

### 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>

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 complete descriptions of each unintentional injury cause, please see the *Table of Unintentional Injury E-code Groupings* (following the Source section). Counts, rates and PYLL are provided for each leading unintentional injury cause.

Note that categories of injury causes that were non-specific in nature were excluded from the determination of leading causes of unintentional injury. This is due to the heterogeneity of injury causes that were grouped together in these categories (see technical note, below).

### Method:

For this indicator, leading causes of unintentional injury in the WHR were determined from those causes or mechanisms of unintentional injury that account for the highest counts. This was done at the regional-level for males, females and both sexes, for all ages, with a comparison between two time periods: 1990-1994 and 1995-1999. Please refer to the *Injury Death* indicator for a complete description of definitions and methods used for the analysis of injury death data (Indicator #17).

### 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. There are three categories that were excluded: *Unspecified*; *Other specified, Classifiable*; and *Other Specified, NEC (not elsewhere classifiable)*. The reason for exclusion is that these “non-specific” cause categories cannot be easily targeted for an injury prevention effort. There were not a large number of events in the categories of *Other Specified, classifiable*; and *Other Specified, NEC*, (6 and 0, respectively between 1990 and 1994; 11 and 2, respectively between 1995 and 1999).

However, it is of interest to note that there were a large number of events in the *Unspecified* category, (48 between 1990 and 1994 and 123 between 1995 and 1999). The majority of which are *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* rates reported in this indicator may be somewhat underreported. This issue 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 enetering 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: 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 death data used in this report was obtained from Vital Statistics Agency, Consumer and Corporate Affairs, Manitoba Finance and Manitoba Bureau of Statistics, Government of Manitoba. All numerical values, tables, and figures (including spatial analyses) were generated by the Population Health and Health System Analysis Unit, Winnipeg Regional Health Authority.

For further information, a comprehensive Mortality Report, Winnipeg Regional Health Authority, 2004, can be found at

<http://www.wrha.mb.ca/howcare/decsup/files/population/WRHAMortalityReport2004.pdf>

**Findings:****Leading Causes of Unintentional Injury Death for Residents in the Winnipeg Health Region 1990-1994**

Rank	Mechanism or Cause	Count	Crude Rate per 100,000	Per cent of All Unintentional Injury*	PYLL
1	Fall	265	8.29	34.7%	1608
2	Motor vehicle traffic	164	5.13	21.5%	4695
3	Poisoning	49	1.53	6.4%	1375
4	Suffocation	41	1.28	5.4%	1031
5	Fire/burn	31	0.97	4.1%	1040
6	Drowning/submersion	30	0.94	3.9%	1224
7	Transport, other	19	0.59	2.5%	718
8	Natural/environmental	14	0.44	1.8%	145
9	Firearm	6	0.19	0.8%	236

## Notes:

\*Percent of All Unintentional Injury does not total 100% due to removal of causes with <5 events. Other causes with cell counts of less than five (each): Machinery; Pedestrian, other; Cut/Pierce ; and Firearm.

PYLL: Potential Years of Life Lost

**Leading Causes of Unintentional Injury Death for Residents in the Winnipeg Health Region 1995-1999**

Rank	Mechanism or Cause	Count	Crude Rate per 100,000	Per cent of All Unintentional Injury*	PYLL
1	Motor vehicle traffic	190	5.93	32.4%	6798
2	Fall	133	4.15	22.7%	818
3	Poisoning	47	1.47	8.0%	1257
4	Drowning/submersion	46	1.44	7.8%	1707
5	Fire/burn	39	1.22	6.7%	1302
6	Suffocation	37	1.16	6.3%	1058
7	Transport, other	13	0.41	2.2%	552
8	Natural/environmental	13	0.41	2.2%	394
9	Struck by, against	5	0.16	0.9%	180

## Notes:

\*Percent of All Unintentional Injury does not total 100% due to removal of causes with <5 events. Other causes with cell counts of less than five (each): Struck by, against; Machinery; Pedestrian, other; and Other specified, NEC.

NEC=Not elsewhere classifiable.

### Leading Causes of Unintentional Injury Death for Females in the Winnipeg Health Region 1990-1994

Rank	Mechanism or Cause	Count	Crude Rate per 100,000	Per cent of All Unintentional Injury*	PYLL
1	Fall	67	4.07	31.9%	221
2	Motor vehicle traffic	61	3.70	29.0%	2017
3	Poisoning	18	1.09	8.6%	474
4	Fire/burn	14	0.85	6.7%	387
5	Drowning/submersion	11	0.67	5.2%	405
6	Suffocation	10	0.61	4.8%	242

## Notes:

\*Percent of All Unintentional Injury does not total 100% due to removal of causes with <5 events. Other causes with cell counts of less than five (each): Transport, other; Natural/environmental; Cut/Pierce; Pedestrian, other; and Struck by, against.

PYLL: Potential Years of Life Lost

### Leading Causes of Unintentional Injury Death for Females in the Winnipeg Health Region 1995-1999

Rank	Mechanism or Cause	Count	Crude Rate per 100,000	Per cent of All Unintentional Injury*	PYLL
1	Fall	127	7.72	37.8%	352
2	Motor vehicle traffic	64	3.89	19.0%	1651
3	Poisoning	20	1.22	6.0%	443
4	Fire/burn	16	0.97	4.8%	513
5	Suffocation	16	0.97	4.8%	272
6	Drowning/submersion	9	0.55	2.7%	383

## Notes:

\*Percent of All Unintentional Injury does not total 100% due to removal of causes with <5 events. Other causes with cell counts of less than five (each): Natural/Environmental; Other specified, classifiable; Transport, other; and Other specified, NEC.

