

Annual Infectious Disease Surveillance Report

The Infectious Diseases team at the Simcoe Muskoka District Health Unit (SMDHU) performs ongoing surveillance of infectious diseases. We depend on disease reporting from health care practitioners, laboratory results, and our active surveillance activities to generate a continually monitored database to detect disease clusters and outbreaks. This surveillance report provides health professionals with a snapshot of pertinent diseases in Simcoe Muskoka to improve clinical decision making, patient care, and detection of unusual clusters. **This year's *In Focus* section provides a profile of the cancer preventing Human Papillomavirus (HPV) vaccine, including the Grade 7 school immunization program and vaccine uptake in Simcoe Muskoka**

Incidence of Most Relevant Reportable Diseases in Simcoe Muskoka, 2017

Data Source: Integrated Public Health Information System, Extracted June 2018

		January-December 2017 [^]		5 Year Mean* Jan-Dec, 2012-2016		Comments
		# of Cases	Rate per 100,000 Population	# of Cases	Rate per 100,000 Population	
Moderate (1-2 Standard Deviation (SD)) increase (↑) or decrease (↓), and significant (>2 SD's) increase (↑↑) or decrease (↓↓) compared to the historical average.						
Sexually Transmitted Infections and Bloodborne Infections						
Chlamydia		1367	242.2	1293	238.7	Rate has increased since 2012, but appears to have stabilized. Local lab testing percent positivity (5.4%) has remained relatively stable over time. Highest rate in females aged 15-24 years.
Hepatitis C	↑↑	247	43.8	182	33.6	Important to order viral load and refer to GI specialist for treatment options, as treatment is effective and available free of cost. Increase in cases may be due, in part, to increase in testing.
Gonorrhea		101	17.9	98	18.1	Significant local and provincial increase since fall 2013. Local percent positivity (0.6%) has tripled since 2012, but appears to have stabilized. Mainly affecting males between 25-34 years. 25% identify as men who have sex with men (MSM).
Syphilis		9	1.6	8	1.6	SMDHU rate is 1/7 th of Ontario rate. Infectious syphilis is increasing provincially; 75% of cases identify as MSM; 40% are HIV+.
HIV/AIDS	↓	3	0.5	10	1.9	Highest incidence in urban centres (Toronto, Ottawa, London). SMDHU ~ 1/3 of provincial rate. MSM is highest risk factor.
Hepatitis B (acute)		2	0.4	2	0.3	
Respiratory Diseases						
Influenza	↑↑	950	168.3	565	104.2	Record-breaking local flu season with overlapping waves of Flu A (H3) and Flu B, 70 institutional outbreaks.
Invasive Group A Streptococcal infection	↑	42	7.4	25	4.5	Increasing incidence across Ontario since 2015. Provincially: outbreaks observed in pockets of under-housed individuals and those experiencing homelessness.
Pertussis		22	3.9	20	3.7	Studies have shown that for the Tdap vaccine given between 14-16 years of age and in adulthood, immunity/protection wanes from roughly 70% in 1 st year to between 30-40% by the 4 th year after immunization (Acosta et al., Pediatrics, 2015).
Tuberculosis (active pulmonary)		3	0.5	2	0.4	SMDHU rate is typically ~15% of Ontario rate. Concentrated in risk populations in urban centres (Toronto, Ottawa)
Mumps		2	0.4	2	0.3	
Legionellosis	↓↓	2	0.4	5	0.9	
Meningococcal disease, invasive		2	0.4	1	0.2	

Moderate (1-2 Standard Deviation (SD)) increase (↑) or decrease (↓), and significant (>2 SD's) increase (↑↑) or decrease (↓↓) compared to the historical average.

