

# SELF-HARM MORBIDITY & MORTALITY

## Emergency department visits due to self-harm:

Emergency department visits that included unscheduled visits to the emergency department with all problem external causes of intentional self-harm, including purposely self-inflicting poisoning or injury, or suicide (attempted) (codes X60-X84; International Statistical Classification of Health Problems, 10<sup>th</sup> Revision Canada (ICD-10CA)) and sequelae of intentional self-harm (Y87.0). Visits only include residents of Ontario who are aged 10 years or older.

## Hospitalizations due to self-harm:

Hospitalizations as a result of unscheduled visits to the emergency department with all problem external causes of intentional self-harm, including purposely self-inflicting poisoning or injury, or suicide (attempted) (codes X60-X84; International Statistical Classification of Health Problems, 10<sup>th</sup> Revision Canada (ICD-10CA)) and sequelae of intentional self-harm (Y87.0). Hospitalizations only include residents of Ontario who are aged 10 years or older.

## Suicides:

Deaths with a cause of death including purposely self-inflicting poisoning or injury, or suicide (codes X60-X84; International Statistical Classification of Health Problems, 10<sup>th</sup> Revision Canada (ICD-10CA)) and sequelae of intentional self-harm (Y87.0). Deaths only include residents of Ontario who are aged 10 years or older.

## Rate calculations:

Crude rates were age-standardized, where noted, using the Direct Method and standard 2011 Canadian population. Confidence intervals (95%) were calculated for age-standardized rates based on the gamma distribution (Fay and Feuer, 1997. Tiwari et al., 2006).

## Trends Over Time

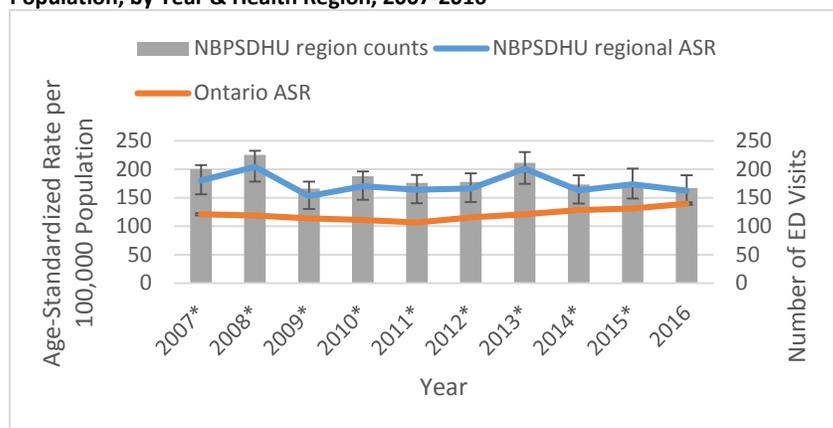
The age-standardized rate of self-harm-related emergency department (ED) visits in the population aged 10 years or older living in the North Bay Parry Sound District Health Unit (NBPSDHU) region has remained relatively stable between 2012 and 2016, and has increased by about 21% in Ontario within the same time period. (Figure 1 & Table 1).

Age-standardized rates for ED visits in the Health Unit region were significantly higher than Ontario rates in all years between 2007 and 2015. In 2016, the age-standardized rate for ED visits in the Health Unit region was statistically similar to the rate in Ontario.

Between 2012 and 2016, the age-standardized rate for self-harm-related hospitalizations has increased in the Health Unit region from 60 hospitalizations per 100,000 persons to 68 hospitalizations per 100,000 persons (Figure 2 & Table 2). The age-standardized hospitalization rate in the Health Unit Region has been 50% to 96% higher than the Ontario rate between 2007 and 2016.

The crude suicide rate was relatively stable in the Health Unit region and Ontario between 2003 and 2012 (Figure 3 & Table 3). In 2012, the crude rate in the Health Unit region was significantly lower compared to the rate in Ontario.

**Figure 1. Number and Age-Standardized Rates of Self-Harm-Related Emergency Department Visits Among the Population Aged 10 Years and Older per 100,000 Population, by Year & Health Region, 2007-2016**



\* Age-standardized rate (ASR) for the NBPSDHU region is significantly higher than the Ontario rate during the corresponding calendar year

**Data sources:**

ED Visits – Ambulatory Emergency External Cause [2007-2016], Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, Date Extracted: [2017/11/23].

