Diverging Trends in the Incidence of Occupational and Nonoccupational Injury in Ontario, 2004–2011

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Objectives. We describe trends in occupational and nonoccupational injury among working-age adults in Ontario.

Methods. We conducted an observational study of adults aged 15 to 64 over the period 2004 through 2011, estimating the incidence of occupational and nonoccupational injury from emergency department (ED) records and, separately, from survey responses to 5 waves of a national health interview survey.

Results. Over the observation period, the annual percentage change (APC) in the incidence of work-related injury was –5.9% (95% confidence interval [CI] = –7.3, –4.6) in ED records and –7.4% (95% CI = –11.1, –3.5) among survey participants. In contrast, the APC in the incidence of nonoccupational injury was –0.3% (95% CI = –0.4, 0.0) in ED records and 1.0% (95% CI = 0.4, 1.6) among survey participants. Among working-age adults, the percentage of all injuries attributed to work exposures declined from 20.0% in 2004 to 15.2% in 2011 in ED records and from 27.7% in 2001 to 16.9% in 2010 among survey participants.

Conclusions. Among working-age adults in Ontario, nearly all of the observed decline in injury incidence over the period 2004 through 2011 is attributed to reductions in occupational injury. (*Am J Public Health.* 2015;105:338–343. doi:10.2105/AJPH.2014.302223)

Although most developed countries have made progress in improving population health over the past 2 decades, reductions in the burden of mortality, morbidity, and disability attributed to injury have been uneven.[1] In the United States, the age-standardized death rate from motor vehicle collisions declined by 30% between 1990 and 2010. By contrast, the age-standardized death rate from falls and poisonings increased by 71% and 128%, respectively, over the period 2000 through 2009.[2] A recent surveillance report on injury mortality in Canada found that the share of all-cause mortality attributed to injury increased over the period 2001 through 2007.[3] Injury remains the leading cause of death among persons aged younger than 45.[4]

The burden of injury among working-age adults arises from occupational and nonoccupational exposures. Although the reduction in hazardous exposures arising from work has been listed as among the 10 most important public health contributions to the improvement in population health over the past 100 years,[5] work exposures continue to cause a large fraction of injury morbidity, responsible for as much as 25% of the burden of injury in working-age adults.[6]

The objective of surveillance in public health and occupational health is the systematic and ongoing assessment of population health status, based on the timely collection, analysis, and dissemination of information on health status and health risks.[7] Over the past 2 decades, the population surveillance of injury morbidity has made strengthened use of health interview surveys[6,8,9] and administrative records of health care utilization, particularly emergency department (ED) records.[10–17] These data sources can be used effectively to identify important trends in injury incidence and, if well-designed, can document occupational and nonoccupational injury causation.

We estimated trends in the incidence of occupational and nonoccupational injury in Ontario over the period 2004 through 2011 for adults aged 15 to 64, drawing on a census of ED records and participants in national health interview surveys.

METHODS

The study is based on population-based administrative records of injury among patients presenting for care in hospital EDs in Ontario, supplemented with a conceptually concordant measure of injury incidence provided by representative samples of Ontario residents participating in 5 consecutive waves of a national health interview survey. We obtained estimates of the number of working-age adults in Ontario and of labor force participants from labor force surveys and used these estimates to compute annual incidence rates.

Data Sources

We conducted an observational study of a census of all injuries among patients presenting to EDs for medical care, in parallel with measures of self-reported incidence of injury requiring medical attention from representative samples participating in 5 health interview survey waves, for a population of more than 8 500 000 adults aged 15 to 64 in the Canadian province of Ontario.

