

Ministry of Health
Infectious Diseases Protocol

Appendix B: Provincial Case Definitions for Diseases of Public Health Significance

Disease: Diseases caused by a novel coronavirus, including Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS)

Effective: January 2020

Table of Contents

1.0	Provincial Reporting	3
2.0	Type of Surveillance	3
3.0	Case Classification	3
3.1	Novel Coronavirus	3
	Confirmed Case.....	3
	Presumptive confirmed case	3
	Probable case.....	3
	Person under Investigation.....	4
3.2	Severe Acute Respiratory Syndrome (SARS)	4
	Confirmed case	4
	Probable case.....	4
3.3	Middle East Respiratory Syndrome (MERS).....	5
	Confirmed Case.....	5
	Presumptive Confirmed Case.....	5
	Probable Case.....	5
	Person under Investigation.....	5
4.0	Laboratory Evidence	6
4.1	Laboratory Confirmation	6
4.2	Approved/Validated Tests.....	6
	4.2.1 Novel Coronavirus.....	6
	4.2.2 SARS	7
	4.2.3 MERS.....	7
4.3	Indications and Limitations	7
5.0	Clinical Evidence.....	7
6.0	ICD 10 Code(s).....	7
7.0	Comments.....	8
8.0	Sources.....	8
9.0	Footnotes	8
10.0	Document History	9

Novel Coronavirus

1.0 Provincial Reporting

Confirmed, presumptive confirmed, and probable cases of disease

2.0 Type of Surveillance

Case-by-case

3.0 Case Classification

3.1 Novel Coronavirus

Confirmed Case

A person with laboratory confirmation¹ of infection with a novel coronavirus.

Presumptive confirmed case

A person in whom a laboratory test for the novel coronavirus is positive from Public Health Ontario Laboratory and is awaiting confirmation by the National Microbiological Laboratory (NML).¹

Probable case

A person with:

- fever (over 38 degrees Celsius) AND new onset of (or exacerbation of chronic) cough or breathing difficulty AND evidence of severe illness progression e.g. acute respiratory distress syndrome (ARDS) or severe influenza-like illness (may include complications such as encephalitis, myocarditis or other severe and life-threatening complications)

AND, any of the following:

- close contact² with a confirmed or probable case of novel coronavirus; OR
- a history of residence in or travel to a novel coronavirus affected area³ within one full incubation period⁴ before onset of illness; OR
- a close contact² with a person with acute respiratory illness who has a direct epidemiological link to a novel coronavirus affected area within one full incubation period prior to their illness onset; OR
- direct contact with animals (if an animal source is identified)⁵ in countries where the novel coronavirus is known to be circulating in animal populations or where human infections have occurred as a result of presumed zoonotic transmission.

AND

- in whom laboratory diagnosis of novel coronavirus is not available⁶ or inconclusive⁷ or negative (if specimen quality or timing is suspect).

Person under Investigation

- a person with acute respiratory illness

AND, any of the following:

- close contact² with a confirmed or probable case of novel coronavirus; OR
- a history of residence in or travel to a novel coronavirus affected area within one full incubation period before onset of illness; OR
- a close contact² with a person with acute respiratory illness who has a direct epidemiological link to a novel coronavirus affected area within one full incubation period prior to their illness onset; OR
- direct contact with animals (if an animal source is identified) in countries where the novel coronavirus is known to be circulating in animal populations or where human infections have occurred as a result of presumed zoonotic transmission.

3.2 Severe Acute Respiratory Syndrome (SARS)

Confirmed case

A person with:

- Laboratory evidence of SARS-associated coronavirus (SARS-CoV) infection
AND
- Early presentation of clinically compatible signs and symptoms of SARS with or without radiographic evidence consistent with SARS.

OR

A deceased person with:

- A history of early presentation of clinically compatible signs and symptoms of SARS (i.e., fever AND cough OR difficulty breathing resulting in death)
AND
- Autopsy findings consistent with SARS, i.e.:
 - Evidence of pneumonia or Acute Respiratory Infection (ARI) without an alternate identifiable cause
AND
 - Laboratory evidence of SARS-CoV Infection.

