

Labstract – June 2011

Measles PCR - Addition to Testing Menu at PHO Laboratories and Laboratory Testing Guidelines for Suspected Measles Cases

To Health Care Providers:

Effective June 15, 2011, the Public Health Ontario (the new operating name for the Ontario Agency for Health Protection and Promotion) public health laboratories (PHL) will perform measles PCR testing in addition to serology.

This Labstract provides guidelines for testing when measles is suspected and outlines specimen acceptance criteria that must be met for approval for measles PCR testing.

For suspected cases of measles, both serology and PCR testing are recommended. Measles PCR will replace measles culture due to superior sensitivity and faster turnaround time. Measles PCR testing is more sensitive in the first 72 hours after onset of rash, and has higher specificity for recent/acute infection than measles IgM.

Acceptance Criteria for Samples for Measles PCR testing:

As of June 15, 2011, samples from patients clinically suspected of having measles infection will be automatically approved for measles PCR testing provided appropriate specimens have been submitted with a properly completed PHL requisition form and one of the clinical scenarios outlined below has been clearly communicated on the requisition form. **If none of the scenarios outlined below is satisfied, the submitter must contact PHL and discuss the request with the medical/clinical microbiologist.**

- A rash suspicious of measles in a patient who has not been immunized against measles (PHL will accept any sample from a child under 1 year of age with suspected measles as the MMR vaccine is usually given at ≥ 12 months of age in Ontario).
- Suspected measles in a person who has recently travelled to an area where measles is endemic. The time from return from overseas to onset of rash should be less than the maximum incubation period for measles (18 days).
- Suspected measles in an immunocompromised person or someone who resides in the same household as an immunocompromised person.
- Suspected measles in a person with an epidemiological link to a confirmed case or during a measles outbreak in the patient's geographical area.

A completed PHL requisition form containing the patient's symptoms, date of illness onset, exposure history, travel history (if any) and vaccination history is required. Please also indicate if your local Health Unit/Medical Officer of Health has been notified.

Please check expiry dates of specimen collection kits before use. Specimens collected in kits that have expired will be rejected.

Recommended Testing for Suspected Measles Cases

Initial Laboratory Testing:

a) **Acute Serology:** A blood specimen (5 ml collected in a serum tube) for measles antibodies (IgM and IgG) should be collected at the first visit (ideally within 7 days after rash onset).

b) **Virus detection by PCR:**

i) A nasopharyngeal swab or aspirate or a throat swab obtained within 4 to 7 days after the onset of rash. Specimens should be collected using the Viral Transport Media (VTM) collection kit (Item # N-0081). These swab kits contain pink liquid medium.

and

ii) Approximately 50 ml of urine collected within 14 days after the onset of rash. Collect a clean catch urine and store in a screw top sterile container. Ensure that the laboratory requisition indicates that this is a **urine specimen** and that you are requesting **measles testing**.

iii) Measles is stable at 4 degrees Celsius for 3 days. Specimens must be stored and shipped cold. Freeze samples at -70° Celsius if a delay in transport to PHL is anticipated.

Follow-up Laboratory Testing:

a) **Convalescent serology:** A second blood specimen collected 7 to 10 days after the onset of rash (and a minimum of 5 days after the acute sample). **On the requisition please specify that the follow-up blood is for "convalescent measles serology"**. Seroconversion or a significant rise in IgG titre is indicative of recent/acute infection.

Mark the symptoms, date of onset of symptoms, exposure history, travel history (if any) and vaccination history on all requisitions submitted.

Note: If the acute (initial) serology testing yields a low, indeterminate or negative IgM and/or IgG result in a person with clinical symptoms of measles and known or suspected exposure to measles both tests should be repeated as described above.

Expected Time to Receive Results

- Results of both serologic testing and PCR should be available within 3 working days of receipt of specimens at the PHL.
- When clinically indicated and approved by the microbiologist on call, PCR testing will be provided outside operating hours. Serology samples arriving out of hours will be processed on the next regular working day.

If testing is considered more urgent than this, please contact your local public health laboratory or the Toronto public health laboratory prior to submitting specimens.

New services provided by PHO to assist you:

Get results faster by registering for Auto fax – which enables us to provide you with PHL reports by fax directly from our laboratory information system as soon as they are released. To register, please contact the Toronto public health laboratory at 416 235-6556 or toll free at 1-877-604-4567, or your local public health laboratory.

Note: Please ensure that your local public health unit is aware of all individuals who are being tested for measles.

For further information:

- PHO Customer Service Centre toll free at **1-877-604-4567** or **416-235-6556**
- For the PHO Specimen Collection Guide and previous Lababstracts, refer to <http://www.oahpp.ca/publichealthlaboratories.php>
- The current version of the PHL laboratory requisition form is available at <http://www.oahpp.ca/resources/requisitions.html>

Please note: Public Health Ontario is the new operating name for the Ontario Agency for Health Protection and Promotion.

References

1. Tischer, A., S. Santibanez, A. Siedler, A. Heider, and H. Hengel. 2004. Laboratory investigations are indispensable to monitor the progress of measles elimination—results of the German Measles Sentinel 1999–2003. *J. Clin. Virol.* 31:165–178.
2. Bellini WJ, Icenogle JP. Measles and rubella viruses. In Murray PR, Editor. *Manual of Clinical Microbiology*, 8th Edition. ASM Press, Washington, D.C.; 2003.
3. Heymann DL, editor. *Control of Communicable Diseases Manual*, 18th edition. American Public Health Association. Washington, D.C.; 2004.
4. Mosquera MM, de OF, Moreno M, Echevarra JE. Simultaneous detection of measles virus, rubella virus, and parvovirus B19 by using multiplex PCR. [Erratum appears in *J Clin Microbiol* 2002 Apr;40(4):1574]. *Journal of Clinical Microbiology* 2002;40(1):111-116.