

ORAL HEALTH-RELATED EMERGENCY DEPARTMENT VISITS AMONG CHILDREN

Oral health-related emergency department visits:

Emergency department visits that included unscheduled visits to the emergency department with main problem diagnoses of impacted teeth (code K01.1; International Statistical Classification of Health Problems, 10th Revision Canada (ICD-10CA), dental caries (K02), acute apical periodontitis of pupal origin (K04.4), chronic apical periodontitis (K04.5), periapical abscess with sinus (K04.6), periapical abscess without sinus (K04.7), acute gingivitis (K05.0), chronic gingivitis (K05.1), acute periodontitis (K05.2), temporomandibular joint disorder, unspecified (K07.69), toothache, not otherwise specified (K08.87), disease of salivary gland, unspecified (K11.9), and cellulitis and abscess of mouth (K12.2). This definition of oral health-related ED visits was originally created by the staff at Leeds, Grenville, and Lanark Public Health Unit. Visits only include residents of Ontario who are aged 17 years or younger.

Rate calculations:

Crude rates were age-standardized 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).

Data sources:

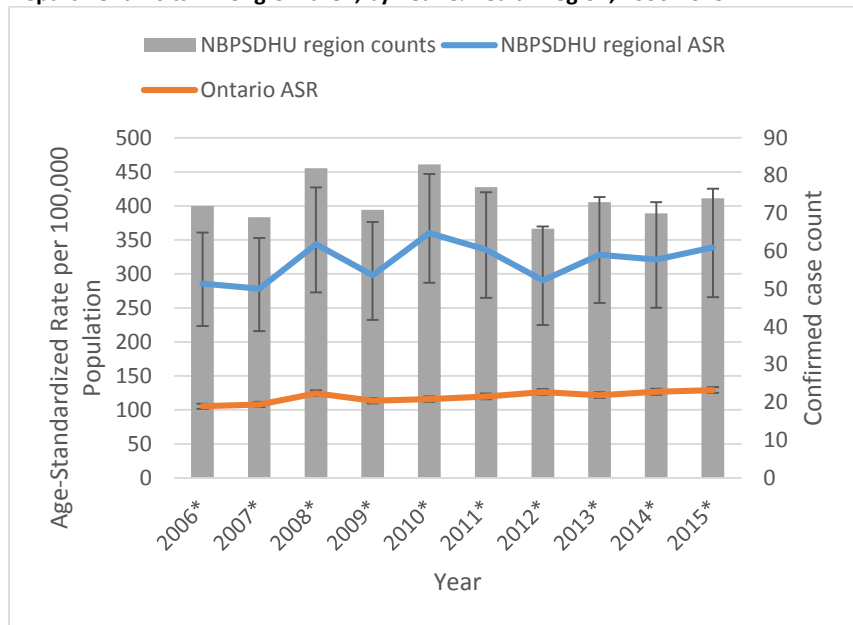
ED Visits – Ambulatory Emergency External Cause [2006-2015], Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, Date Extracted: [2017/07/11].

Population estimates: Population Estimates [2006-2016], Ontario Ministry of Health and Long-Term Care, IntelliHEALTH Ontario, Date Extracted: [2017/02/07]

Overall

The age-standardized rate of oral health-related emergency department (ED) visits in children living in the NBPSDHU region has remained stable between 2006 and 2015, while the rate in Ontario children has increased significantly by about 22% (Figure 1 & Table 1). Age-standardized rates in our region were significantly higher and about two to three times than Ontario rates in all years between 2006 and 2015.

Figure 1. Number and Age-Standardized Rates of Oral Health-Related Emergency Department Visits Among Children, by Year & Health Region, 2006-2015



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

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.