Hospitalizations – Ambulatory Emergency External Cause [2007-2016], Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, Date Extracted: [2017/11/13].

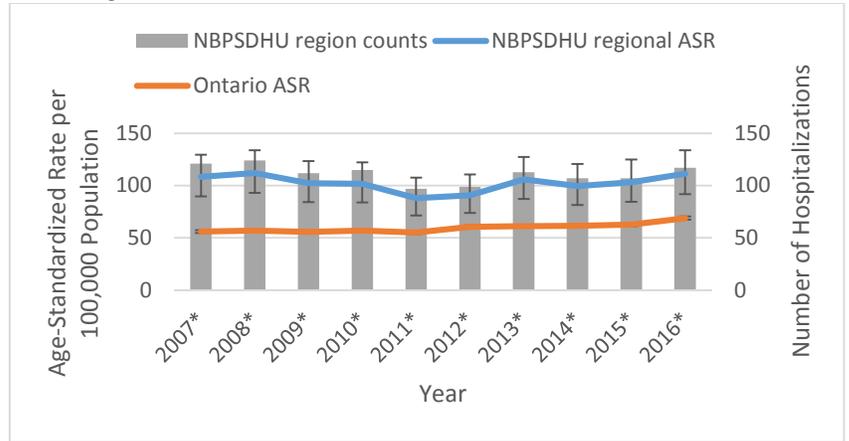
Deaths – Ontario Mortality Data [2003-2012], Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, Date Extracted: [2017/11/23].

Population estimates: Population Estimates [2007-2016], Ontario Ministry of Health and Long-Term Care, IntelliHEALTH Ontario, Date Extracted: [2017/11/03]

**Interpretation of a significant difference:**

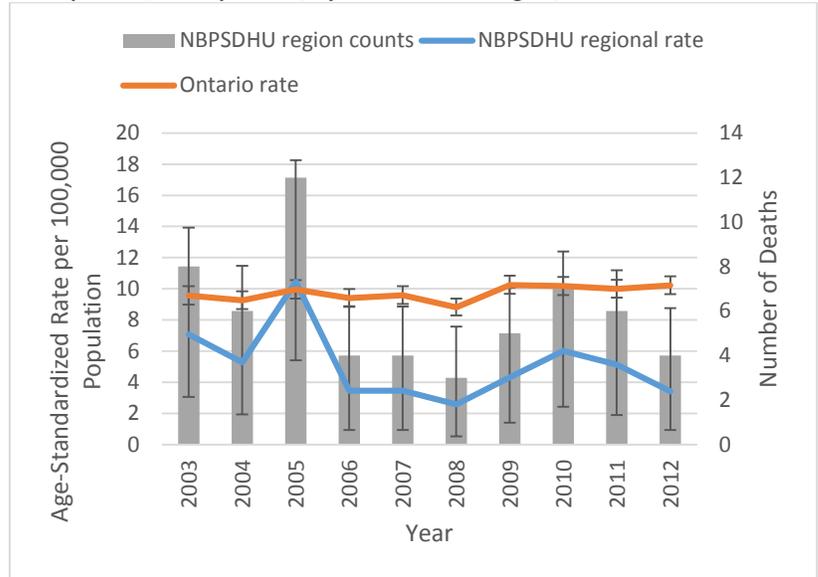
A statistic interpreted as ‘significantly different’ from another is an estimate found to be statistically meaningful; the difference is unlikely due to chance. Error bars noted in figures within this report illustrate 95% confidence intervals. If there is no overlap in range between confidence intervals, the difference can be described as statistically significant.