Administrative records of emergency department visits. The National Ambulatory Care Reporting System (NACRS), which was established by the Canadian Institute for Health Information in 1997, provides data on individual patient visits to facility-based ambulatory care services, primarily EDs in acute care hospitals.[18] In July 2000, the province of Ontario mandated the reporting of all emergency department visits to the NACRS. For the purposes of this study, we obtained extracts for 6 471 000 records reported in Ontario over the period 2004 through 2011, of which 845 000 were classified as injuries arising from work exposures and 5 926 000 as injuries arising from nonwork exposures. The clinical determination of a work-related cause of injury for a patient presenting for ED treatment is documented by a "responsibility for payment" code indicating the Workplace Safety and Insurance Board, the single payer of work disability benefits in this jurisdiction. This clinical

TABLE 1—Results of a Negative Binomial Regression Showing APC in Occupational and Nonoccupational Injury Among Adults Aged 15 to 64 Years, by External Cause: Ontario, Canada, 2004–2011

Cause of Injury	Nonoccupational Injury, APC (95% CI)	Occupational Injury, APC (95% CI)
Pedestrian	1.15* (0.32, 1.98)	−3.72* (−6.05, −1.33)
Cyclist	0.52 (−0.07, 1.11)	−4.48* (−8.36, −0.42)
Motor vehicle occupant	−3.56* (−4.16, −2.95)	−4.39* (−5.36, −3.41)
Other land transport	0.29 (−0.88, 1.48)	−5.10* (−7.45, −2.68)
Other transport	0.20 (−1.67, 2.10)	−1.93 (−6.64, 3.01)
Fall	0.82* (0.06, 1.60)	−3.48* (−4.98, −1.95)
Inanimate mechanical force	−0.78* (−1.11, −0.45)	−7.01* (−8.53, −5.47)
Animate mechanical force	1.70* (1.25, 2.16)	1.60* (0.83, 2.38)
Electricity, fire, or hot object	−2.35* (−3.02, −1.68)	−7.61* (−9.19, −6.00)
Natural or environmental	−3.64 (0.70, −7.80)	−3.94 (−9.23, 1.66)
Poisoning	0.60 (−0.32, 1.53)	−7.11* (−8.61, −5.59)
Overexertion	−1.28* (−1.65, −0.91)	−5.96* (−7.38, −4.51)
Intentional Injury	−2.28* (−2.76, −1.80)	−1.66* (−2.60, −0.71)
Event of undetermined intent	−4.37* (−6.04, −2.67)	−12.22* (−15.44, −8.87)
Other or not specified	2.54* (2.10, 2.98)	−4.59* (−5.98, −3.18)
Total, all external causes	−0.25* (−0.44, −0.04)	−5.95* (−7.30, −4.57)

Source. Data are from emergency department records from the National Ambulatory Care Reporting System.[18]
Note. APC = annual percent change; CI = confidence interval. Drowning and suffocation were excluded from the regression analysis because of small sample sizes.
*$P < .05$.

determination is independent of the registration or acceptance of a worker's compensation claim.[10] Variables in extracted records included a series of up to 10 fields documenting the main problem and the external cause of injury, coded to the Canadian enhancement of the *International Classification of Diseases, 10th Revision* (*ICD-10-CA*).[19]

Health interview surveys. The Canadian Community Health Survey (CCHS) is an ongoing series of cross-sectional health interview surveys administered approximately every 2 years by the national statistics agency.[20] The target population of the CCHS, which uses a multistaged, stratified sampling frame, consists of household residents aged 12 and older who are living in private dwellings in all provinces and territories. The survey design features and core content have remained largely unchanged during the series of surveys starting in 2001. We retained respondents aged 15 to 64 years in the current analysis.

Measures

Injury treated in emergency departments. We identified characteristics of the nature of unintentional and intentional injury in ED records by *ICD-10-CA* codes prefixed with "S" or "T."[19] We obtained information on the injury event from *ICD-10-CA* codes in the range V01 through Y98, indicating the external cause of injury. *ICD-10-CA* coding standards require the recording of an external cause code for all injuries. For the purposes of this study, we defined 15 categories of external injury cause. The categories were based on the standard coding blocks established for the classification of external causes of injury morbidity and mortality in the *ICD-10-CA*.

