

## Immunization Coverage Rates for School-Aged Children

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**TO:** Chair and Members of the Board of Health

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## Recommendations

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It is recommended that the Board of Health:

- **Receive this report for information.**

## Key Points

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- Wellington-Dufferin-Guelph Public Health (WDGPH) Nurses provide approximately 200 school immunization clinics annually.
- WDGPH immunization coverage rates typically meet or exceed provincial averages.
- Immunization coverage rates in WDGPH have improved since the initiation of our comprehensive assessment and suspension process initiated in 2016.
- The Vaccine Preventable Disease team is exploring strategies to improve uptake rates of the school based vaccines that fall outside of the *Immunization of School Pupils Act (ISPA)*.

## Discussion

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Immunization clinics are offered through a school program as per the Ontario Public Health Standards. Public Health agencies are directed to reduce or eliminate the burden of vaccine preventable diseases by providing provincially funded immunizations to eligible students in school based immunization clinics. Currently the program is offered to all grade 7 students enrolled in school.

Immunization coverage is assessed annually for school pupils within each board of health jurisdiction in Ontario under the *ISPA*. Records are reviewed to ensure students have received ISPA mandated vaccines according to the publicly-funded immunization schedule. Even though vaccines for hepatitis B (HBV), meningococcal disease and human papilloma virus (HPV) are not vaccines assessed under the *ISPA*, the Ministry of Health and Long term Care (MOHLTC) has requested that health units also report annually on the following compliance indicators.

- % of school-aged children who have completed immunizations for hepatitis B
- % of school-aged children who have completed immunizations for human papilloma virus (HPV)
- % of school-aged children who have completed immunizations for meningococcal disease

The objective of this report is to present WDGPH-specific immunization coverage estimates for Ontario's school-based immunization program including: HBV, quadrivalent meningococcal conjugate and HPV as per the formula provided by the MOHLTC for compliance indicators.

Additionally, WDGPH school-based vaccine coverage and overall coverage estimates will be compared to provincial coverage estimates for the 2013-14 through 2016-17 school years as per publicly posted data provided by Public Health Ontario (PHO).

### Comparisons of Compliance Indicator Data by Disease

Public Health Nurses offer immunization clinics to grade 7 students for each school, semi-annually. Students are offered the first dose of hepatitis B vaccine and HPV vaccine in the fall, with the second dose of both vaccines offered again in the spring to complete the series. The quadrivalent meningococcal conjugate vaccine is offered in either the spring or the fall visit based on program capacity and needs of the students. In the 2017-2018 school year, 200 school visits were completed. Students who are unable to attend the clinic scheduled at their school are eligible to access the free vaccine at their healthcare provider's office or at a public health office.

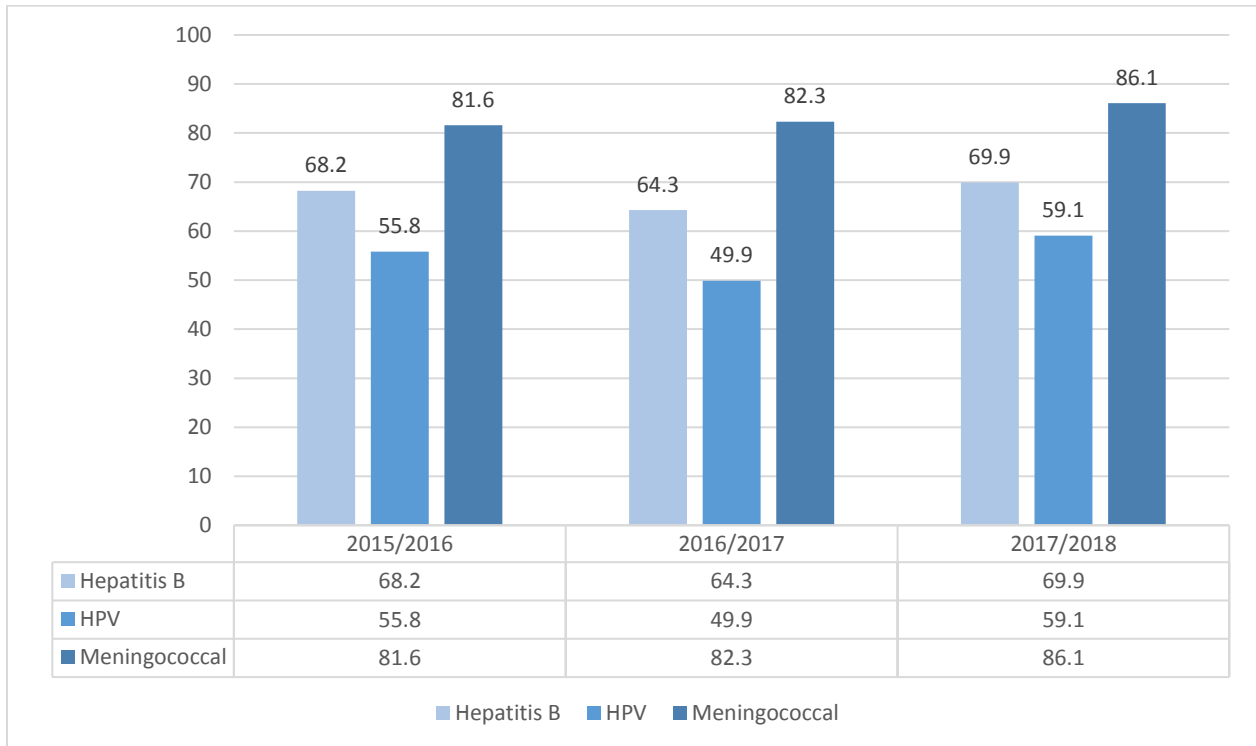
Existing limitations of the compliance indicator report data include the following:

- Vaccine compliance may be underestimated. Healthcare providers are not mandated to report vaccinations provided to Public Health. Therefore coverage rates for non-mandatory vaccines, such as Hepatitis B and HPV, do not always

reflect the immunizations provided in external healthcare provider offices (eg. Twinrix provided for travel) resulting in coverage rates that appear lower than they are.

- It is the responsibility of parents and guardians to report immunizations to Public Health which can contribute to incomplete or missing data.
- The report captures only completed vaccine series. Therefore students who have received 1 dose of a 2 dose series will not be counted unless the series is completed and/or second dose is reported to public health.

**Figure 1. School based vaccine compliance data over three years**



The coverage rates for mandatory school-based vaccines are usually much higher than vaccines offered to students as optional. This is evidenced by comparing the data for meningococcal vaccine vs. hepatitis B and HPV vaccines. Meningococcal-quadrivalent is the only *ISPA* mandated vaccine offered in the grade 7 program.

Overall, coverage rates for these three (3) vaccines have improved in the past three (3) years. The data presented below will demonstrate how WDGPH compares to provincial averages.

## Wellington-Dufferin-Guelph Immunization Coverage Comparisons

PHO publicly posts WDGPH-specific immunization coverage estimates for Ontario's publicly-funded childhood immunization programs.<sup>1</sup> WDGPH coverage estimates in this report can be compared to provincial coverage estimates or to data from other health units. In addition to school-based vaccines, this report includes measles, mumps, rubella, diphtheria, tetanus, polio and pertussis for 7- and 17-year-olds; and Haemophilus influenzae type b, pneumococcal conjugate, meningococcal-C-conjugate (MCC) and varicella for 7-year-olds.<sup>1,2</sup> This immunization coverage data has been collected from Panorama and analyzed by PHO.

Reports were initiated for the 2013-14 school year and are produced annually with data from the previous school year.<sup>1,2</sup> PHO promotes these reports as useful to describe trends in provincial immunization coverage and to compare immunization coverage with nationally defined coverage goals.<sup>1,2</sup>

It is important to note that the formula used by PHO to run the reports does not match the same formula used to report on compliance indicators to the MOHLTC for a variety of reasons. Slight data differences between PHO coverage estimates and compliance indicators reported to the MOHLTC are evident as a result.

During the 2015-2016 school year, WDGPH initiated a large campaign, encouraging parents and students to submit missing records and update vaccines. In the 2016-2017 school year, WDGPH began assessing records and enforcing suspensions for incomplete records for all ages and grades. WDGPH coverage rates that fall below the provincial average for that year are highlighted in Figures 2, 3 and 4, using red text.

**Figure 2. Comparison of school based vaccine coverage for 12 year olds**

Antigen	WDGPH Coverage Estimates				Ontario Estimates			
	2013-14	2014-15	2015-16	2016-17	2013-14	2014-15	2015-16	2016-17
Human papillomavirus (HPV)	62.3	59.1	56.6	50.6	61.5	60.4	61	56.3
Quadrivalent meningococcal conjugate (MCV4)	79	79.5	82	81.3	77.5	79.4	80.6	79.6
Hepatitis B	71.5	70.9	69.7	65.0	71.7	70.7	69.9	68.6

**Figure 3. Comparisons of Publicly-Funded Vaccine Coverage for 7 Year Olds**

Antigen	WDGPH Coverage Estimates				Ontario Estimates			
	2013-14	2014-15	2015-16	2016-17	2013-14	2014-15	2015-16	2016-17
Two-dose varicella immunization	34.5	48.7	62.3	67.1	24.8	33.8	46.4	52.3
Meningococcal C conjugate (MCC)	85	86.2	94.4	95.4	83.5	87.2	92.1	94.2
Pneumococcal	81.8	81.7	83.2	83.3	76.6	77.3	79	79.7
Haemophilus influenzae type b (Hib)	85.3	81.4	82.8	83.3	83.1	81.4	81.3	82.2
Polio	69.8	74.6	90.3	93	86.6	76.2	84.5	85
Pertussis	69.7	74.2	89.8	92.2	84.8	75.6	84.1	84.6
Tetanus	69.9	74.5	89.9	92.3	86.4	76.1	84.3	84.7
Diphtheria	69.9	74.5	89.9	92.3	86.4	76.1	84.3	84.7
Rubella	97.5	95.6	96.4	96.7	98.2	96.1	95.9	96.2
Mumps	89.1	87.3	93.3	94.0	93.6	89.1	91.6	91.1
Measles	89.4	87.6	93.3	94	94	89.4	91.8	91.2