**Figure 2. Number and Age-Standardized Rates of Self-Harm-Related Hospitalizations Among the Population Aged 10 Years and Older per 100,000 Population, by Year & Health Region, 2007-2016**



\* Age-standardized rate (ASR) for the NBPSDHU region is significantly higher than the Ontario rate during the corresponding calendar year

**Figure 3. Number and Crude Rates of Suicide Among the Population Aged 10 Years and Older per 100,000 Population, by Year & Health Region, 2007-2016**



**Table 1. Number and Age-Standardized Rates of Self-Harm -Related Emergency Department Among the Population Aged 10 Years and Older per 100,000 Population, by Year & Health Region, 2007-2016**

Year	Number of ED Visits	NBPSDHU Region Age-Standardized Rate (95% CI)	Ontario Age-Standardized Rate (95% CI)
2007	200	180.1* (155.9, 207.1)	120.9 (118.9, 122.9)
2008	225	204.1* (178.2, 232.7)	118.9 (117.0, 120.9)
2009	166	153.0* (130.4, 178.2)	113.5 (111.6, 115.5)
2010	188	170.0* (146.4, 196.3)	111.0 (109.1, 112.9)
2011	176	163.8* (140.4, 189.9)	106.6 (104.7, 108.4)
2012	178	166.2* (142.6, 192.6)	115.4 (113.5, 117.3)
2013	211	200.9* (174.5, 230.0)	121.2 (119.3, 123.2)
2014	173	163.1* (139.5, 189.5)	128.5 (126.5, 130.6)
2015	176	173.7* (148.7, 201.4)	131.2 (129.1, 133.2)
2016	167	162.4 (138.4, 189.3)	139.7 (137.6, 141.8)

\* Age-standardized rate (ASR) for the NBPSDHU region is significantly higher than the Ontario rate during the corresponding calendar year

**Table 2. Number and Age-Standardized Rates of Self-Harm -Related Hospitalizations Among the Population Aged 10 Years and Older per 100,000 Population, by Year & Health Region, 2007-2016**

Year	Number of Hospitalizations	NBPSDHU Region Age-Standardized Rate (95% CI)	Ontario Age-Standardized Rate (95% CI)
2007	121	108.4* (89.9, 129.7)	56.1 (54.7, 57.5)
2008	124	112.1* (93.1, 133.8)	57.1 (55.7, 58.5)
2009	112	102.5* (84.3, 123.4)	55.8 (54.4, 57.1)
2010	115	101.7* (83.8, 122.2)	57.0 (55.6, 58.3)
2011	97	88.1* (71.4, 107.6)	55.1 (53.8, 56.5)
2012	99	90.9* (73.8, 110.7)	60.6 (59.3, 62.0)
2013	113	106.0* (87.2, 127.6)	61.3 (59.9, 62.7)
2014	107	99.7* (81.5, 120.6)	61.4 (60.0, 62.8)
2015	107	103.4* (84.5, 125.1)	62.6 (61.2, 64.1)
2016	117	111.5*	69.0

Year	Number of Hospitalizations	NBPSDHU Region Age-Standardized Rate (95% CI)	Ontario Age-Standardized Rate (95% CI)
		(91.9, 134.0)	(67.5, 70.5)

\* Age-standardized rate (ASR) for the NBPSDHU region is significantly higher than the Ontario rate during the corresponding calendar year

**Table 3. Number and Crude Rates of Suicides Among the Population Aged 10 Years and Older per 100,000 Population, by Year & Health Region, 2003-2012**

Year	Number of Deaths	NBPSDHU Region Crude Rate (95% CI)	Ontario Crude Rate (95% CI)
<b>2003</b>	8	7.1 (3.1, 13.9)	9.6 (9.0, 10.2)
<b>2004</b>	6	5.3 (1.9, 11.5)	9.3 (8.7, 9.8)
<b>2005</b>	12	10.5 (5.4, 18.3)	9.9 (9.4, 10.6)
<b>2006</b>	4	3.5 (0.9, 8.9)	9.4 (8.8, 10.0)
<b>2007</b>	4	3.5 (0.9, 8.9)	9.6 (9.0, 10.2)
<b>2008</b>	3	2.6 (0.5, 7.6)	8.8 (8.3, 9.4)
<b>2009</b>	5	4.3 (1.4, 10.1)	10.2 (9.7, 10.8)
<b>2010</b>	7	6.0 (2.4, 12.4)	10.2 (9.6, 10.8)
<b>2011</b>	6	5.1 (1.9, 11.2)	10.0 (9.4, 10.6)
<b>2012</b>	4	3.4 (0.9, 8.8)	10.2 (9.7, 10.8)