		January-December 2017 [^]		5 Year Mean* Jan-Dec, 2012-2016		Comments
		# of Cases	Rate per 100,000 Population	# of Cases	Rate per 100,000 Population	
Gastro-Intestinal diseases						
Campylobacter enteritis	↓↓	109	19.3	125	23.1	
Salmonellosis		102	18.1	109	20.2	
Amebiasis, Cryptosporidiosis, Cyclosporidiosis, Shigellosis, and Yersiniosis	↑	62	11.0	38	7.1	Local increases in Cryptosporidiosis and Yersiniosis, no common exposures noted among cases.
Giardiasis		58	10.3	52	9.6	
Listeriosis		4	0.7	3	0.5	
Verotoxin-producing <i>E.coli</i>		3	0.5	5	0.9	
Hepatitis A		0	0.0	2	0.3	Low level of endemicity in Canada
Vector-Borne and Zoonotic Diseases						
Lyme Disease (confirmed + probable)	↑↑	12	2.1	4	0.7	Increasing human cases across Ontario. Two cases in 2017 were determined to be locally-acquired. Surveillance has identified Awenda Provincial Park and southern Bradford West-Gwillimbury as local areas with increased risk of exposure to blacklegged ticks. Health Quality Ontario clinical algorithm here .
West Nile virus	↑↑	7	1.2	1	0.3	Well-established in Ontario; Favorable conditions (warm and rainy) for mosquito propagation in 2017 likely contributed to the increased incidence.
Rare Diseases						
Diphtheria, Polio, Rubella, Tetanus		0	0.0	0	0.1	No cases reported since 2013
Haemophilus influenzae b		0	0.0	0	0.0	
Malaria	↓	0	0.0	2	0.3	As of May 2018, malaria is no longer a reportable disease in Ontario. Previous cases were imported.
Measles		0	0.0	0	0.0	
Rabies		No non-imported human cases in Ontario in 20+ yrs. Animals with highest incidence in Ontario are: bats, skunks, foxes and livestock. Cats and dogs can also become infected with rabies				

[^] All disease counts are reported by calendar year except influenza, which are reported by flu season (September to August).

* Outbreak years are excluded from historical average calculations.

For infectious disease statistics in Simcoe Muskoka and Ontario, please visit:

www.simcoemuskokahealthstats.org

Please continue to report all confirmed or suspected cases of Diseases of Public Health Significance to the SMDHU via phone: 705-721-7520 ext. 8809 (After hours: 1-888-225-7851), or fax: 705-733-7738.

For more information and resources on infectious diseases, please go to our Health Professionals Portal:

www.smdhu.org/hportal

SMDHU's Weekly Influenza News is released weekly throughout flu season: www.smdhu.org/WeeklyFluNews

Sign up to receive electronic copies of SMDHU's HealthFAX: <http://smdhu.org/eHealthFAX>

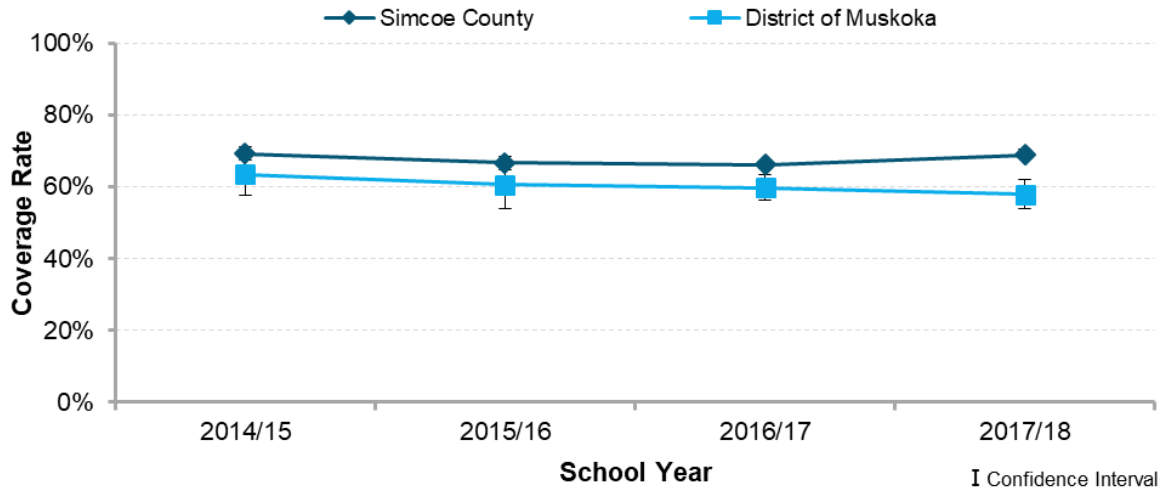
In Focus: Human Papillomavirus (HPV)