Table 1. Number and Age-Standardized Rates of Oral Health-Related Emergency Department Visits Among Children, by Year & Health Region, 2006-2015

Year	Number of ED Visits	NBPSDHU Region Age-Standardized Rate (95% CI)	Ontario Age-Standardized Rate (95% CI)
2006	72	285.9* (223.2, 360.9)	105.4 (101.6, 109.3)
2007	69	278.1* (216.0, 352.9)	108.1 (104.2, 112.0)
2008	82	343.7* (272.9, 427.4)	124.5 (120.4, 128.8)
2009	71	298.1* (232.6, 376.6)	113.5 (109.5, 117.5)
2010	83	360.2* (286.7, 446.8)	116 (112, 120.1)
2011	77	335.9* (265.0, 420.0)	119.9 (115.8, 124.0)
2012	66	290.6 * (224.7, 370.0)	126.4 (122.2, 130.7)
2013	73	328.3* (257.3, 413)	121.6 (117.5, 125.8)
2014	70	321.0* (250.2, 405.7)	126.7 (122.5, 131.0)
2015	74	338.8* (266.0, 425.6)	129.2 (125.0, 133.6)

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

Sex-Specific Rates

Age-standardized rates of oral health-related ED visits have remained stable among males and females between 2006 & 2015 (Figure 2 & Table 2). Rates among male and female children have been statistically similar between 2006 and 2015.

Figure 2. Age-Standardized Rate of Oral Health-Related ED Visits Among Children per 100,000 Population , by Year & Sex, NBPSDHU region, 2006-2015

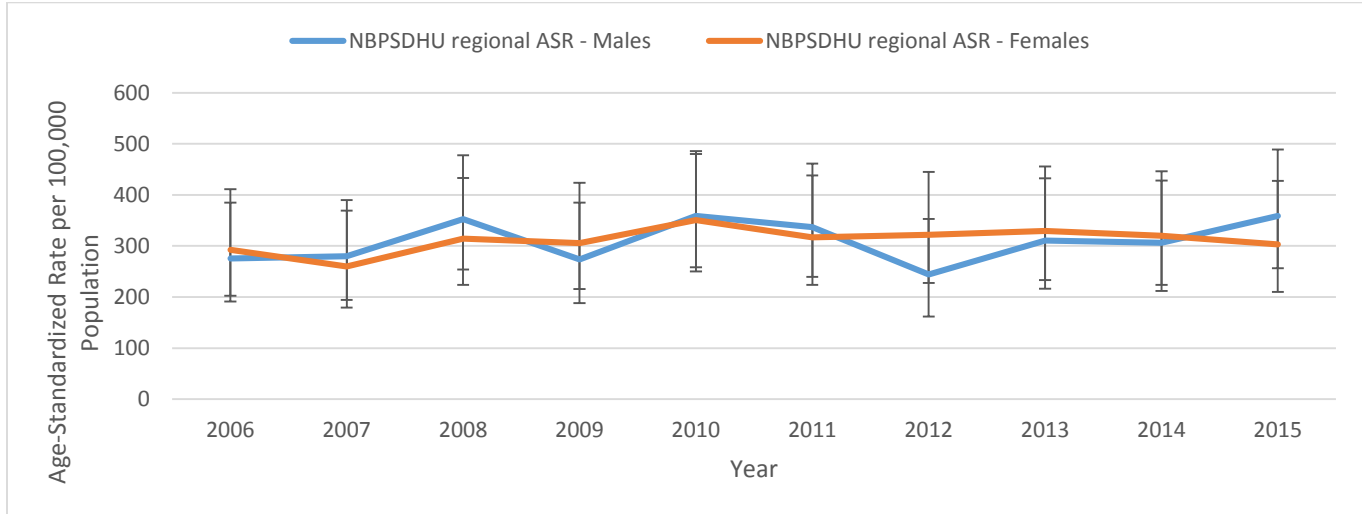


Table 2. Age-Standardized Rates of Oral Health-Related Emergency Department Visits Among Children per 100,000 Population, by Year & Sex, NBPSDHU region, 2006-2015

Year	NBPSDHU Region Age-Standardized among Males Rate (95% CI)	NBPSDHU Region Age-Standardized among Females Rate (95% CI)
2006	292.4 (202.8, 411.3)	275.6 (191.3, 384.8)
2007	260.0 (179.4, 369.2)	279.6 (194.5, 390)
2008	314.4 (223.9, 432.8)	352.7 (253.7, 477.4)
2009	305.7 (215.9, 424)	273.7 (188.2, 385.1)
2010	350.5 (250.1, 480.1)	359.0 (258.6, 485.6)
2011	316.7 (224, 438.2)	337.0 (239.6, 461.0)
2012	321.7 (227.6, 445.3)	244.0 (162.1, 353.0)
2013	329.4 (233.1, 455.6)	310.5 (216.2, 432.3)
2014	320.1 (224.2, 446.4)	306.1 (211.9, 428.2)
2015	303.4 (210.1, 427.4)	358.8 (256.2, 489.0)