Probable case

In the absence of laboratory evidence, a person with:

- Early presentation of clinically compatible signs and symptoms of SARS with or without radiographic evidence consistent with SARS
AND
- An epidemiologic link to a person or place linked to SARS, including:
 - Close contact² with a confirmed SARS case, within 10 days of onset of symptoms
OR
 - Close contact² with a symptomatic person who has laboratory evidence of SARS-CoV infection, within 10 days of onset of symptoms
OR

- Residence, recent travel or visit to an “area with recent local transmission of SARS” within the 10 days prior to onset of symptoms

OR

- Close contact² with a probable case who has been to an “area with recent local transmission of SARS” within the 10 days prior to onset of symptoms; this includes health care workers who were not wearing personal protective equipment

OR

- Laboratory exposure to SARS-CoV where appropriate barriers and personal protective equipment were not in place.

OR

A deceased person with:

- A history of early presentation of clinically compatible signs and symptoms of SARS

AND

- Autopsy findings consistent with SARS

AND

- An epidemiologic link to a person or place linked to SARS

3.3 Middle East Respiratory Syndrome (MERS)

Confirmed Case

A person with laboratory confirmation⁸ of infection with the MERS-CoV virus.

Presumptive Confirmed Case

A person with a positive laboratory result of infection for MERS-CoV virus from the PHOL that is awaiting confirmation by the NML.

Probable Case

A person with an acute respiratory illness of any degree of severity who had close contact² within 14 days before onset of illness with a confirmed case or presumptive confirmed case and from whom laboratory diagnosis of MERS-CoV is unavailable⁹ or inconclusive.¹⁰

Person under Investigation

A person with:

- an acute respiratory illness, which may include history of fever and new onset of (or exacerbation of chronic) cough or breathing difficulty with or without indications of pulmonary parenchymal disease (e.g., pneumonia or ARDS) based on clinical or radiological evidence of consolidation

AND, any of the following:

- The person has a travel history to or resided in Saudi Arabia within 14 days before onset of illness

OR

- The person has a travel history or resided in one or more of the other affected countries¹¹ AND had any of the following associated risk factors:
 - The person had contact with a health care facility (i.e., as a patient, worker or visitor) in one of more of the other affected countries¹¹ within 14 days before onset of illness; or
 - The person had contact with a camel or camel products (e.g., raw milk or meat, secretions or excretions, including urine) in one of more of the other affected countries¹¹ within 14 days before onset of illness.
- The person had close contact² within 14 days before onset of illness with a person with acute respiratory illness of any degree:
 - who had a travel history to or residence in Saudi Arabia or
 - who had contact with a health care facility (i.e., as a patient, worker or visitor) or camel or camel products (e.g., raw milk or meat, secretions or excretions, including urine) in one or more of the other affected countries.¹¹
- The person has acute respiratory illness of any degree of severity and, within 14 days before onset of illness, had close contact² with a confirmed case, presumptive confirmed case, or probable case of MERS-CoV infection while the case was ill.

4.0 Laboratory Evidence

These criteria apply to an unspecified novel coronavirus. For Laboratory Evidence for SARS, MERS-CoV and 2019-nCoV, use the virus specific Laboratory Evidence in the case definition.

4.1 Laboratory Confirmation

Laboratory tests and testing recommendations will change accordingly as new assays are developed and validated. Laboratory confirmation of infection with a newly emerged novel coronavirus would initially consist of positive real-time PCR on at least two specific genomic targets or a single positive target with sequencing AND confirmed by NML by nucleic acid testing.

Novel human coronaviruses are genetically distinct from the common human coronaviruses (229E, NL63, OC43, HKU1), which cause seasonal acute respiratory illness, and are detected in widely used [multiplex respiratory virus PCR \(MRVP\) assays](#). MRVP assays would not cross react with novel coronaviruses.

4.2 Approved/Validated Tests

4.2.1 Novel Coronavirus

For information on testing guidelines for novel coronavirus, contact the Public Health Ontario Laboratory, or refer to the Public Health Ontario Laboratory Services webpage: <https://www.publichealthontario.ca/en/laboratory-services/about-laboratory-services>

4.2.2 SARS

- Laboratory Confirmation
 - Detection of SARS-CoV ribonucleic acid (RNA) in appropriate samples (with confirmation by NML or a designated laboratory) or isolation in cell culture from a clinical specimen.
- OR
 - Serologic detection of SARS-CoV in a convalescent sample taken > 28 days after onset of illness
- OR
 - Seroconversion between acute and convalescent blood samples collected at least 4 weeks apart.
- Clinical specimens include clotted blood or serum for serology, nasopharyngeal swab (NPS) or Nasopharyngeal aspirate (NPA), bronchoalveolar lavage (BAL)/bronchial washings and stools for viral RNA detection.

4.2.3 MERS

Review [PHOL's Test Information Sheet for MERS-CoV](#) for more information on laboratory testing.