Quick Facts

- **HPV immunization is an effective cancer prevention intervention. HPV causes 99% of all cases of cervical cancers, 80-90% of anal cancers, 40-50% of penile cancers, 40% of vaginal and vulvar cancers, 25-35% of oropharyngeal and oral cavity cancers.¹ In addition, it can prevent genital warts.**
- Studies in many jurisdictions have shown the effectiveness of universal adolescent HPV immunization programs. For instance, in the state of Victoria in Australia, after the introduction of the vaccination program to women between the ages of 12 and 26 years of age, they recorded a decrease in the incidence of high grade cervical abnormalities that are often precursors to cervical cancer by 40% in girls younger than 18 years.² The incidence of HPV 16/18 infections in nine high-income countries, including Canada, decreased by 64% after HPV vaccination program initiation in girls younger than 20 years.³ A 2013 Australian study also showed the impact of the vaccine program on genital warts only a few years after its introduction. The prevalence of genital warts in women under 21 dropped by 92% between 2007 and 2011. Even though boys were not part of the HPV vaccine program until 2013, by 2011 genital warts had fallen by 81% in males under 21 because of herd immunity.⁴
- HPV vaccine is offered as part of the publicly funded school immunization program to all Grade 7 students at schools across our region.
- **In the 2017-18 school year, only 68.3% of Grade 7 students were fully immunized (covered)* for HPV across Simcoe Muskoka.**
 - In Simcoe County, 69% of students were fully immunized, whereas in Muskoka, only 58% of students were fully immunized against HPV (Figure 1).
 - HPV immunization coverage varies across Simcoe Muskoka, with municipalities in the District of Muskoka as well as southern Simcoe County having lower coverage rates when compared to municipalities in northern Simcoe County (see Figure 4). The lower coverage rate in Muskoka has been observed for the past three years.
- Primary care professionals can increase the immunization rates of the school immunization program (HPV, Hepatitis B and Meningococcal), in particular HPV, by discussing their importance and effectiveness with parents and school-aged children, especially during the 4-6 year-old immunization visit. Students who did not receive the vaccines in Grade 7 may be eligible for the catch-up program through the health unit.
- HPV-9 is also indicated for women up to 45 years of age, and men up to 26 years of age. Men who have sex with men (MSM) can receive publicly-funded vaccine, which their health care provider can access by completing the special order form for high-risk program vaccines.

* Coverage estimates are calculated based on forecasting status following the Ontario Immunization schedule and includes individuals who are fully immunized or have documented proof of immunity. These estimates may differ from Public Health Ontario's coverage estimates.

Figure 1. Proportion of Simcoe Muskoka School Cohorts Who Completed HPV Series, 2014-15 to 2017-18