Self-reported injury requiring medical attention. CCHS respondents were asked if they had experienced an injury in the previous 12 months serious enough to limit their normal activities.[8] Respondents reporting an activity-limiting traumatic injury were asked if that injury occurred in the course of employment and whether they had received medical attention by a health professional for treatment of the injury within 48 hours of its occurrence. In this study, we have estimated the incidence of occupational and nonoccupational injury that required medical attention. Because the CCHS is collected every 2 years, the replication of the full time series established with the ED records (2004–2011) was limited. We used the survey data to supplement the ED records, which enabled us to examine the concordance in trends between nonoccupational and occupational injury over an overlapping time series.

Denominator estimates. We obtained annual estimates of the number of working-age adults who were occupationally active from the Labor Force Survey, and annual estimates of the complete population of Ontario aged 15 to 64 years from the national census.[21]

Analysis

We tabulated the frequency distribution of ED records. We did not age-standardize incidence rate estimates, which we calculated by dividing morbidity counts by the number of employed workers or the complete population aged 15 to 64. We applied survey weights to adjust health interview survey responses for the probability of selection and nonresponse. We used bootstrap survey weights to account for the complex sampling design. We calculated injury trends by fitting a negative binomial regression model to both the ED records and health interview data using SAS software version 9.3 (SAS Institute, Cary, NC).[22] Using the slope of the regression models, we estimated the annual percentage change (APC) over the period 2004 through 2011 for the ED records and the period 2001 through 2010 for the health interview data.[23]

RESULTS

Over the observation period, the APC in the incidence of occupational injury was −5.9% (95% confidence interval [CI] = −7.3, −4.6) in ED administrative records (Table 1) and −7.4% (95% CI = −11.1, −3.5) among participants in the national health interview survey (Table 2). By contrast, the APC in the incidence of nonoccupational injury was –0.3% (95% CI = –0.4, 0.0) in ER administrative records (Table 1) and 1.0% (95% CI = 0.4, 1.6) among participants in the national health interview survey (Table 2).

Among working-age adults receiving treatment in EDs, the percentage of all injuries attributed to work exposures declined from 20.0% in 2004 to 15.2% in 2011. The percentage of all injuries attributed to work exposures among respondents

TABLE 2—APC in Self-Reported Incidence of Medically Attended Injuries Among Adults Aged 15 to 64, by Occupational and Nonoccupational Cause: Canada 2001–2010

Cause of Injury	2001, Rate per 100 (95% CI) or %	2003, Rate per 100 (95% CI) or %	2005, Rate per 100 (95% CI) or %	2009, Rate per 100 (95% CI) or %	2010, Rate per 100 (95% CI) or %	APC (95% CI)
Canada, 2001–2010						
Occupational injury	3.4 (3.2, 3.6)	2.4 (2.2, 2.6)	2.4 (2.2, 2.6)	1.9 (1.7, 2.1)	1.8 (1.6, 2.0)	-6.0 (-7.8, -4.1)
Nonoccupational injury	5.9 (5.7, 6.1)	6.0 (5.8, 6.3)	6.4 (6.2, 6.7)	6.6 (6.2, 7.0)	6.4 (6.1, 6.8)	1.1 (0.6, 1.6)
Occupational injury as a % of total[a]	30.1	24.6	23.5	19.4	18.8	
Ontario, 2001–2010						
Occupational injury	2.9 (2.6, 3.3)	2.0 (1.8, 2.3)	2.1 (1.8, 2.3)	1.1 (0.9, 1.3)	1.6 (1.3, 2.0)	-7.4 (-11.1, -3.5)
Nonoccupational injury	6.0 (5.6, 6.3)	5.9 (5.5, 6.3)	6.5 (6.1, 6.9)	6.4 (5.8, 7.1)	6.5 (5.9, 7.1)	1.0 (0.4, 1.6)
Occupational injury as a % of total[a]	27.7	22.3	21.2	12.4	16.9	

Note. APC = annual percent change; CI = confidence interval.
[a]Estimate is calculated from weighted frequencies of the self-reported incidence of medically attended injuries.

to the national health interview survey declined from 27.7% in 2001 to 16.9% in 2010.