### Leading Causes of Unintentional Injury Death for Males in the Winnipeg Health Region 1990-1994

Rank	Mechanism or Cause	Count	Crude Rate per 100,000	Per cent of All Unintentional Injury*	PYLL
1	Motor vehicle traffic	129	8.30	34.3%	4781
2	Fall	66	4.25	17.6%	597
3	Drowning/submersion	35	2.25	9.3%	1301
4	Poisoning	29	1.87	7.7%	783
5	Suffocation	27	1.74	7.2%	816
6	Fire/burn	25	1.61	6.6%	916
7	Natural/environmental	11	0.71	2.9%	345
8	Transport, other	10	0.64	2.7%	401

## Notes:

\*Percent of All Unintentional Injury does not total 100% due to removal of causes with <5 events. Other causes with cell counts of less than five (each): Machinery; Struck by, against; Pedestrian, other; and Firearm.  
PYLL: Potential Years of Life Lost

### Leading Causes of Unintentional Injury Death for Males in the Winnipeg Health Region 1995-1999

Rank	Mechanism or Cause	Count	Crude Rate per 100,000	Per cent of All Unintentional Injury*	PYLL
1	Fall	138	8.90	32.3%	1256
2	Motor vehicle traffic	100	6.45	23.4%	3043
3	Poisoning	29	1.87	6.8%	931
4	Suffocation	25	1.61	5.9%	759
5	Drowning/submersion	21	1.35	4.9%	842
6	Transport, other	17	1.10	4.0%	656
7	Fire/burn	15	0.97	3.5%	526
8	Natural/environmental	11	0.71	2.6%	139
9	Firearm	6	0.39	1.4%	236

## Notes:

\*Percent of All Unintentional Injury does not total 100% due to removal of causes with <5 events. Other causes with cell counts of less than five (each): Struck by, against; Machinery; Pedestrian, other; and Other specified, NEC.

## Highlights:

- During the period of 1990-1994, the three leading causes (by count) of *Unintentional Injury* deaths for both sexes were due to :
  1. Motor Vehicle Traffic
  2. Fall
  3. Poisoning
- During the period of 1995-1999, the three leading causes (by count) of *Unintentional Injury* deaths for both sexes were due to:
  1. Fall
  2. Motor Vehicle Traffic
  3. Poisoning
- The number of deaths due to falls nearly doubled between 1990-1994 and 1995-1999 periods (n=133 and n=265, respectively). The increase in the number of deaths in the *Fall* category may partially explain the increase in the number of *Unintentional Injury* deaths, as well as the overall injury deaths, in the 1995-1999 time period. Perhaps this indicates an increase in the reporting of falls as an underlying cause of death in the WHR.
- The *Motor Vehicle Traffic* injury death rate slightly decreased between the two time periods.
- The *Poisoning* injury death rate remained nearly the same between the two time periods.
- The following causes of *Unintentional Injury* death showed rate decreases between the two time periods: *Drowning/Submersion; Fire/burn; Struck by, Against*.
- The following causes of Unintentional Injury death showed rate increases between the two time periods: *Suffocation; Transport, other; Firearm*.
- The three leading causes of *Unintentional Injury* PYLL (potential years of life lost) for 1995-1999 among both sexes were due to:
  1. Motor Vehicle Traffic
  2. Fall
  3. Poisoning
- The PYLL for *Motor Vehicle Traffic* has decreased since 1990-1994 period,
- The PYLL for the *Fall* category nearly doubled (from 818 to 1608 PYLL).

## Females

- During the period of 1990-1994, the three leading causes (by count) of Unintentional Injury deaths for females were due to:
  1. Fall
  2. Motor Vehicle Traffic
  3. Poisoning
- During the period of 1995-1999, the three leading causes (by count) of Unintentional Injury deaths for females were the same as that for 1990-1994.
- The number of deaths due to *Falls* for females increased substantially between the two time periods (n=67 to n=127). The number of Unintentional Injury deaths that can be attributed to causes other than Falls was fairly stable between the two time periods (with the exception of the rates and counts for the *Unspecified category*, which increased).
- In contrast, the leading causes of *Unintentional Injury* PYLL for females, in 1995-1999, were due to:
  1. Motor Vehicle Traffic
  2. Fire/burn
  3. Poisoning
- It may be of interest to note the low PYLL for the *Fall* category among females compared to other cause categories and compared to the Fall PYLL of males. This may indicate that death due to a fall is a concern among older females.

**Males**

- During the period of 1990-1994, the three leading causes (by count) of *Unintentional Injury* deaths for males were due to:
  1. Motor Vehicle Traffic
  2. Fall
  3. Drowning/Submersion
  
- During the period of 1995-1999, the three leading causes (by count) of *Unintentional Injury* deaths for males were due to:
  1. Fall
  2. Motor Vehicle Traffic
  3. Poisoning
- The number of deaths due to *Motor Vehicle Traffic* injury decreased between the two periods, while the number of fall-related deaths increased.
- It is of interest to note the substantial decrease in the number of *Drowning/Submersion* deaths among males between the two time periods, as well as the increase in *Firearm* as a cause of injury death.
- The leading causes of Unintentional Injury PYLL for males in 1995-1999 were due to:
  1. Motor Vehicle Traffic
  2. Fall
  3. Poisoning
- The PYLL for *Motor Vehicle Traffic* among males decreased substantially between the two periods, while the PYLL for *Fall* increased.
- The decrease in the number of *Drowning/Submersion* deaths among males, between the two periods, also led to a substantial decrease in the *Drowning/Submersion* PYLL.