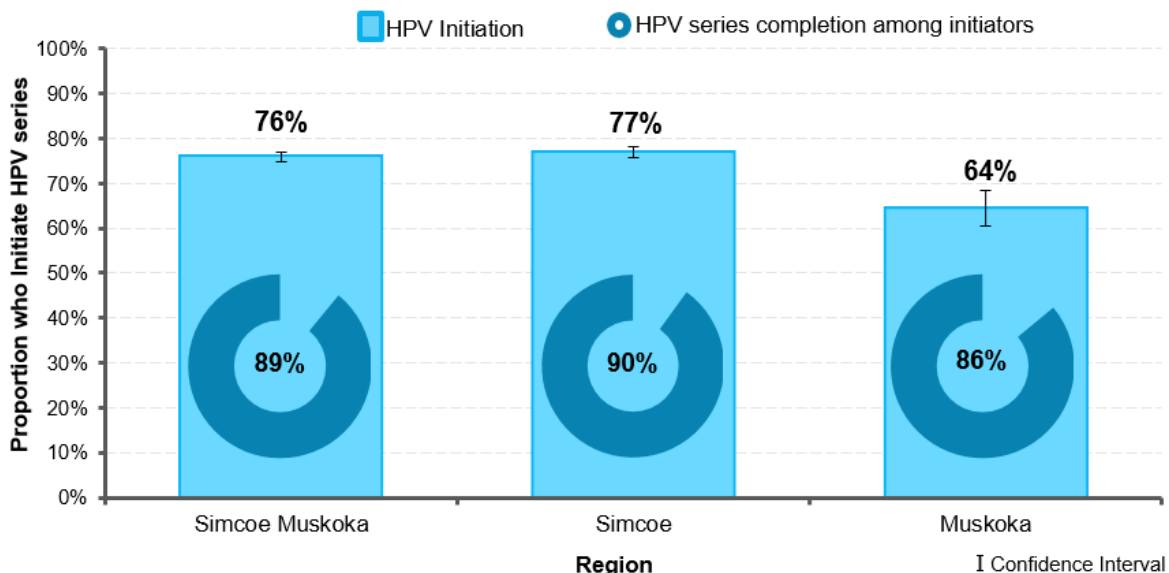


Data Source: Ministry of Health and Long-Term Care, Digital Health Immunization Repository, extracted by Simcoe Muskoka District Health Unit [2018/09/13].
Notes: 2017/18 was the first school year where HPV-9 was provided to students. 2016/17 school year was the first cohort to offer the vaccine to grade 7 students and was a double cohort with Grade 8 females also receiving HPV. 2015/16 school year only provided HPV to Grade 8 female students.
Immunization data are presented by location of the school the student attends.

HPV Series Initiation and Completion

Roughly 90% of Grade 7 students who initiate the HPV immunization series in SMDHU complete it within the same school year. This is higher than what has been reported at a provincial level (81.2%).⁶ However, initiation and completion rates remain lower in students attending school in the District of Muskoka when compared to the County of Simcoe (Figure 2). Catch-up clinics are available through the health unit for students to initiate and complete the series after Grade 7, supporting improved local coverage rates. At the end of the 2016-17 school year, the Ontario coverage rate for HPV was 56%, whereas the coverage for Simcoe Muskoka was 64%.⁶ Locally, the coverage for the 2016-17 cohort has since increased to 70% as students continue to complete their series in high school.

Figure 2. HPV Series Initiation and Completion among Initiators in Grade 7 Students of Simcoe Muskoka, 2017-18

