GUIDELINES FOR SUBMITTING SPECIMENS FOR THE NATIONAL ENHANCED SARS-COV-2 SURVEILLANCE PROGRAM AND DIAGNOSTIC ANTIVIRAL SUSCEPTIBILITY TESTING – NMLB WINNIPEG

The following is a recommendation for the collaboration of Canadian provincial/territorial and partner laboratories with the National Microbiology Laboratory Branch (NMLB) in Winnipeg, Canada.

The NMLB has established a National Enhanced SARS-CoV-2 Surveillance Program that focuses on two virological-based platforms:

1. **SARS-CoV-2 Antigenic Characterization Surveillance Program.** This program compares viral antigenicity of circulating isolates to current vaccine strains and provides early characterization of novel circulating strains.
2. **SARS-CoV-2 Antiviral Susceptibility Surveillance Program.** This program identifies the emergence of viral resistance to therapeutics and contributes to the overall prevention and control of SARS-CoV-2 viruses.

Please ensure that you are using the proper submission form for your request. This is important to avoid confusion with requested tests and delays in turn around times.

Submission forms for all Influenza, Respiratory Viruses and Coronavirus testing are available on the Guide to Services site: https://cnphi.canada.ca/gts/laboratory/1013

Complete the "Requisition for the National Enhanced SARS-CoV-2 Surveillance Program" submission form available on the Guide to Services site for Antigenic Characterization and Antiviral Susceptibility surveillance testing: https://cnphi.canada.ca/gts/laboratory/1013

- All specimens will be cultured for antigenic characterization and a subset will undergo antiviral susceptibility testing. Please do not submit a separate submission form for each surveillance test platform.
- Sequence analysis is required for downstream testing; therefore, if the submitting lab has performed WGS analysis on the specimen, please provide the GISAID accession number or National Genomics Database ID (NML Lab ID) on the requisition. If the submitting lab has not conducted WGS analysis, NMLB will perform a sequencing reaction on the specimen and submit the sequence data to the National Genomics Database and GISAID.

Please note: The NMLB provides separate antiviral susceptibility diagnostic testing (see below).

SPECIMEN CRITERIA: National Enhanced SARS-CoV-2 Surveillance Program

In order to collect and report surveillance data in a timely manner, please minimize batching of samples and submit primary specimens promptly to the NMLB. Specimens received three months after the collection date will not be tested unless an exception has been discussed with the section Chief or designate (see contact info below).

Specimen types include:

- Nasopharyngeal swab specimens
- Throat swab specimens
- Cultured isolates

To maximize the likelihood of propagating virus, specimens should have a **Ct value of <20** and a minimum volume of 1.0 mL.

Specimens and isolates should be shipped frozen on dry ice.

Laboratories are encouraged to send up to 20 primary nasopharyngeal or throat swab specimens or cultured isolates a week with any of the following conditions:

1. Representative circulating specimens collected during the initial, peak or terminal phases of a wave

2. Representative specimens of new and emerging variants/sub-variants of concern

3. Specimens from persons whose illness is related to international travel

4. Specimens from persons receiving antiviral agents whose illness is not resolving or from contacts who subsequently became ill

5. Specimens obtained during in-depth investigations of outbreaks occurring in immunized populations

SPECIMEN CRITERIA: SARS-CoV-2 Antiviral Susceptibility Diagnostic Testing

If a laboratory requires diagnostic antiviral susceptibility testing, complete the "Requisition for Antiviral Susceptibility of SARS-CoV-2" submission form available on the Guide to Services site: https://cnphi.canada.ca/gts/laboratory/1013

- **Please do not use this form for specimens that are being submitted for the National Enhanced SARS-CoV-2 Surveillance Program**.

To maximize the likelihood of culturing an isolate, primary specimens should have a minimum volume of 1.0 mL with a **Ct value <20**. Specimens should be shipped frozen on dry ice.

SHIPPING SPECIMENS TO NMLB

Notification of Incoming Specimens/Cultures

Please complete the appropriate submission form(s) and fax or email (nml.irv-ivr.lnm@phac-aspc.gc.ca) it to the Influenza, Respiratory Viruses and Coronaviruses Section on the day of shipment.

Submission Forms

Laboratory and epidemiologic information about the specimens must be provided using the required submission forms on the Guide to Services site:
https://cnphi.canada.ca/gts/laboratory/1013

Shipping Temperature

Please ship frozen specimens on dry ice. Ensure the tubes are sealed and parafilmed carefully.

Specimens/Cultures

Send all specimens/cultures in sterile, screw-capped (with O-ring), polypropylene, 2 mL tubes. Multiple tubes may be submitted if necessary. Do not send specimens/cultures in bijou bottles or glass tubes. Please ensure that specimens/cultures are shipped according to Transportation of Dangerous Goods regulations.

- Primary specimens: UN3373 - Biological Substance, Category B
- Cultured isolates: UN2814 – Infectious Substance, Affecting Humans

Address

Influenza, Respiratory Viruses and Coronaviruses Section
National Microbiology Laboratory
Canadian Science Centre for Human and Animal Health
1015 Arlington Street
Winnipeg, Manitoba R3E 3R2
nml.irv-ivr.lnm@phac-aspc.gc.ca

CONTACT PERSON

Any questions regarding shipping, selection of primary specimens to ship, laboratory procedures used in the identification and diagnosis of strains, as well as results on specimens submitted should be directed to:

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