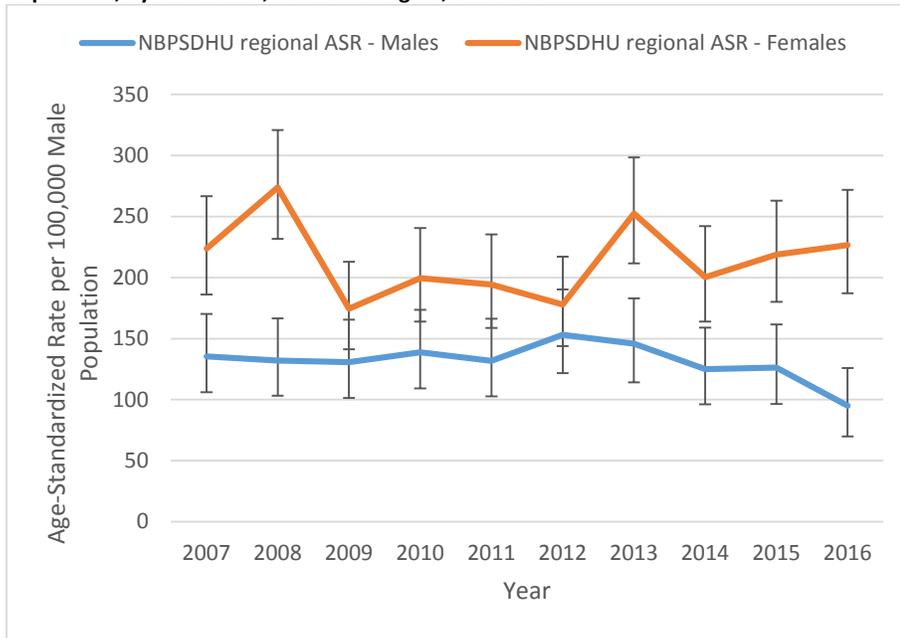
## Sex-Specific Rates

Age-standardized rates of self-harm-related ED visits among females aged 10 years or older in the Health Unit region were significantly higher than the male rate between 2013 and 2016 (Figure 4 & Table 4). In 2016, the female rate in the Health Unit region of 227 ED visits among 100,000 females was 25% higher than the rate for Ontario of 181 visits per 100,000 females.

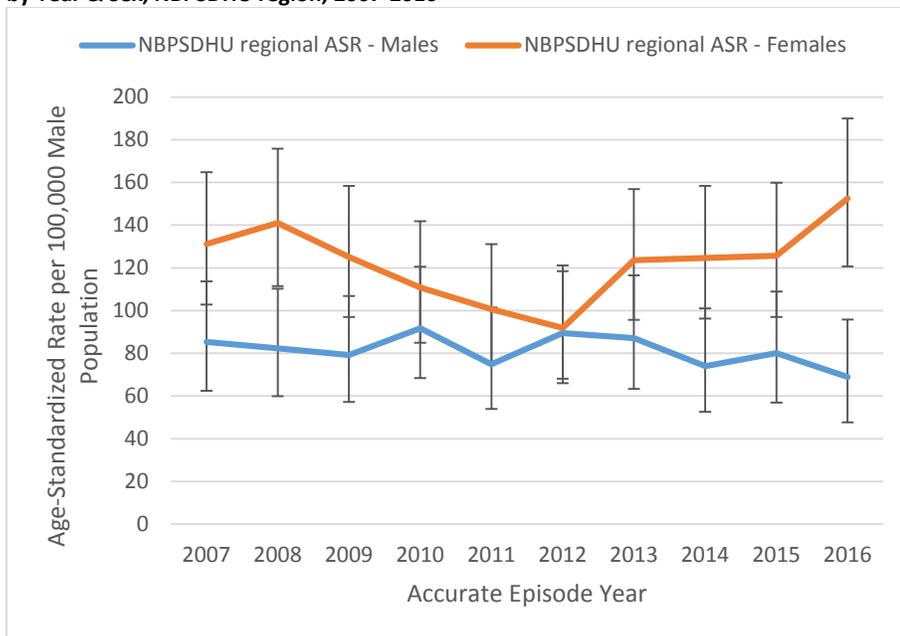
Age-standardized rates of self-harm-related hospitalizations among females in the Health Unit region have increased significantly between 2012 and 2016: from 50 visits per 100,000 population in 2012 to 81 visits per 100,000 population in 2016 (Figure 5 & Table 5). In the same years, the female rate in the Health Unit region was about 70% higher than the female rate in Ontario, and between 57% to 121% higher than the male rate in the Health Unit region.

