

PHSA Laboratories

BCCDC Public Health Laboratory

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>
- Updated Interim Infection Prevention and Control Recommendations https://picnet.ca/wp-content/uploads/PICNet-Memo-Pathogenic-Avian-Influenza-June-27-2023_approved_final.pdf
- Emerging Respiratory Viruses Updates <http://www.bccdc.ca/health-professionals/data-reports/communicable-diseases/emerging-respiratory-virus-updates>

Avian influenza biosafety resources

- Public Health Agency of Canada guidelines for avian influenza: <https://www.canada.ca/en/public-health/services/diseases/avian-influenza-h5n1/health-professionals.html>
- Protocol for Microbiological Investigations of Severe Acute Respiratory Infections (SARI): <https://www.canada.ca/en/public-health/services/emerging-respiratory-pathogens/protocol-microbiological-investigations-severe-acute-respiratory-infections-sari.html>
- Biosafety Directive for New and Emerging Influenza A Viruses: <https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/biosafety-directives-advisories-notifications/new-emerging-influenza-a-viruses.html>
- Influenza A H5, H7 and H9 pathogen safety data sheet: <https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/influenza-a-virus-subtypes-h5-h7-h9.html>

Sincerely,





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

		Public Health Laboratory 655 West 12th Avenue, Vancouver, BC V5Z 4R4 www.bccdc.ca/publichealthlab		Virology Requisition			
Section 1 - Patient/Provider Information <i>(Two matching unique patient identifiers on sample container and requisition are required for sample processing)</i>							
PERSONAL HEALTH NUMBER (or out-of-province Health Number and province)		ORDERING PRACTITIONER Name and MSC#		LABORATORY USE ONLY DATE RECEIVED OUTBREAK ID SAMPLE REF. NO. DATE COLLECTED (DD/MMM/YYYY) TIME COLLECTED (HH:MM)			
PATIENT SURNAME		Address of report delivery					
PATIENT FIRST AND MIDDLE NAME		<input type="checkbox"/> I do not require a copy of the report <input type="checkbox"/> I am a Locum [†] [†] If Locum, include name of Practitioner you are covering for					
DOB (DD/MMM/YYYY)		SEX <input type="checkbox"/> M <input type="checkbox"/> F <input type="checkbox"/> X <input type="checkbox"/> U (Unk)					
PATIENT ADDRESS		ADDITIONAL COPIES TO PRACTITIONER / CLINIC: (Name, Address / MSC#/PHSA Client#) (Limit of 3 copies available)					
		1.					
		2.					
CITY		3.					
PROVINCE		POSTAL CODE					

Section 2 - Test(s) Requested			
RESPIRATORY PATHOGENS <input type="checkbox"/> Influenza A, Influenza B, RSV <input type="checkbox"/> COVID-19 <input type="checkbox"/> MERS (Approval and travel history required*) <input type="checkbox"/> Enterovirus D68 (Seasonal; when outside season, approval required) <input checked="" type="checkbox"/> Other, specify: <u>avian influenza</u>		For other available tests and sample collection information, consult the Public Health Laboratory's <i>eLab Handbook</i> : www.elabhandbook.info/PHSA/Default.aspx	
Indicate sample site: <input type="checkbox"/> Nasopharynx <input type="checkbox"/> Nares <input type="checkbox"/> Oropharynx <input type="checkbox"/> Throat <input type="checkbox"/> Lower Respiratory Tract: _____ <input type="checkbox"/> Other, specify: _____		PATIENT STATUS / TRAVEL HISTORY* / EXPOSURE (Please provide travel history where indicated*) _____ _____	
Indicate container type: <input type="checkbox"/> Swab with transport media <input type="checkbox"/> Saline gargle <input type="checkbox"/> Wash: _____ <input type="checkbox"/> Others: _____		OUTBREAK LOCATION / INFORMATION <u>Human high-risk for AIV</u> <u>Exposed at farm XXX</u>	
VIRUS SUBTYPING <input type="checkbox"/> Influenza A <input type="checkbox"/> Adenovirus (Surveillance/outbreak investigations only) Ct value: _____ or viral signal: weak / strong		HERPES SIMPLEX 1,2 / VARICELLA ZOSTER VIRUSES <input type="checkbox"/> Genital lesion swab <input type="checkbox"/> Non-genital lesion swab <input type="checkbox"/> Skin swab <input type="checkbox"/> Other, specify: _____	
HEPATITIS VIRUSES Please see the Serology Screening Requisition to order HCV RNA and/or HCV genotyping testing.		GASTROINTESTINAL VIRUSES Feces** for: <input type="checkbox"/> Gastrointestinal Panel (Norovirus, Adenovirus, Astrovirus, Rotavirus, Sapovirus) <input type="checkbox"/> Enterovirus <input type="checkbox"/> Other, specify: _____ **Guideline for Ordering Stool Specimens www.bcguidelines.ca/gpac/guideline_diarrhea.html	
		ENCEPHALITIS VIRUSES Cerebrospinal Fluid for: <input type="checkbox"/> HSV 1, HSV 2, VZV and Enterovirus <input type="checkbox"/> West Nile virus (Seasonal) (Summer/early fall; when outside of season, specify travel history to endemic area*) <input type="checkbox"/> Other, specify: _____ (Note: Send CSF from <6 months old directly to BC Children's & Women's Hospital Laboratory for testing that includes parechovirus)	
		BIOPSY / AUTOPSY / OTHER TESTS <input type="checkbox"/> Plasma for West Nile virus (Seasonal) <input type="checkbox"/> Eye sample for Adenovirus, HSV 1, HSV 2, VZV <input type="checkbox"/> Other, specify: _____	
		MEASLES <input type="checkbox"/> Nasopharyngeal swab <input type="checkbox"/> Throat swab <input type="checkbox"/> Urine <input type="checkbox"/> Other, specify: _____	
		MUMPS <input type="checkbox"/> Buccal/Oral swab <input type="checkbox"/> Urine <input type="checkbox"/> Other, specify: _____	
		RUBELLA <input type="checkbox"/> Nasopharyngeal washing/swab <input type="checkbox"/> Throat swab <input type="checkbox"/> Urine <input type="checkbox"/> Other, specify: _____	
		<input type="checkbox"/> Recent MMR vaccination <input type="checkbox"/> Recent travel (Provide travel history if available*)	

The personal information collected on this form is collected under the authority of the Personal Information Protection Act. The personal information is used to provide medical services requested on this requisition. The information collected is used for quality assurance management and disclosed to health care practitioners involved in providing care or when required by law. Personal information is protected from unauthorized use and disclosure in accordance with the Personal Information Protection Act and when applicable the Freedom of Information and Protection of Privacy Act and may be used and disclosed only as provided by those Acts.

Form DCVI-100-0001f Version 3.1 07/2020