The 5 leading causes of occupational injury among patients presenting for ED treatment were inanimate mechanical force (52%); falls (16%); overexertion (14%); electricity, fire, and hot objects (3%); and poisoning (2%; Table 3). The 5 leading causes of nonoccupational injury were inanimate mechanical force (29%), falls (23%), overexertion (9%), intentional injury (6%), and motor vehicle collisions (5%; Table 4).

Table 1 and Figure A (available as a supplement to the online version of this article at http://www.ajph.org) provide estimates of the APC in the incidence of occupational injury and nonoccupational injury for 15 causes. There are 4 causes of injury in which the change in occupational and nonoccupational injury incidence is similar over the 8-year observation period. We observed similar incidence declines for injuries arising from motor vehicle collisions, from natural and environmental causes, and from intentional injury. In the case of injuries arising from animate mechanical forces, there was a similar increase in the incidence of both occupational and nonoccupational injury.

However, for the majority of injury causes, the incidence of occupational injury declined much more substantially than the incidence of nonoccupational injury. For example, among injuries arising from falls, the APC for occupational injury was −3.5 (95% CI = −1.9, −5.0), whereas the APC for nonoccupational fall injury was 0.8 (95% CI = 0.1, 1.6). Among injury arising from inanimate mechanical force, the APC for occupational injury was −7.0 (95% CI = −5.5, −8.5) and the APC for nonoccupational injury was −0.8 (95% CI = −0.4, −1.1).

There was a consistent decline in the annual incidence of occupational injury over the period 2004 through 2008, followed by a more substantial decline in the incidence in 2009. This abrupt incidence decline is documented in both the ED records and the health interview survey series. The period 2008 through 2009 coincides with the impact of the global financial crisis on the Ontario economy, when hours of work and employment declined. There was no effect of the global financial crisis on the incidence of nonoccupational injury.

DISCUSSION

This study has documented a 29% reduction in the incidence of occupational injury over an 8-year period among occupationally active adults. The all-cause incidence of nonoccupational injury did not change over this same period. When stratified by cause-specific incidence, the incidence of occupational injury declined much more substantially than the incidence of nonoccupational injury. Declines in the incidence of fall injury, of overexertion injury, and of injury arising from inanimate mechanical force were responsible for the majority of the improvement in the all-cause occupational injury rate over the observation period.

The general finding of the absence of substantial improvement in nonoccupational injury morbidity portrayed in the 2 independent population-based data sources used in this study is generally consistent with population health surveillance studies in North America over the past decade.[2,3,24] The unique contribution of this study is the assessment of injury morbidity trends arising from occupational and from nonoccupational activities.

This study has demonstrated the utility of 2 independent population-based data sources for the surveillance of injury among working-age adults. The optimal characteristics of surveillance systems include continuity of measurement over time, consistency of measurement over time, population-based sampling, and reliability in the measurement of health status and health risks. Both the administrative records arising from Ontario EDs and the cross-sectional national health interview survey have these characteristics. We acknowledge the potential for misclassification of occupational and nonoccupational causation in both the survey measures and in ED records. However, we are not aware of an influence that would have introduced a bias to increase the misclassification of occupational injuries over time in both surveillance data sources. We also note a limitation of the national health interview survey: it does not collect sufficient information on the external cause of injury to support descriptive analysis of cause-specific trends.