Between 2003 and 2012, five suicides occurred among males and less than five suicides occurred among females in the Health Unit region.

**Figure 4. Age-Standardized Rate of Self-Harm-Related Emergency Department Visits Among the Population Aged 10 Years and Older per 100,000 Population, by Year & Sex, NBPSDHU region, 2007-2016**



**Figure 5. Age-Standardized Rate of Self-Harm-Related Hospitalizations Among the Population Aged 10 Years and Older per 100,000 Population, by Year & Sex, NBPSDHU region, 2007-2016**



**Table 4. Age-Standardized Rates of Self-Harm -Related ED Visits Among the Population Aged 10 Years and Older per 100,000 Population, by Year & Sex, NBPSDHU region, 2007-2016**

Year	NBPSDHU Region Age-Standardized among Males Rate (95% CI)	NBPSDHU Region Age-Standardized among Females Rate (95% CI)
2007	135.4 (106.1, 170.3)	223.9* (186.2, 266.7)
2008	132.2 (103.3, 166.6)	273.8* (231.9, 321.0)
2009	130.7	174.5

Year	NBPSDHU Region Age-Standardized among Males Rate (95% CI)	NBPSDHU Region Age-Standardized among Females Rate (95% CI)
	(101.5, 165.5)	(141.3, 213.1)
<b>2010</b>	138.8 (109.4, 173.7)	199.6 (164.0, 240.6)
<b>2011</b>	131.8 (102.8, 166.3)	194.4 (158.9, 235.4)
<b>2012</b>	153.2 (121.7, 190.3)	177.9 (143.9, 217.1)
<b>2013</b>	145.8 (114.3, 183.0)	252.5* (211.7, 298.6)
<b>2014</b>	124.9 (96.2, 159.1)	200.4* (163.9, 242.3)
<b>2015</b>	126.2 (96.5, 161.7)	218.8* (180.1, 263.0)
<b>2016</b>	95.0 (69.8, 126.0)	226.7* (187.2, 271.9)

\* Age-standardized rate (ASR) for females is significantly higher than the male rate during the corresponding calendar year

Table 5. Age-Standardized Rates of Self-Harm -Related Hospitalizations Among the Population Aged 10 Years and Older per 100,000 Population, by Year & Sex, NBPSDHU region, 2007-2016

Year	NBPSDHU Region Age-Standardized among Males Rate (95% CI)	NBPSDHU Region Age-Standardized among Females Rate (95% CI)
<b>2007</b>	85.3 (62.5, 113.6)	131.2 (102.8, 164.8)
<b>2008</b>	82.3 (59.9, 110.2)	141.0* (111.5, 175.9)
<b>2009</b>	79.2 (57.2, 106.8)	125.0 (97.1, 158.3)
<b>2010</b>	91.8 (68.4, 120.5)	110.8 (84.9, 141.9)
<b>2011</b>	75.0 (53.9, 101.4)	100.7 (75.7, 131.1)
<b>2012</b>	89.5 (66.1, 118.4)	91.9 (68.1, 121.1)
<b>2013</b>	87.1 (63.3, 116.5)	123.6 (95.7, 156.9)
<b>2014</b>	74.1 (52.6, 101.1)	124.6 (96.3, 158.4)
<b>2015</b>	80.1 (57.0, 109.0)	125.7 (97.0, 159.8)
<b>2016</b>	68.9 (47.7, 95.8)	152.5* (120.6, 190.0)

\* Age-standardized rate (ASR) for females is significantly higher than the male rate during the corresponding calendar year