**Figure 4. Comparisons of Publicly-Funded Vaccine Coverage for 17 Year Olds**

Antigen	WDGPH Coverage Estimates				Ontario Estimates			
	2013-14	2014-15	2015-16	2016-17	2013-14	2014-15	2015-16	2016-17
Polio	96	94.2	94.5	93.6	94.9	92.5	92.9	92.5
Pertussis	70.4	60.8	75.6	74.3	60.4	57.4	65	63.2
Tetanus	73.7	64.8	80.3	78.4	72.2	65.2	71.5	68.6
Diphtheria	73.7	64.8	80.3	78.3	72.2	65.2	71.5	68.6
Rubella	98.3	96.4	97	96.5	98.5	96.7	96.9	95.8
Mumps	95.8	94.4	94.8	94	95	93.2	94	93.5
Measles	96.5	94.6	95.2	94.4	96.7	94.3	94.6	94.0

## Conclusion

Because of the time delay in analyzing and releasing this data, one cannot fully appreciate the difference that assessing all records on an annual basis has made for the WDGPH coverage rates. It is evident for the 2015-16 year, when the campaign was initiated, the rates began to improve in comparison to provincial rates and continued to

stay at, or above, provincial averages for the 2016-17 school year. Annual records assessments do not include hepatitis B and HPV vaccine as they fall outside of the *ISPA*.

It would be important to note that the data presented in the PHO report indicates that Ontario does not meet most national immunization coverage goals.<sup>1</sup> Vaccines function optimally when an adequate portion of the population has been immunized for a specific disease. For example, we know that measles outbreaks have occurred in populations with high immunization coverage rates.<sup>3</sup> Research shows that due to the high infectivity of the measles virus, at least 95% of the population needs to be immunized to develop herd immunity.

## Moving Forward

The WDGPH Vaccine Preventable Disease team invested significant resources in creating a successful annual assessment and suspension process over the past two (2) school years. Now that a working process for the *ISPA* related activities is in place, there is opportunity for resources to be directed into a review of school immunization program coverage rates. Over the next two (2) years, an evaluation of school immunization program will be completed in order to improve client service and subsequently the uptake of school based vaccines. A formal strategy for this process has not yet been completed.

## WDGPH Strategic Direction(s)

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*Double click checkbox to change from unchecked to checked.*

- Health Equity:** We will provide programs and services that integrate health equity principles to reduce or eliminate health differences between population groups.
- Organizational Capacity:** We will improve our capacity to effectively deliver public health programs and services.
- Service Centred Approach:** We are committed to providing excellent service to anyone interacting with WDG Public Health.
- Building Healthy Communities:** We will work with communities to support the health and well-being of everyone.

## Health Equity

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WDGPH offers school-based immunizations to twenty-one (21) parochial and small private schools. In the past, when HPV vaccine was first introduced, some of these schools had opted out of their students being offered the HPV vaccine. For the 2017-

2018 school year staff reached out to the schools who were not participating and requested to offer the full program as per MOHLTC requirements so that all students have equal access to the vaccines that they are eligible for. For the 2017-2018 school year, all school clinics in WDGPH will have all three (3) vaccines available for eligible students.

WDGPH understands that some students are unable or unwilling to receive school based immunizations in the school setting. WDGPH accommodates these students by offering appointments at all Public Health office locations. These students are also offered the opportunity to receive these vaccines at their healthcare provider's office. WDGPH distributes school-based vaccine to community healthcare providers for these requests.

## References

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1. Public Health Ontario. Immunization Coverage Report. [https://www.publichealthontario.ca/en/eRepository/Immunization\\_Coverage\\_Report\\_2013-16.pdf](https://www.publichealthontario.ca/en/eRepository/Immunization_Coverage_Report_2013-16.pdf)
2. Public Health Ontario. Immunization Coverage Report for School Pupils in Ontario. 2016-2017 [https://www.publichealthontario.ca/en/eRepository/immunization-coverage-report-2016-17.pdf?\\_cldee=bWFybgVuZS5qYW50emktYmF1bWFuQHdkZ3B1YmxpY2hlYWx0aC5jYQ%3d%3d&recipientid=contact-2f4f85b8444be41180d400155d027703-6ec5ccaf01c148a5a164f882a34c5726&esid=45924e13-a4a0-e811-9e8a-0050569e0009](https://www.publichealthontario.ca/en/eRepository/immunization-coverage-report-2016-17.pdf?_cldee=bWFybgVuZS5qYW50emktYmF1bWFuQHdkZ3B1YmxpY2hlYWx0aC5jYQ%3d%3d&recipientid=contact-2f4f85b8444be41180d400155d027703-6ec5ccaf01c148a5a164f882a34c5726&esid=45924e13-a4a0-e811-9e8a-0050569e0009)
3. The Canadian Immunization Guide. Measles Vaccine. <https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-active-vaccines/page-12-measles-vaccine.html>

## Appendices

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None.