November 21, 2023

Respiratory Virus Laboratory Testing Practices and Guidelines for 2023/2024 Season

SARS-CoV-2, Influenza A/B, RSV and the extended respiratory panel

**Background:** Provincially, the recommendation is that each patient sample submitted for respiratory viral testing will at minimum be tested for SARS-CoV-2, influenza A virus, influenza B virus, and respiratory syncytial virus (RSV); however, testing may occur across more than one laboratory. Nucleic acid testing (NAT) is recommended for acute care and health authority facilities. A nasopharyngeal swab is the preferred sample type.

SARS-CoV-2, influenza A/B and RSV testing will be performed at the BCCDC Public Health Laboratory (PHL) on respiratory specimens using NAT as requested. Please note that PHL can test for influenza A/B/RSV and SARS-CoV-2 separately. To avoid duplication of testing across BC labs, please indicate clearly the specific test(s) required on the PHL requisition or through the laboratory information system (LIS) interfaces: Influenza A/B with RSV and/or SARS-CoV-2 (Covid-19).

If the sample is negative for SARS-CoV-2, influenza A/B and RSV, an extended respiratory pathogen panel for a wider range of pathogens is available upon request (this test is not performed as an automatic reflex and, notably, SARS-CoV-2 is not one of the targets). This panel can also be ordered regardless of other respiratory results but should be reserved for patients at highest risk of severe disease or for outbreak investigation. Please order the test using the BCCDC PHL Virology requisition (indicate “extended respiratory panel” in the Other area of the RESPIRATORY PATHOGENS section), through established LIS interfaces, or contact the BCCDC PHL to add on the test.

**Subtyping and sequencing**

Please continue to submit positive SARS-CoV-2 and influenza A samples with a NAT detection cycle threshold signal (Ct) of 30 or less, to PHL for subtyping and/or sequencing. Note that we will sequence samples with higher Ct on priority populations if needed but the likelihood of success diminishes greatly for samples with a low viral load.

For SARS-CoV-2, to support provincial Covid-19 surveillance, we continue to recommend that all testing laboratories send all positive SARS-CoV-2 respiratory samples. For cluster investigation requests, please email BCCDCWGSRequest@bccdc.ca. The BCCDC PHL is presently sequencing all submitted SARS-CoV-2 samples.
For influenza A, during low season (currently) we recommend testing laboratories forward all positive influenza A respiratory samples for subtyping and sequencing. Most samples will be subtyped by H1 and H3 NAT (if they haven’t been previously), while a subset of samples will be chosen for sequencing for surveillance purposes. Please indicate the following on the requisition: a) test type, e.g. subtyping or sequencing only; b) Ct value (if available).

When respiratory season is reaching its height, we will adjust our recommendation to request sending only a proportion of samples for subtyping and sequencing. Further details will be communicated accordingly.

**Outbreak identification**

For influenza-like illness outbreaks please continue to provide regular Excel files as per the new process for provincial surveillance of outbreaks. If you have any questions, please connect with the lead epidemiologist at your respective health authority. The *Influenza-Like Illness Outbreak Laboratory form* (ILI form) has been discontinued and is no longer required for submission to the laboratory for outbreak testing.

For SARS-CoV-2, BCCDC PHL will support provincial outbreak detection. For samples coming to the PHL for diagnostic NAT, please continue to indicate on the requisition the facility where the patient resides at the time of the outbreak. For those sites performing SARS-CoV-2 detection and submitting data to the PLOVER system please use OBK in the priority code field to support surveillance of outbreaks. The outbreak facility should also be identified as the patient address.

**H5N1 Avian Influenza**

For suspect cases, those who have relevant exposure and compatible symptoms, please consult with the on-call BCCDC PHL Medical Microbiologist (604-661-7033) prior to sending samples to the PHL.

All respiratory samples from suspect H5N1 infected cases should be sent to the PHL for testing, including samples that previously tested negative for influenza A at another laboratory.

If the sample tests positive for influenza A at PHL, it will be subtyped with H1, H3, and H5 NATs. H5 positive NAT results will be confirmed by sequencing. Samples that are influenza A positive but not typeable by NAT will be sequenced to determine the viral subtype.

If the sample tests negative for influenza A, it will be tested for other respiratory pathogens to help determine the cause of symptoms and rule out H5N1 infection. Clinicians may also consider retesting for influenza A by collecting another specimen if the clinical suspicion for avian influenza was high.

**Specimen and Requisition Requirements**

Submit BOTH a nasopharyngeal swab AND throat swab for human avian influenza testing. Collect samples within five days of illness onset.
Please use and complete the Virology Requisition (Version 3.1 07/2020) to order respiratory virus testing for each patient requiring testing (Figure 1):

- Indicate “avian influenza” in the Other section of RESPIRATORY PATHOGENS
- AND Indicate “Human high-risk for AIV” and the exposure location on the form.

Other Resources

For other testing details, please refer to the BCCDC PHL test menu on eLab (http://www.elabhandbook.info/phsa/) and search for these test pages:

- SARS-CoV-2 virus NAT
- Influenza A/B and RSV NAT
- Human Avian Influenza A Testing
- Influenza A Virus Typing NAT
- Respiratory Pathogen Panel (NAT)

Surveillance

- Weekly respiratory virus testing and positive counts for BC are reported to PHAC via FluWatch: https://www.canada.ca/en/public-health/services/diseases/flu-influenza/influenza-surveillance/weekly-influenza-reports.html
- BC-specific respiratory disease surveillance bulletins and dashboard are routinely produced by the BCCDC: http://www.bccdc.ca/health-professionals/data-reports/respiratory-diseases.

Avian influenza

- BCCDC health information on avian influenza: http://www.bccdc.ca/health-info/diseases-conditions/avian-influenza
- Emerging Respiratory Viruses Updates http://www.bccdc.ca/health-professionals/data-reports/communicable-diseases/emerging-respiratory-virus-updates

Avian influenza biosafety resources

Sincerely,

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Figure 1. Virology requisition with details for human avian influenza ordering.