The parallel reduction in injury burden arising from occupational and nonoccupational motor vehicle injury suggests the effectiveness of vehicle safety design standards and road

TABLE 3—Occupational Injury Rates (per 100 000) Among Occupationally Active Adults Aged 15–64, by External Cause and Year: Ontario, 2004–2011

Cause of Injury (*ICD-10-CA* Codes)	2004, No. (Rate/100 000)	2005, No. (Rate/100 000)	2006, No. (Rate/100 000)	2007, No. (Rate/100 000)	2008, No. (Rate/100 000)	2009, No. (Rate/100 000)	2010, No. (Rate/100 000)	2011, No. (Rate/100 000)
Occupationally active adults, aged 15–64 y	6 185 900	6 241 600	6 320 300	6 421 400	6 492 400	6 321 700	6 408 800	6 517 100
Pedestrian (V01–V09)	286 (4.6)	309 (5.0)	284 (4.5)	308 (4.8)	269 (4.1)	209 (3.3)	256 (4.0)	258 (4.0)
Cyclist (V10–V19)	57 (0.9)	62 (1.0)	53 (0.8)	61 (0.9)	60 (0.9)	36 (0.6)	51 (0.8)	47 (0.7)
Motor vehicle occupant (V40–V79)	1 890 (30.6)	1 971 (31.6)	1 787 (28.3)	1 874 (29.2)	1 796 (27.7)	1 567 (24.8)	1 556 (24.3)	1 491 (22.9)
Other land transport (V20–V29, V30–V39, V80–V89)	862 (13.9)	996 (16.0)	878 (13.9)	927 (14.4)	833 (12.8)	641 (10.1)	703 (11.0)	738 (11.3)
Other transport (V90–V99, Y85)	50 (0.8)	79 (1.3)	56 (0.9)	69 (1.1)	74 (1.1)	55 (0.9)	65 (1.0)	50 (0.8)
Fall (W00–W19)	16 983 (274.5)	18 234 (292.1)	16 421 (259.8)	17 146 (267.0)	17 413 (268.2)	14 182 (224.3)	14 152 (220.8)	15 199 (233.2)
Inanimate mechanical force (W20–W49)	67 754 (1 095.3)	68 398 (1 095.8)	63 286 (1 001.3)	58 572 (912.1)	54 573 (840.6)	43 723 (691.6)	46 244 (721.6)	47 445 (728.0)
Animate mechanical force (W50–W64)	1 654 (26.7)	1 710 (27.4)	1 685 (26.7)	1 731 (27.0)	1 871 (28.8)	1 738 (27.5)	1 839 (28.7)	1 986 (30.5)
Electricity, fire, or hot object (W85–99, X00–X19)	4 149 (67.1)	4 116 (65.9)	3 989 (63.1)	3 583 (55.8)	3 424 (52.7)	2 623 (41.5)	2 716 (42.4)	2 790 (42.8)
Natural or environmental (X20–X29, X30–X39)	325 (5.3)	460 (7.4)	475 (7.5)	383 (6.0)	246 (3.8)	294 (4.7)	357 (5.6)	347 (5.3)
Poisoning (X40–X49)	2 350 (38.0)	2 401 (38.5)	2 197 (34.8)	2 146 (33.4)	1 901 (29.3)	1 529 (24.2)	1 666 (26.0)	1 605 (24.6)
Overexertion (X50–X57)	17 375 (280.9)	17 933 (287.3)	16 927 (267.8)	16 495 (256.9)	15 331 (236.1)	12 319 (194.9)	12 884 (201.0)	13 095 (200.9)
Intentional injury (X60–X84, X85–Y09, Y870, Y871)	1 228 (19.9)	1 261 (20.2)	1 163 (18.4)	1 186 (18.5)	1 135 (17.5)	1 124 (17.8)	1 188 (18.5)	1 154 (17.7)
Event of undetermined intent (Y10–Y34)	536 (8.7)	456 (7.3)	324 (5.1)	275 (4.3)	252 (3.9)	251 (4.0)	218 (3.4)	238 (3.7)
Other or not specified (X58–X59, Y35–Y36, Y86, Y89, Y872)	6 807 (110.0)	6 672 (106.9)	6 021 (95.3)	5 942 (92.5)	5 874 (90.5)	4 851 (76.7)	5 183 (80.9)	5 459 (83.8)
Total	122 319 (1 977.4)	125 072 (2 003.8)	115 555 (1 828.3)	110 705 (1 724.0)	105 060 (1 618.2)	85 148 (1 346.9)	89 086 (1 390.1)	91 908 (1 410.3)

