Public Health Ontario | Santé publique Ontario

LABSTRACT – November 2019

Gastrointestinal Virus Testing Update

Audience

Healthcare providers who order gastrointestinal virus testing for their patients.

Overview

This labstract provides clinicians with an update on the introduction of a laboratory-developed multiplex gastrointestinal virus PCR (MGVP) at Public Health Ontario (PHO) Laboratory and testing acceptance criteria.

What has changed?

On November 4, 2019, PHO Laboratory will implement a laboratory-developed MGVP across two testing sites (Hamilton - servicing southwestern Ontario, and Toronto - servicing the rest of Ontario).

The MGVP assay replaces virus culture and/or electron microscopy testing for the detection of select gastrointestinal viruses, as well as the existing norovirus PCR. The new gastrointestinal multiplex assay consists of a quadriplex real-time PCR that detects adenovirus, rotavirus, norovirus GI, and norovirus GII. All specimens submitted for gastrointestinal virus testing that meet the patient setting-based acceptance criteria in the following table will be tested using this assay. Assay validation has documented excellent sensitivity and specificity of all targets.

Enterovirus/poliovirus testing has not changed. Information on specimen collection and testing information for enterovirus and poliovirus can be found at: Enterovirus Test Information Sheet and Poliovirus Test Information Sheet

Testing for sapovirus and torovirus are not currently available at the PHO Laboratory or the National Microbiology Laboratory.

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Gastrointestinal Virus Testing Available at PHO Laboratory

Patient Setting[1]	Testing
In-patient (ICU/CCU[2] or ward) Institutions (non-outbreak) e.g. long-term care homes, correctional facilities	Multiplex gastrointestinal virus PCR (MGVP)
Institutional gastrointestinal Infection Outbreaks[3]	MGVP for up to 5 outbreak specimens
Emergency Room patients[1]	MGVP testing is only available if symptoms have persisted for ≥ 72 hours. MGVP testing will only be performed if date of onset and date of collection are provided on the PHO Laboratory requisition
Ambulatory[1]	MGVP testing is only available if symptoms have persisted for ≥ 72 hours. MGVP testing will only be performed if date of onset and date of collection are provided on the PHO laboratory requisition

Table footnotes:

1. Patient setting and duration of symptoms prior to submission must be provided on the requisition to help triaging of specimens. If patient setting and duration of symptoms are not provided the specimen will NOT be tested.
2. ICU - Intensive Care Unit; CCU - Critical Care Units.
3. A limit of 5 specimens are accepted for testing for each outbreak, and sample testing will cease once the same gastrointestinal virus is found in two or more samples from the same outbreak. For outbreaks with special concerns, including requests for additional testing, contact PHO Laboratory's Customer Service Centre.

Specimen Collection and Handling

Refer to the Virus-Enteric Kit Instruction Sheet for detailed specimen collection instructions. Specimen containers and supplies are provided to submitters for the exclusive purpose of submitting specimens to PHO for testing Virus-Enteric Kit Ordering Instruction

NOTE: To maintain optimum viability, specimens should be stored at 2-8°C following collection and shipped to PHO Laboratory on ice packs as soon as possible. If longer storage/transit time is anticipated, specimens should be frozen at -70°C or lower.

References

[1] Real-time PCR with an internal control for detection of all known human adenovirus serotypes. Damen M1, Minnaar R, Glasius P, van der Ham A, Koen G, Wertheim P, Beld M. J Clin Microbiol. 2008 Dec;46(12):3997-4003. doi: 10.1128/JCM.00563-08. Epub 2008 Oct 15.

[2] Rapid and sensitive detection of noroviruses by using TaqMan-based one-step reverse transcription-PCR assays and application to naturally contaminated shellfish samples. Jothikumar N1, Lowther JA, Henshilwood K, Lees DN, Hill VR, Vinjé J. Appl Environ Microbiol. 2005 Apr;71(4):1870-5.

[3] One-step quantitative RT-PCR for the detection of rotavirus in acute gastroenteritis. Zeng SQ1, Halkosalo A, Salminen M, Szakal ED, Puustinen L, Vesikari T. J Virol Methods. 2008 Nov;153(2):238-40. doi: 10.1016/j.jviromet.2008.08.004. Epub 2008 Sep 17.

[4] Use of bacteriophage MS2 as an internal control in viral reverse transcription-PCR assays. Dreier J1, Störmer M, Kleesiek K. J Clin Microbiol. 2005 Sep;43(9):4551-7.

For further information

- Specimen collection, submission, testing, and reporting information is available in detail on the Gastroenteritis - Stool Viruses Test Information Sheet (TIS), located on our website at: Gastroenteritis Stool Viruses TIS
- Contact the PHO Laboratory Customer Service Centre at 416-235-6556 or 1-877-604-4567 (toll-free), or by email at customerservicecentre@oahpp.ca
- For PHO Laboratory specimen collection information and previous Labstracts, refer to publichealthontario.ca/test directory
- The current version of the PHO Laboratory General Test Requisition and other forms are available at publichealthontario.ca/Requisitions
- To subscribe to future Labstracts, register on our website
- To register for Autofax and receive laboratory reports by fax directly from our laboratory information system as soon as they are released, contact the PHO Laboratory Customer Service Centre.

Document Change History

Revision Number	Date of Implementation	Description and Change
000	November 2019	New Document