.1%
10	Pedal cyclist, other	48	4.80	0.7%
11	Suffocation	31	3.10	0.5%
12	Machinery	9	0.90	0.1%
13	Pedestrian, other	8	0.80	0.1%
14	Drowning/submersion	5	0.50	0.1%
15	Firearm	3	0.30	0.04%

#### 2000-2002

Rank	Mechanism or Cause	Count	Rate per 100,000 population	Per cent of All Unintentional Injury
1	Fall	4758	472.00	72.4%
2	Motor vehicle traffic	444	44.04	6.8%
3	Poisoning	175	17.36	2.7%
4	Cut/pierce	112	11.11	1.7%
5	Overexertion	95	9.42	1.4%
6	Fire/burn	88	8.73	1.3%
7	Struck by, against	85	8.43	1.3%
8	Natural/environmental	82	8.13	1.2%
9	Transport, other	59	5.85	0.9%
10	Pedal cyclist, other	41	4.07	0.6%
11	Suffocation	33	3.27	0.5%
12	Machinery	11	1.09	0.2%
13	Pedestrian, other	11	1.09	0.2%
14	Drowning/submersion	6	0.60	0.1%
15	Firearm	2	0.20	0.03%

### Leading Causes of Unintentional Injury Hospitalization for Males in the Winnipeg Health Region, 1997-1999 and 2000-2002

#### 1997-1999

Rank	Mechanism or Cause	Count	Rate per 100,000 population	Per cent of All Unintentional Injury
1	Fall	2589	274.32	45.4%
2	Motor vehicle traffic	593	62.83	10.4%
3	Cut/pierce	354	37.51	6.2%
4	Struck by, against	298	31.57	5.2%
5	Fire/burn	160	16.95	2.8%
6	Machinery	144	15.26	2.5%
7	Overexertion	138	14.62	2.4%
8	Poisoning	132	13.99	2.3%
9	Transport, other	123	13.03	2.2%
10	Natural/environmental	122	12.93	2.1%
11	Pedal cyclist, other	112	11.87	2.0%
12	Suffocation	54	5.72	0.9%
13	Pedestrian, other	11	1.17	0.2%
14	Drowning/submersion	10	1.06	0.2%
15	Firearm	7	0.74	0.1%

#### 2000-2002

Rank	Mechanism or Cause	Count	Rate per 100,000 population	Per cent of All Unintentional Injury
1	Fall	2497	261.89	45.1%
2	Motor vehicle traffic	556	58.31	10.0%
3	Struck by, against	333	34.93	6.0%
4	Cut/pierce	297	31.15	5.4%
5	Overexertion	163	17.10	2.9%
6	Machinery	147	15.42	2.7%
7	Fire/burn	145	15.21	2.6%
8	Transport, other	145	15.21	2.6%
9	Poisoning	138	14.47	2.5%
10	Natural/environmental	110	11.54	2.0%
11	Pedal cyclist, other	102	10.70	1.8%
12	Suffocation	50	5.24	0.9%
13	Pedestrian, other	12	1.26	0.2%
14	Drowning/submersion	7	0.73	0.1%
15	Firearm	7	0.73	0.1%

## Highlights:

### Both Sexes

- During the period of 1997-1999, the three leading causes of Unintentional Injury hospitalizations for both sexes were due to:
  1. Fall
  2. Motor Vehicle Traffic
  3. Cut/pierce
- During the period of 2000-2002, the three leading causes of Unintentional Injury hospitalizations for both sexes were due to:
  1. Fall
  2. Motor Vehicle Traffic
  3. Struck by, against
- The *Fall Injury* hospitalization rate decreased very slightly between the two time periods; this is in contrast to *Fall Injury* deaths, which nearly doubled between the early and late 1990s (see indicator #10).
- The following causes of Unintentional Injury hospitalization showed rate decreases between the two time periods: *Motor Vehicle Traffic; Cut/Pierce; Fire/Burn; Natural/Environmental; Pedal Cyclist, other; Drowning/Submersion; and Firearm.*
- The following causes of Unintentional Injury hospitalization showed a rate increase between the two time periods: *Pedestrian, other.*

### Females

During the period of 1997-1999, the three leading causes of Unintentional Injury hospitalizations for females were due to:

1. Fall
  2. Motor Vehicle Traffic
  3. Poisoning
- During the period of 2000-2002, the three leading causes of Unintentional Injury hospitalizations for females were due to:
    1. Fall
    2. Motor Vehicle Traffic
    3. Poisoning
  - This is similar to the death data for females, which has the same leading causes of Unintentional Injury deaths (see indicator #10).
  - The number and rate of *Fall Injury* hospitalizations for females decreased slightly between the two time periods. This is in contrast to *Fall Injury* deaths for females, which substantially increased between the two time periods.
  - The number and rate of *Motor Vehicle Traffic Injury* hospitalizations for females also slightly decreased between the two time periods.
  - The number and rate of the following causes of Unintentional Injury hospitalizations for females increased between the two time periods: *Poisoning; Suffocation; Machinery; Pedestrian, other; and Drowning/submersion.*
  - The number and rate of the following causes of Unintentional Injury hospitalizations for females decreased between the two time periods: *Cut/Pierce; Fire/Burn; Struck by, against; Natural/Environmental; Transport, other; and Pedal Cyclist, other.*

### Males

- During the period of 1997-1999, the three leading causes of Unintentional Injury hospitalizations for males were due to:
  1. Fall
  2. Motor Vehicle Traffic
  3. Cut/pierce

- During the period of 2000-2002, the three leading causes of Unintentional Injury hospitalizations for males were due to:
  1. Fall
  2. Motor Vehicle Traffic
  3. Struck by, against
- This is similar to the death data for Unintentional Injury, where *Fall Injury* and *Motor Vehicle Traffic Injury* were also leading causes of Unintentional Injury *deaths* for males, however, *Poisoning* was the third leading cause (see indicator #10).
- The number and rate of *Fall Injury* hospitalizations for males decreased slightly between the two time periods.
- The number and rate of *Cut/Pierce Injury* hospitalizations for males decreased substantially between the two time periods, while *Struck by/against* injury hospitalizations increased.
- The number and rate of the following causes of Unintentional Injury hospitalizations for males increased between the two time periods: *Machinery; Overexertion; Struck by/against; Transport, other; and Poisoning.*
- The number and rate of the following causes of Unintentional Injury hospitalizations for males decreased between the two time periods: *Motor Vehicle Traffic; Cut/Pierce; Fire/Burn; Natural/Environmental; and Pedal Cyclist, other.*
- It should be noted that although a large decrease was seen in the rate of *Drowning/Submersion* injury hospitalization, this represents a decrease of only 3 events.