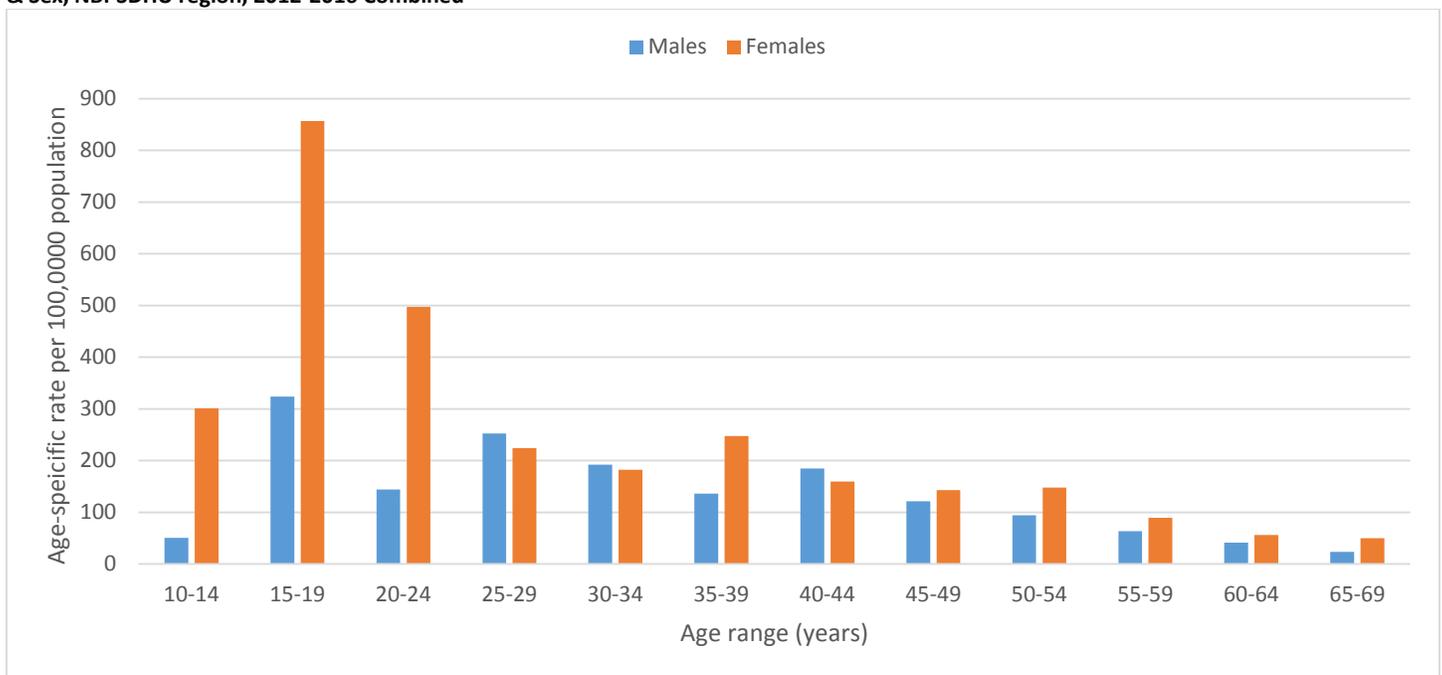
## Age- and Sex-Specific Rates

Age-specific rates for self-harm-related ED visits and hospitalizations were calculated for visits for 2012 and 2016 combined (Figure 6 & Table 6). Females aged 10 to 14 years, 15 to 19 years, 20 to 24 years, males aged 15 to 19 years had the highest rates of self-harm-related ED visits in our Health Unit region of all age-sex groups. The rate of self-harm-related ED visits among females aged 10 to 14 years was almost six times the rate for males aged 10 to 14 within the Health Unit region. The rate for females aged 15 to 19 years was more than double the rate for males aged 15 to 19 years, while the rate for females aged 20 to 24 years was more than triple the rate for males aged 20 to 24 years in the Health Unit region. Age-specific rates were about 63% higher among 40 to 44 year olds, and 58% among 35 to 39 year olds compared to the same populations in Ontario.

Females aged 15 to 19 years, 20 to 24 years, and aged 35 to 39 years had the highest rates of self-harm-related hospitalizations in the Health Unit region of all age-sex groups (Figure 7 & Table 7). The rate of self-harm-related hospitalizations among males aged 15 to 19 years was more than triple the rate for males aged 15 to 19 years in Ontario, while the rate for females aged 35 to 39 years was more than double the rate for females aged 35 to 39 in Ontario.