Note. ICD-10-CA = Canadian Enhancement of the International Classification of Diseases, 10th Revision.[19] Small sample sizes required suppression of data for drowning and suffocation events.

engineering investments in injury prevention. However, for the majority of injury causes, the incidence of occupational injury declined much more substantially than that of nonoccupational injury. What might account for these divergent trends? The divergent trend in injury attributed to overexertion suggests the potential influence of declines in adverse biomechanical exposures at work over this period, perhaps attributable to improved equipment and technology and to changes in the sectoral mix of employment in Ontario.[25] But perhaps more substantial is the influence of workplace investments and regulatory standards in occupational health and safety. A recent international report estimates that employer investments in worker health protection represent an annual expenditure per employee per year of more than US $1300,[26] supplemented by publicly administered prevention and enforcement services (approximately $30 per worker).[27] By contrast, per capita expenditures on public health in Canada are in the range of $300, of which a small fraction is allocated to injury prevention.[28]

Injury is responsible for 10% of the economic burden of illness in Canada, equivalent to that of cancer or cardiovascular disease.[29] Among working-age adults in Ontario, nearly all the observed decline in injury incidence over the period 2004 through 2011 is attributed to reductions in occupational injury. If the incidence of nonoccupational injury had declined at the same rate as that of occupational injury over the 8 years of this observation period, the population of Ontario would have experienced more than 200 000 fewer annual injuries requiring medical attention among adults aged 15 to 64. The absence of a similar reduction in injury burden due to nonwork exposures raises concerns about the level of investment in population injury prevention in Ontario.[30,31] ■

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TABLE 4—Nonoccupational Injury Rates (per 100 000) Among Adults Aged 15–64, by External Cause and Year: Ontario, 2004–2011