Age- and Sex-Specific Rates

Age-specific rates for oral health-related ED visits were calculated for visits between 2011 and 2015 combined (Figure 3 & Table 3). Females aged 15 to 17 years and males aged 5 to 9 years had the highest rates of oral health-related ED visits in our region of all age-sex groups. The rate of oral health-related ED visit was about three times higher among 15 to 17 year olds, 5 to 9 year olds, and 2.5 times higher than 10 to 14 year olds compared to the same populations in Ontario.

Figure 3. Age-Specific Rate of Oral Health-Related ED Visits per 100,000 Population among Children, by Age Group & Sex, NBPSDHU region, 2011-2015 Combined

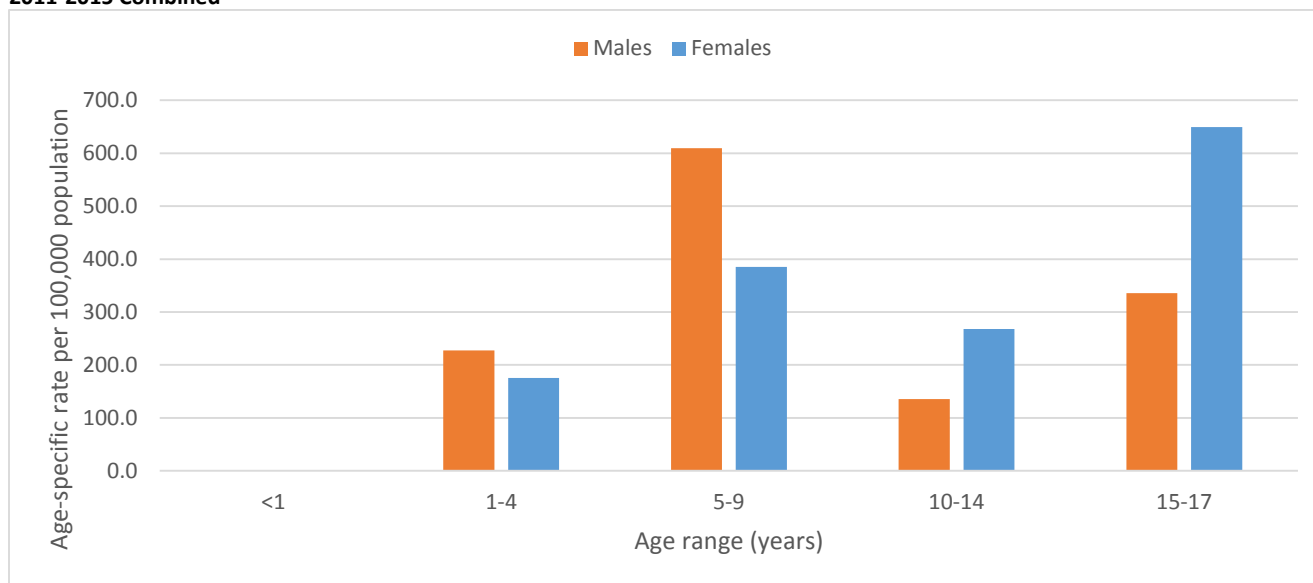


Table 3. Age-Specific Rate of Oral Health-Related ED Visits per 100,000 Population among Children, by Age Group & Sex, NBPSDHU region, 2011-2015 Combined

Age Group (Years)	Age-Specific Rate among Males	Age-Specific Rate among Females
Less than 1	0.0	0.0
1-4	227.4	175.5
5-9	609.6	385.3
10-14	135.7	267.8
15-17	335.7	649.5

Hospitals Visited

In 2015, most oral health-related ED visits were made to the North Bay Regional Health Centre (NBRHC; Figure 4 & Table 4). The number of oral health-related ED visits made to the NBRHC has increased from 31 visits in 2006 to 44 visits in 2015. The number of visits made to other regional hospitals (West Nipissing & West Parry Sound) has remained stable.