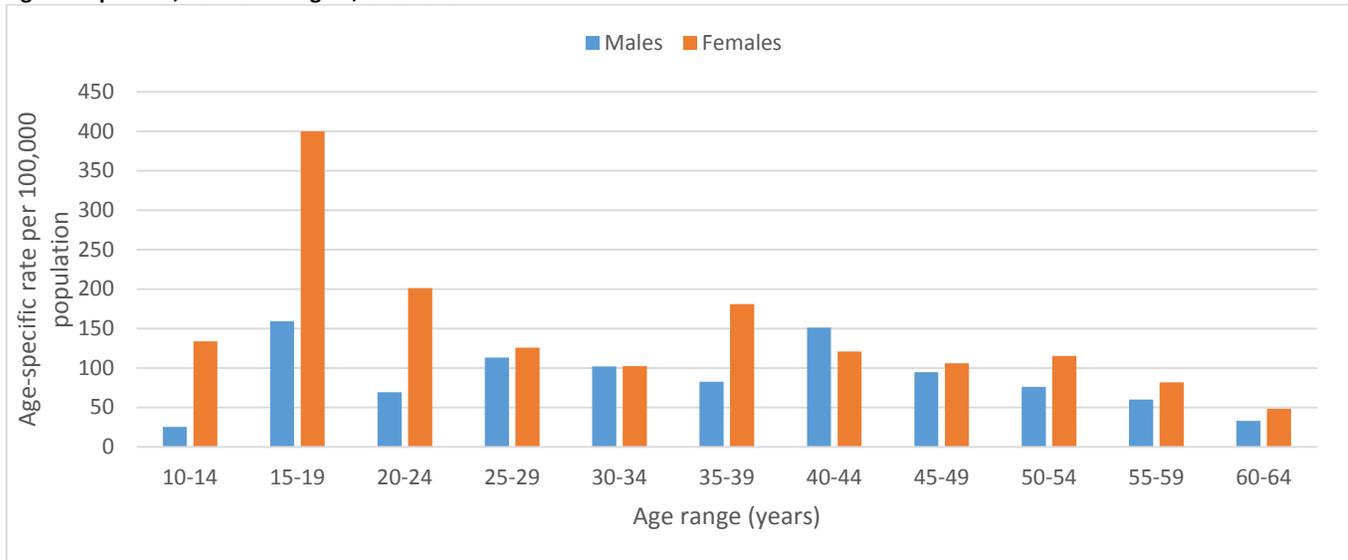
Crude rates of suicide in the Health Unit region were not significantly different from death rates in Ontario, for deaths occurring between 2008 and 2012 and calculated by age group.

**Figure 6. Age-Specific Rate of Self-Harm -Related ED Visits among the Population Aged 10 Years and Older per 100,000 Population, by Age Group & Sex, NBPSDHU region, 2012-2016 Combined**



Note: This figure does not include rates for those aged 70 years or older due to the small number of ED visits made by these populations

**Figure 7. Age-Specific Rate of Self-Harm -Related Hospitalizations among the Population Aged 10 Years and Older per 100,000 Population, by Age Group & Sex, NBPSDHU region, 2012-2016 Combined**



Note: This figure does not include rates for those aged 65 years or older due to the small number of hospitalizations made by these populations

**Table 6. Age-Specific Rate of Self-Harm -Related ED Visits among the Population Aged 10 Years or Older per 100,000 Population, by Age Group & Sex, NBPSDHU region, 2012-2016 Combined**

Age Group (Years)	Age-Specific Rate among Males (95% CI)	Age-Specific Rate among Females (95% CI)
10-14	50.6 (21.8, 99.7)	300.9* (219.5, 402.6)
15-19	323.8 (246.5, 417.6)	856.8* (725.2, 1005.5)
20-24	143.9 (96.4, 206.7)	497.6* (404.5, 605.9)
25-29	252.8 (187.0, 334.2)	224.2 (160.9, 304.2)
30-34	192.1 (131.4, 271.2)	182.1 (124.6, 257.1)
35-39	136.1 (86.3, 204.3)	247.7 (177.7, 336.0)
40-44	184.8 (127.2, 259.6)	159.3 (106.7, 228.7)
45-49	121.7 (80.2, 177.1)	143.0 (97.2, 203.0)
50-54	94.3 (61.6, 138.2)	147.7 (106.0, 200.4)
55-59	63.8 (37.2, 102.2)	89.1 (57.1, 132.6)
60-64	41.6 (19.9, 76.5)	56.3 (30.8, 94.4)
65-69	23.4 (7.6, 54.7)	50.1 (25.0, 89.6)