Cause of Injury (*ICD-10-CA* Codes)	2004, No. (Rate/100 000)	2005, No. (Rate/100 000)	2006, No. (Rate/100 000)	2007, No. (Rate/100 000)	2008, No. (Rate/100 000)	2009, No. (Rate/100 000)	2010, No. (Rate/100 000)	2011, No. (Rate/100 000)
All adults, aged 15–64 y	8 520 445	8 646 191	8 756 941	8 836 976	8 918 280	8 994 421	9 091 503	9 170 428
Pedestrian (V01–V09)	3 858 (45.3)	4 115 (47.6)	4 399 (50.2)	4 188 (47.4)	4 292 (48.1)	4 298 (47.8)	4 473 (49.2)	4 740 (51.7)
Cyclist (V10–V19)	12 919 (151.6)	13 713 (158.6)	13 303 (151.9)	13 749 (155.6)	13 417 (150.4)	13 923 (154.8)	14 458 (159.0)	14 723 (160.5)
Motor vehicle occupant (V40–V79)	44 236 (519.2)	43 106 (498.6)	42 393 (484.1)	41 066 (464.7)	38 105 (427.3)	37 758 (419.8)	38 685 (425.5)	37 144 (405.0)
Other land transport (V20–V29, V30–V39, V80–V89)	14 765 (173.3)	16 458 (190.3)	16 576 (189.3)	17 468 (197.7)	17 457 (195.7)	17 126 (190.4)	16 924 (186.2)	16 743 (182.6)
Other transport (V90–V99, Y85)	1 442 (16.9)	1 802 (20.8)	1 658 (18.9)	1 623 (18.4)	1 557 (17.5)	1 590 (17.7)	1 752 (19.3)	1 757 (19.2)
Fall (W00–W19)	141 626 (1 662.2)	153 384 (1 774.0)	148 425 (1 694.9)	156 885 (1 775.3)	164 623 (1 845.9)	157 584 (1 752.0)	160 388 (1 764.2)	165 599 (1 805.8)
Inanimate mechanical force (W20–W49)	212 246 (2 491.0)	213 425 (2 468.4)	219 168 (2 502.8)	214 591 (2 428.3)	213 860 (2 398.0)	212 174 (2 359.0)	219 866 (2 418.4)	216 904 (2 365.3)
Animate mechanical force (W50–W64)	38 671 (453.9)	40 345 (466.6)	41 204 (470.5)	41 072 (464.8)	42 699 (478.8)	43 231 (480.6)	45 912 (505.0)	47 518 (518.2)
Electricity, fire, or hot object (W85–W99, X00–X19)	10 743 (126.1)	10 767 (124.5)	10 608 (121.1)	10 196 (115.4)	10 057 (112.8)	9 556 (106.2)	9 950 (109.4)	10 102 (110.2)
Drowning (W65–W74)	104 (1.2)	128 (1.5)	112 (1.3)	117 (1.3)	89 (1.0)	103 (1.1)	97 (1.1)	114 (1.2)
Suffocation (W75–W84)	305 (3.6)	279 (3.2)	272 (3.1)	256 (2.9)	272 (3.0)	299 (3.3)	348 (3.8)	356 (3.9)
Natural or environmental (X20–X29, X30–X39)	7 052 (82.8)	9 845 (113.9)	8 575 (97.9)	8 505 (96.2)	5 875 (65.9)	8 490 (94.4)	6 524 (71.8)	7 361 (80.3)
Poisoning (X40–X49)	9 411 (110.5)	8 913 (103.1)	9 270 (105.9)	8 970 (101.5)	9 305 (104.3)	9 714 (108.0)	10 177 (111.9)	10 138 (110.6)
Overexertion (X50–X57)	66 699 (782.8)	65 608 (758.8)	67 008 (765.2)	66 475 (752.2)	66 107 (741.3)	63 818 (709.5)	65 507 (720.5)	66 019 (719.9)
Intentional injury (X60–X84, X85–Y09, Y870, Y871)	42 593 (499.9)	43 869 (507.4)	44 295 (505.8)	42 530 (481.3)	42 232 (473.5)	41 456 (460.9)	40 757 (448.3)	39 622 (432.1)
Event of undetermined intent (Y10–Y34)	6 064 (71.2)	5 355 (61.9)	4 945 (56.5)	4 489 (50.8)	4 708 (52.8)	4 647 (51.7)	4 812 (52.9)	4 432 (48.3)
Other or not specified (X58–X59, Y35–Y36, Y86, Y89, Y872)	64 604 (758.2)	64 253 (743.1)	66 846 (763.3)	69 545 (787.0)	73 662 (826.0)	75 335 (837.6)	78 532 (863.8)	80 599 (878.9)
Total	677 338 (7 949.6)	695 365 (8 042.4)	699 057 (7 982.9)	701 725 (7 940.8)	708 317 (7 942.3)	701 102 (7 794.9)	719 162 (7 910.3)	723 871 (7 893.5)

Note. ICD-10-CA = Canadian Enhancement of the International Classification of Diseases, 10th Revision.[19]

Contributors

A. Chambers and C. Mustard conceptualized and designed the study, interpreted the data, and wrote the first draft of the article. S. Ibrahim and J. Etches contributed to the analysis of the study data and provided interpretation. All authors contributed to the review and revision of the article.

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Human Participant Protection

The study methods were reviewed and approved by the Research Ethics Board of the University of Toronto (protocol 25085).

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