

Measles Laboratory Testing

Measles is a highly communicable viral disease that is reportable under the *Health Protection and Promotion Act, 1990, Chapter H.7, Ontario Regulation 135/18*. Measles is transmitted through the airborne route. Measles is characterized by prodromal fever, cough, conjunctivitis, coryza, Koplik spots, and a rash (starting on the face and spreading down the body). Cases are considered infectious from 4 days before until 4 days after rash onset.

Reporting

- Suspected or confirmed cases of measles, whether clinically diagnosed or laboratory confirmed, must be [reported](#) to Ottawa Public Health **immediately** by calling: 613-580-2424 ext. 24224 during normal business hours of Monday to Friday, 8:30 a.m. – 4:30 p.m. Please leave a detailed, confidential message with your contact information and a Public Health Nurse will call you back. After hours and holidays, please call 3-1-1 and ask to speak with public health on-call. Reporting a suspected measles case **should not** be delayed pending the return of confirmatory laboratory results.
- If the suspected measles case is under 18 years old, and the physician or health care professional requires support in determining if testing is required, they can page the Infectious Diseases physician on-call at CHEO (613-737-7600 ext. 0) to discuss the symptoms, determine if the child meets clinical criteria, and if testing at CHEO is required. The physician or health care professional is then asked to follow-up with the public health nurse to advise on outcome of consultation so the public health nurse can proceed accordingly.

Laboratory testing (must include two tests for viral detection by PCR)

- **[Virus detection by PCR](#)**: Isolation of measles virus from two appropriate clinical specimens
 - **Urine specimen**: collect approximately 50 ml of clean catch urine in a screw top sterile container within 14 days after onset of rash, **AND**
 - **Either throat or nasopharynx specimen**: collected using a swab containing universal transport media within 7 days of the onset of rash.
 - Throat specimen: viral swab (Virus Culture Kit order #390081) containing pink universal transport media (i.e. the same swab used to test for HSV).
 - Nasopharynx specimen: nasopharyngeal swab (Virus Respiratory Kit order #390082) with universal transport media (i.e. same swab used to test for influenza or RSV).
- Diagnostic serology (Measles IgM and IgG) can be considered but is **not required**. Collection of samples for PCR testing is the most important component for diagnosing measles.
- If collecting **[serology](#)**
 - **Acute serology**
 - Should be collected within 7 days of the onset of the rash.
 - Requisitions should be clearly marked "acute measles serology IgG and IgM."
 - **Convalescent serology**
 - Should be collected 7-10 days after the acute serology sample.
 - Requisitions should be clearly marked "convalescent measles serology."
 - Order convalescent serology if acute serology and virus detection are negative or indeterminate.
- For suspect cases with a high index of suspicion, it may be warranted to test beyond the time periods noted above after discussion with PHO (416-235-6556 or 1-877-604-4567)
- **The laboratory requisition [form](#) must include the following:**
 - Ordering physician or health care professional's name and telephone number
 - Testing indications, mark "Diagnosis" and Other (specify): Suspect case of measles
 - Relevant Signs, Symptoms, and Onset date
 - Immunization, Exposure and Travel History outside Ottawa 21 days prior to symptom onset
 - Specifying type of specimen (e.g. throat swab, nasopharyngeal swab, urine, serology)
- Prioritization for measles testing:
 - Measles specimens should be marked '**STAT**' on the outside the package/shipping bag, and must be shipped separate from other routine specimens.
 - PCR testing cut-off is before 11 am to ensure results are reported on the same day
 - Notify the lab when the specimens are ready to be shipped:
 - If regular hours, call PHO's Lab Customer Service: 416-235-6556 or 1-877-604-4567
 - After hours, call the Duty Officer: 416-605-3113

- Send the package **directly** to PHO lab

Storage and Transport Requirements

- Place specimen in biohazard bag and seal.
- Specimen must be labelled with two unique identifiers (full name and HCN or DOB), and date of collection/source.
- Specimens should be stored in a refrigerator at 2-8°C following collection and shipped to the Public Health Ontario laboratory on ice packs

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