Figure 4. Number of Oral Health-Related ED Visits among Children, by Top Three Hospital, NBPSDHU region, 2006-2015

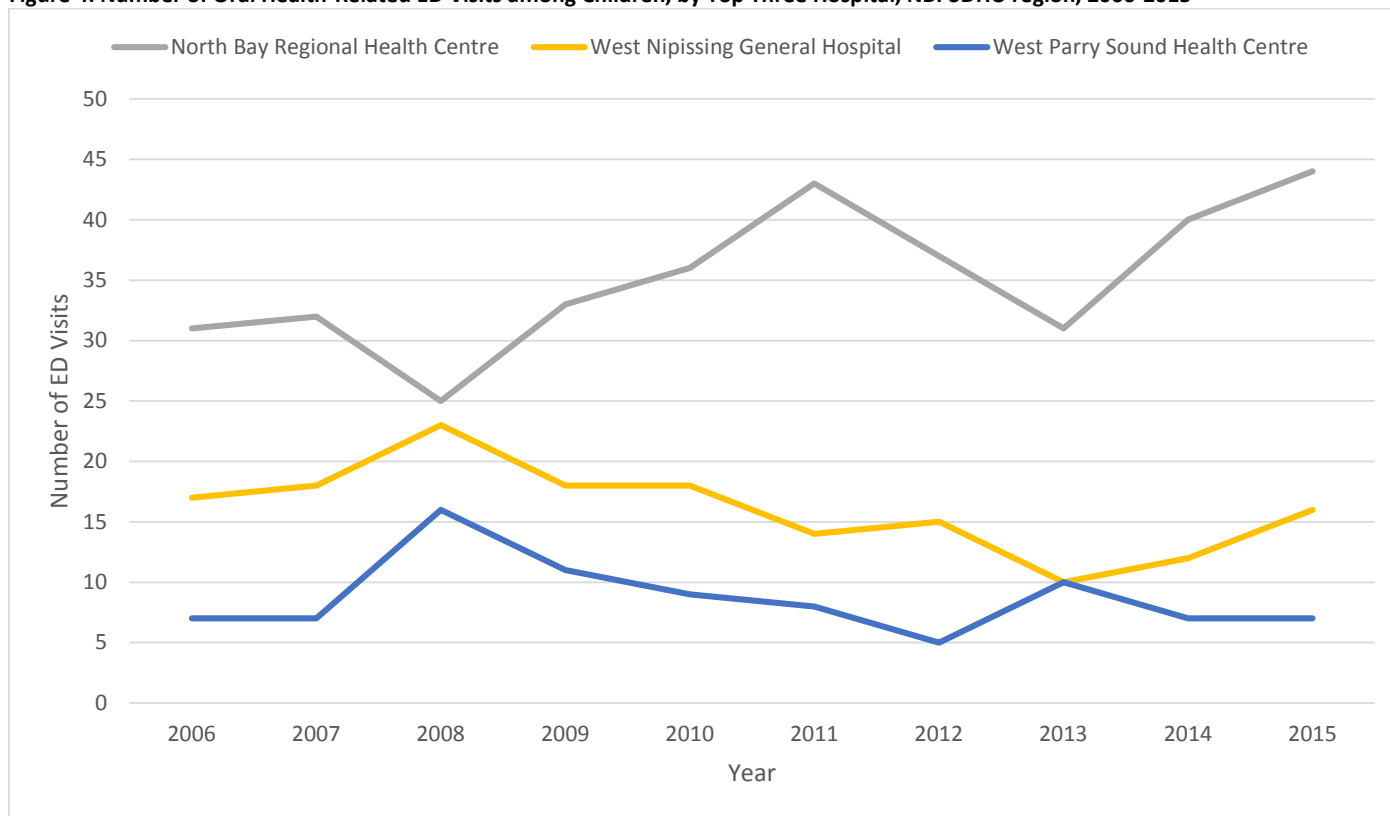


Table 4. Number of Oral Health-Related ED Visits among Children, by Top Three Hospitals, NBPSDHU region, 2006-2015