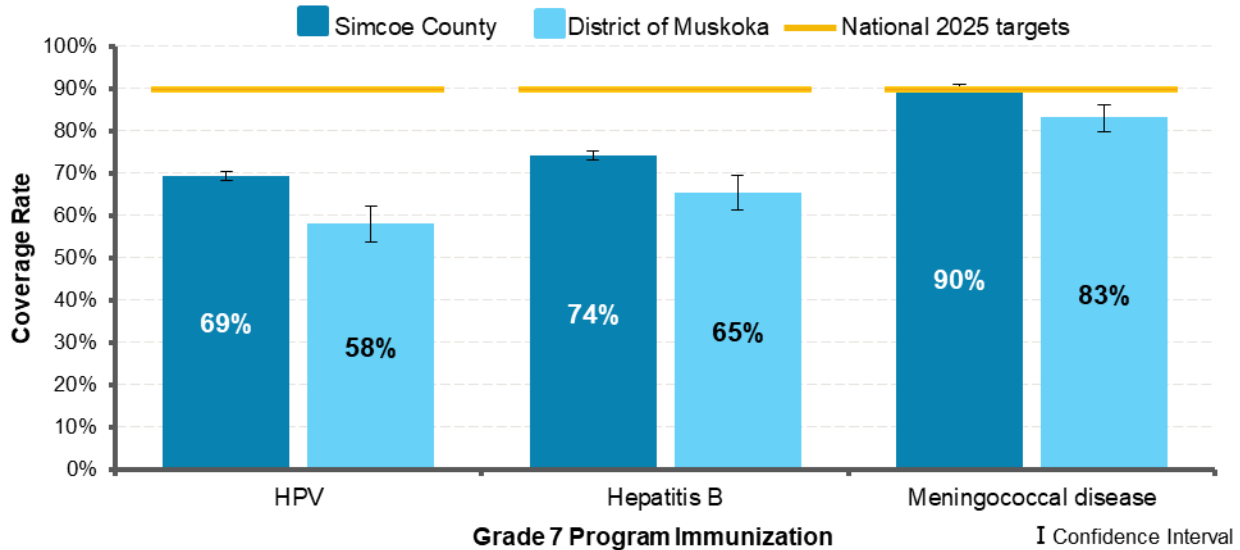


Data Sources: Ministry of Health and Long-Term Care, Digital Health Immunization Repository, extracted by Simcoe Muskoka District Health Unit [2018/09/07].
Note: Immunization data are presented by the location of the school the student attends.

Grade 7 School Program Immunization Coverage in Simcoe Muskoka

SMDHU offers HPV vaccine at schools across Simcoe County and the District of Muskoka along with Hepatitis B and Meningococcal disease vaccines. HPV immunization coverage (68.3%) is the lowest of these three vaccines (for comparison: Hepatitis B = 73.3%; Meningococcal disease = 89.7%), despite having the same target coverage rate (90%).⁵ Coverage for all Grade 7 program immunizations tends to be lower in students attending school in the District of Muskoka when compared to the County of Simcoe (Figure 3).

Figure 3. Grade 7 Program Immunization Coverage in Grade 7 Students of Simcoe Muskoka, 2017-18



Data Source: Ministry of Health and Long-Term Care, Digital Health Immunization Repository, extracted by Simcoe Muskoka District Health Unit [2018/09/11].

Notes: National targets are based on the National Immunization Strategy Vaccination Coverage Goals and are to be achieved by 2025.

Immunization data are presented by the location of the school that the student attends.

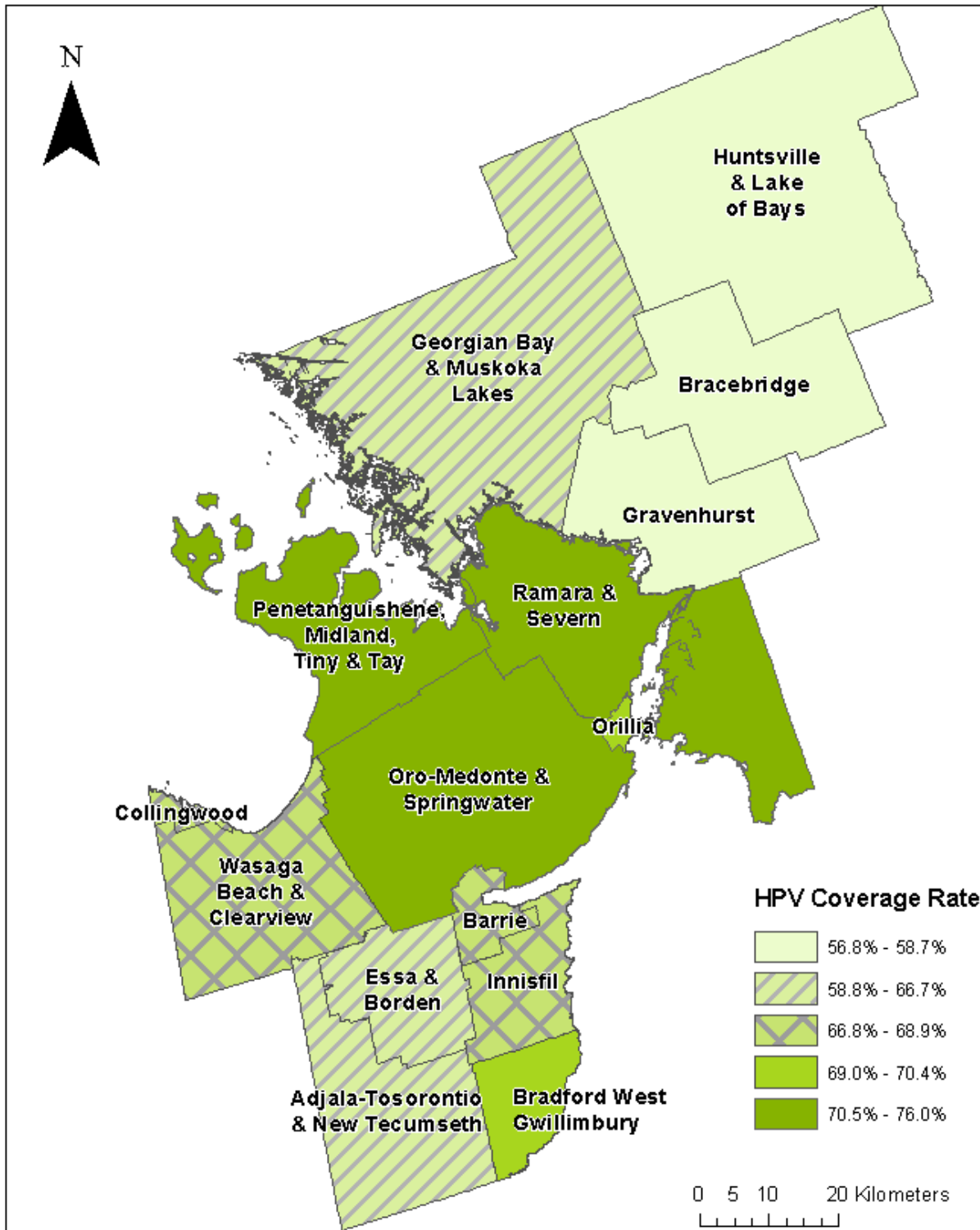
Resources:

- **Human Papillomavirus Fact Sheets**
 - **SMDHU:**
 - Health professionals - <http://www.smdhu.org/HPV-CancerPrevention>
 - Public - www.smdhu.org/HPV
 - **PHAC:** <https://www.canada.ca/en/public-health/services/diseases/human-papillomavirus-hpv.html>
- **Simcoe Muskoka Grade 7 Immunization Statistics:** www.smdhu.org/Gr7Imms

References

1. Canadian Cancer Society. HPV not just a threat to women: mouth and throat cancers rising sharply in men. [Report online]; 2016 [Last accessed 2018 Sep 24]. Available from: <http://www.cancer.ca/en/about-us/for-media/media-releases/national/2016/canadian-cancer-statistics-2016/?region=on#ixzz5S1VesRi7>
2. Brotherton, JML et al. Early effect of the HPV vaccination programme on cervical abnormalities in Victoria, Australia: an ecological study. The Lancet 2011; 377(9783): 2085-2092.
3. Harper, DM et al. HPV vaccines – A review of the first decade. Gynecologic Oncology 2017; 146(1): 196-204.
4. Hammad, A et al. Genital warts in young Australians five years into national human papillomavirus vaccination programme: national surveillance data. BMJ 2013; 346-f2032.
5. Government of Canada. Vaccination Coverage Goals and Vaccine Preventable Disease Reduction Targets by 2025. [Report online] Ottawa, ON; 2017 [Last accessed 2018 Sep 24]. Available from: <https://www.canada.ca/en/public-health/services/immunization-vaccine-priorities/national-immunization-strategy/vaccination-coverage-goals-vaccine-preventable-diseases-reduction-targets-2025.html>
6. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Immunization coverage report for school pupils in Ontario: 2016–17 school year. [Report online]. Toronto, ON: Queen's Printer for Ontario; 2018 [Last accessed 2018 Sep 21]. Available from: <https://www.publichealthontario.ca/en/eRepository/immunization-coverage-report-2016-17.pdf>

Figure 4. HPV Coverage in Grade 7 Students across Simcoe Muskoka, 2017-18



Data Source: Ministry of Health and Long-Term Care, Digital Health Immunization Repository, extracted by Simcoe Muskoka District Health Unit [2018/09/07].

Notes: Immunization data are presented by location of the school the student attends.

Some municipalities have been combined together for data presentation purposes. They appear as single areas on the map (e.g. Huntsville and Lake of Bays, Clearview and Wasaga Beach).