\* Age-standardized rate (ASR) for females is significantly higher than the male rate for the corresponding age group  
 Note: This table does not include rates for those aged 70 years or older due to the small number of ED visits made by these populations

**Table 7. Age-Specific Rate of Self-Harm -Related Hospitalizations among the Population Aged 10 Years or Older per 100,000 Population, by Age Group & Sex, NBPSDHU region, 2012-2016 Combined**

Age Group (Years)	Age-Specific Rate among Males (95% CI)	Age-Specific Rate among Females (95% CI)
10-14	25.3 (6.9, 64.8)	133.7* (81.7, 206.5)
15-19	159.1 (106.6, 228.6)	399.9* (311.7, 505.2)
20-24	69.5 (38.0, 116.6)	201.1* (143.6, 273.8)
25-29	113.5 (71.1, 171.8)	125.8 (79.7, 188.8)
30-34	102.0 (59.4, 163.4)	102.4 (60.7, 161.9)
35-39	82.9 (45.3, 139.0)	181.2 (122.3, 258.7)
40-44	151.2 (99.7, 220.0)	120.8 (75.7, 182.9)
45-49	94.7 (58.6, 144.7)	106.1 (67.3, 159.2)
50-54	76.2 (47.1, 116.4)	115.3 (78.9, 162.8)
55-59	60.1 (34.3, 97.5)	81.7 (51.2, 123.7)
60-64	33.3 (14.4, 65.6)	48.2 (24.9, 84.3)

\* Age-standardized rate (ASR) for females is significantly higher than the male rate for the corresponding age group  
 Note: This table does not include rates for those aged 65 years or older due to the small number of hospitalizations made by these populations

## Mechanism of Injury

In 2016, the most common mechanisms of self-harm injuries among self-harm-related emergency department visits and hospitalizations were self-poisoning from drugs & alcohol and sharp objects for both the Health Unit region and Ontario (see Table 8).

Between 2008 and 2012, almost half of suicides in the Health Unit region were caused by hanging, strangulation or suffocation (see Figure 8 & Table 8). About one in three suicides in the Health Unit region were caused by a firearm or handgun, while a fewer one in five Ontario suicides were caused by a firearm or handgun. Other mechanisms of injury (e.g., jumping from a high place) were more common in Ontario suicides compared to suicides in the Health Unit region.

**Table 8. Percentage of Self-Harm-Related ED Visits, Hospitalizations, and Suicides among the Population Aged 10 Years and Older, by Mechanism of Injury & Health Region, 2016 (ED Visits & Hospitalizations) and 2008-2012 Combined (Suicides)**

Mechanism of Injury	NBPSDHU Region ED Visits	NBPSDHU Region Hospitalizations	NBPSDHU Region Suicides	Ontario ED Visits	Ontario Hospitalizations	Ontario Suicides
Self-poisoning from drugs or alcohol	72.5%	82.9%	9.5%	69.5%	80.6%	19.9%
Sharp object	19.2%	9.4%	0.0%	20.2%	10.5%	3.0%
Self-poisoning from toxic chemicals	3.0%	4.3%	6.7%	3.6%	3.9%	5.7%
Hanging, strangulation, or suffocation	2.4%	3.4%	48.9%	1.9%	2.4%	43.9%
Firearm or handgun discharge	0.0%	0.0%	32.1%	0.2%	0.3%	11.5%
All other mechanisms	3.0%	0.0%	2.9%	4.7%	2.4%	15.9%

Note: All other mechanisms includes jumping from a high place, jumping or lying before a moving object, drowning, smoke, fire, flames, hot vapours, explosive materials, blunt object crashing a moving vehicle, and other or unknown mechanisms.

**Figure 8. Percentage of Suicides among the Population Aged 10 Years and Older, by Mechanism of Injury & Health Region, 2008-2012 Combined**