Year	North Bay Regional Health Centre	West Nipissing General Hospital	West Parry Sound Health Centre
2006	31	17	7
2007	32	18	7
2008	25	23	16
2009	33	18	11
2010	36	18	9
2011	43	14	8
2012	37	15	5
2013	31	10	10
2014	40	12	7
2015	44	16	7

Diagnoses

Percentage of visits by diagnosis were analyzed for visits between 2011 and 2015 combined (Figure 3 & Table 3). Two of every four oral health-related ED visits among children in our region had a diagnosis of periapical abscess without sinus, and one of every four visits had a diagnosis of toothache, not otherwise specified (nos; Figure 5 & Table 5). The top diagnoses made were similar to visits in Ontario.

Figure 5. Percentage of Oral Health-Related ED Visits among Children, by Top Five Diagnoses in the NBPSDHU Region & Region, 2011-2015 Combined

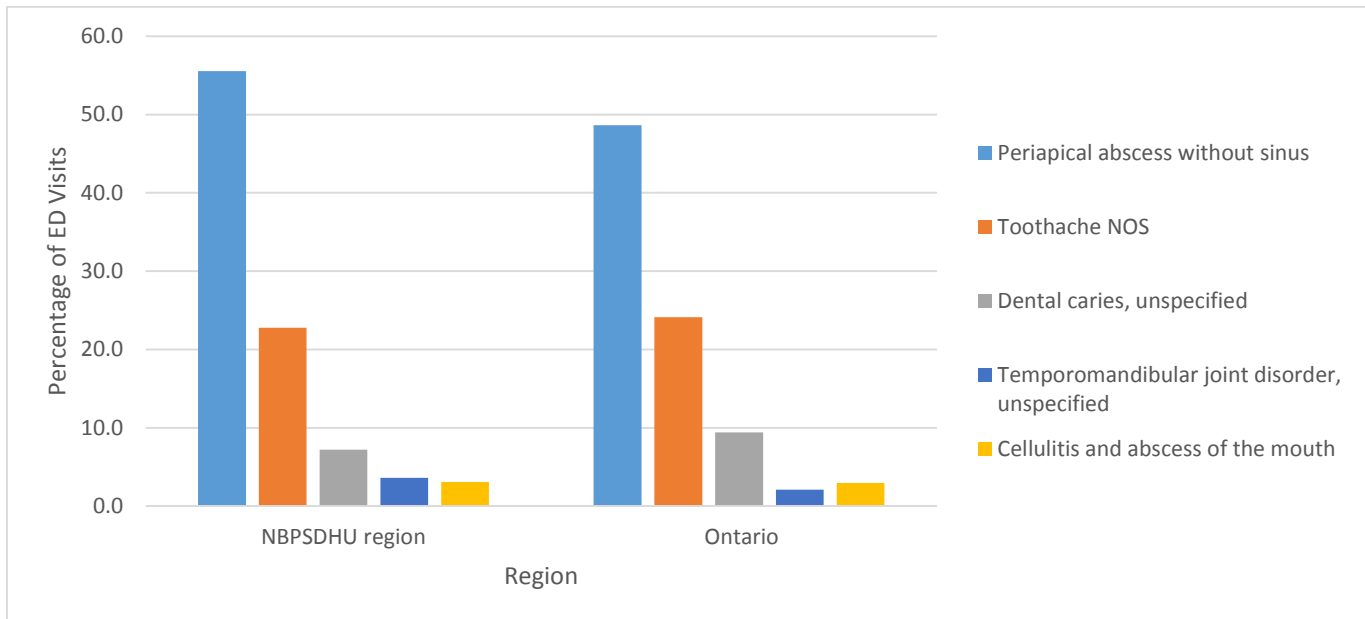


Table 5. Percentage of Oral Health-Related ED Visits among Children, by Top Five Diagnoses in the NBPSDHU Region & Region, 2011-2015 Combined

Diagnosis	NBPSDHU region	Ontario
Periapical abscess without sinus	55.6	48.6
Toothache NOS	22.8	24.1
Dental caries, unspecified	7.2	9.4
Temporomandibular joint disorder, unspecified	3.6	2.1
Cellulitis and abscess of the mouth	3.1	3.0