PublicHealth
WELLINGTON-DUFFERIN-GUELPH
Stay Well.

ADVISORY

SUBJECT:	Measles Preparedness
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Pages:	5
To:	Primary Care Providers
From:	Dr. Matthew Tenenbaum, Associate Medical Officer of Health

In anticipation of increased travel over March break, it is recommended that:

- **Health care providers consider measles in their differential diagnosis, especially in travellers with compatible respiratory symptoms.**
- **Health care offices and hospitals should ensure that ALL staff are up to date with 2 doses of measles vaccination OR have laboratory confirmed immunity.**
- **Health care providers support their patients in staying up to date with their immunizations, including measles, in advance of any travel.**

Background

Last week, the Pan-American Health Organization (PAHO) issued a statement regarding the increased risk of measles in the Americas and globally due to lower vaccination rates over the pandemic.[1] Vaccine coverage rates for both first and second doses of measles have declined over the pandemic due to decreased access to primary health care. Even small decreases in vaccine coverage rates can increase the risk and spread of highly transmissible diseases, like measles.[2]

Locally, Wellington-Dufferin-Guelph Public Health has seen measles coverage rates decrease from >90% prior to the pandemic to 83% in the most recent school year (see Table 1).[3] Coverage should be at least 95% in order to develop herd immunity and prevent measles outbreaks.[4]

Table 1. Historical (pre-pandemic) and current vaccine coverage for measles among students in Wellington-Dufferin-Guelph.[3]

School Year	2018-2019	2019-2020	2020-2021	2021-2022
Measles vaccine coverage (% up to date)	91.3%	90.1%	86.9%	83.3%

Clinical Signs and Symptoms of Measles

Measles is a highly contagious disease that is caused by the measles virus. It spreads through the air, and by close personal contact, or direct contact with respiratory secretions. It is characterized by a high fever (>38.3° C - oral), and a generalized maculopapular rash.

Symptoms begin 7-21 days after exposure to a case of measles. Common prodromal symptoms are fever, cough, conjunctivitis, coryza, drowsiness, and irritability. Small white spots can appear in the mouth (“Koplik’s spots”), but not always (see Figure 1). On day 3-7, a red, blotchy, maculopapular rash appears on the face and then progresses down the body.[5]

Figure 1. Koplik spots on the buccal mucosa of a 10-month-old girl with measles (published in *Canadian Medical Association Journal*)[6]

Complications from the illness can include pneumonia, blindness, encephalitis, and death. Individuals that are malnourished, immunocompromised, under the age of 1 year, and women who are pregnant are most at risk of complications.[7]

Period of Communicability

Measles is infectious one day before the start of the prodromal symptoms, which is usually 4 days before rash onset to 4 days after rash onset.[5]

What to Do if You Suspect a Case of Measles

- If possible, have the patient attend clinic at the end of the day or at a time when other patients are not present in order to reduce risk of transmission.
- Immediately mask and isolate the patient in a room with a closed door (negative pressure, if available). Droplet nuclei can remain active and infectious in air for up to two hours; therefore, no further patients should be placed in that room for a two-hour period.[8]
- Only health care workers that are up to date with their measles vaccine or have laboratory confirmed immunity should attend to the patient under airborne precautions.
- Perform an assessment and collect confirmatory testing.
- Recommend the patient self-isolate and relay that public health will follow up with further instructions.
- Contact public health to report a suspect measles case-do not wait for laboratory confirmation.

Diagnosis of Measles

The preferred timing of testing is during the acute phase of the illness. Refer to PHO testing guidelines, specimen collection kits, and timing for collection of specimens (see Table 2).

Table. 2 Laboratory Testing for Measles

Test Requested	Required Requisition	Specimen Type & Timing	Collection Kit
Measles Virus Diagnosis (PCR)	General Test Requisition	**Nasopharyngeal (NP) swab** Collect withing 7 days after onset of rash	Virus Respiratory Kit order #390082
Measles Virus Diagnosis (PCR)	General Test Requisition	**Throat Swab** Collect withing 7 days after onset of rash	Virus Culture Kit order #390081
Measles Virus Diagnosis (PCR)	General Test Requisition	**Urine** Collect 14 days of onset of rash	Sterile container
Measles Diagnosis (IgM and IgG)	General Test Requisition	**Whole blood or serum** **Acute:** collect within 7 days after the onset of rash. **Convalescent:** Collect 7-10 days after the acute sample.	Blood, clotted – vacutainer tubes (SST)

*Adapted from the PHO Test Information for Measles serology and PCR. https://www.publichealthontario.ca/en/Diseases-and-Conditions/Infectious-Diseases/Vaccine-Preventable-Diseases/Measles. To order kits from PHOL: **Requisition for Specimen Containers and Supplies**

Please order PCR testing (NP/throat swab AND urine) AND Serology for Measles. Serology alone does not provide timely information for public health management. Collecting PCR specimens from multiple sites will increase the likelihood of viral detection.

When completing the Test Requisition please include the relevant clinical symptoms and history (e.g., travel or exposure to a confirmed case). Specimens must be refrigerated between 2ºC - 8ºC and transported to the Public Health Ontario Laboratory as STAT.

Treatment of Measles Cases

There is no specific treatment for measles, only supportive measures. Ensure adequate fluid intake and nutrition.

Management of Contacts

Post exposure prophylaxis (PEP) using Measles, Mumps, and Rubella (MMR) vaccine or immune globulin (Ig) can reduce the risk of infection for susceptible individuals exposed to measles. The effectiveness of MMRV for PEP is not well established.[4] PEP is not 100% effective so individuals should be counselled on signs and symptoms of measles and recommended to avoid contact with high-risk individuals or settings. The Canadian Immunization Guide, provides the current and comprehensive PEP recommendations for susceptible contacts.

Immunization

There is no single measles vaccine in Canada. Measles is contained in a combined vaccine for Measles, Mumps, and Rubella (MMR) vaccine or Measles, Mumps, Rubella and Varicella (MMRV). The current schedule for measles vaccine is two doses: first dose at **12 months** (MMR) and a second dose at **4-6 years** (MMRV) as per Ontario's Publicly Funded Immunization Schedule.

A single dose of the measles vaccine administered at 12 to 15 months of age provides about 85 to 95% protection. After children receive their second dose, protection from measles increases to almost 100%.[4]

Reporting

Measles is a reportable disease. **If you suspect a case of measles, please report to Wellington-Dufferin-Guelph Public Health immediately, 519-822-2715 ext. 4752**. After hours, weekends and holidays please call **1-877-884-8653**.

If you provide childhood vaccines (ages 0-18), your office can report them to WDGPH. Fax vaccine records to 519-836-2986.

References

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