4.3 Indications and Limitations

For information on indications and limitations for novel coronavirus testing, contact the Public Health Ontario Laboratory, or refer to the Public Health Ontario Laboratory Services webpage: <https://www.publichealthontario.ca/en/laboratory-services/about-laboratory-services>

5.0 Clinical Evidence

Clinically compatible signs and symptoms may vary by novel coronavirus. In general, novel coronavirus respiratory infections are characterized by the following:

- Fever (>38 degrees Celsius);
- Cough or breathing difficulty;
- Severe illness progression (e.g. severe influenza-like illness)

6.0 ICD 10 Code(s)

Novel Coronavirus or MERS:

B34.2 Coronavirus infection, unspecified site

B97.2 Coronavirus as the cause of diseases classified in other chapters

SARS:

U04 Severe acute respiratory syndrome

U04.9 Suspected severe acute respiratory syndrome, unspecified

7.0 Comments

The average incubation period for seasonal human coronavirus infections is 2 days (range of 12 hours-5 days). Novel coronaviruses have longer incubation periods. The SARS coronavirus demonstrated a prolonged incubation period (median 4-5 days; range of 2-10 days) and the incubation period for the MERS coronavirus is also prolonged at approximately 5 days (range of 2-14 days).

Allowing for variability and recall error, exposure history based on the prior 14 days is recommended at this time for novel coronaviruses with an unknown incubation period.

8.0 Sources

Committee on Infectious Diseases, American Academy of Pediatrics. Section 3: Summaries of Infectious Diseases: Coronaviruses, Including SARS and MERS. In: Kimberlin DW, Brady MT, Jackson MA, Long SS, editors. Red Book: 2018 Report of the Committee on Infectious Diseases. 31 ed. Itasca, IL: American Academy of Pediatrics; 2018.

9.0 Footnotes

1. “Laboratory confirmation” will depend on the testing available for the novel coronavirus. For most novel coronaviruses, laboratory confirmation will require NML confirmation of testing conducted at the Public Health Ontario Laboratory. In the situation where confirmation of laboratory testing by the NML is no longer required, a Presumptive Confirmed case will be the same as a Confirmed case. Laboratory confirmation of infection with a newly emerged novel coronavirus would initially consist of positive real-time PCR on at least two specific genomic targets or a single positive target with sequencing AND confirmed by NML by nucleic acid testing.
2. Close contacts are defined as:
 - Anyone who provided care (e.g. bathing, toileting, dressing or feeding) for the probable, presumptive confirmed or confirmed case while the person was symptomatic, including a health care worker, family member, or individual who had other similarly close physical contact OR
 - Anyone who stayed at the same place (e.g. lived with, visited) while the case was ill.
3. Epidemiological information on ‘novel coronavirus affected area’ will be subject to change as new information evolves with each novel coronavirus. The Ministry of Health will provide additional information on current guidance for ‘novel coronavirus

* This close contact definition assumes that the case self-isolated while symptomatic. If the case did not isolate while symptomatic - or if the case visited a health care setting while symptomatic - PHUs should consider additional environments where exposures may have occurred to identify contacts for follow-up and monitoring (e.g., workplace, places of worship, recreation centres, conveyance/vehicles, health care setting waiting area or room, and other health care setting exposures).

affected area’ definitions, as well as any additional exposures within the novel coronavirus affected area that would increase the risk of acquisition.

4. Where the incubation period of the novel coronavirus is unknown, assume incubation period of 14 days based on the Middle East Respiratory Syndrome Coronavirus incubation period.
5. Animal source to be updated if identified.
6. A laboratory test is not available if there is no possibility of acquiring samples for testing.
7. Inconclusive is defined as a positive test on a single real-time PCR target or a positive test with an assay that has limited performance data available.
8. In Canada, laboratory confirmation of infection with the MERS-CoV virus is done by the NML. After the PHOL has identified a presumptive confirmed case, the sample will be sent to the NML for confirmation.
9. A laboratory diagnosis of MERS-CoV is unavailable if there is no possibility of acquiring samples for testing.
10. Inconclusive is defined as a positive test on a single target, a positive test with an assay that has limited performance data available, or a negative test on an inadequate specimen.
11. Saudi Arabia is experiencing continuing local transmission of MERS-CoV. Other affected countries in the Middle East with limited transmission among adults include Jordan, Oman, Qatar, the United Arab Emirates and Yemen. However, for these other countries, cases have almost been exclusively limited to adults who had contact with a case of MERS-CoV, a health care facility (such as a patient, worker or visitor) or camels/ camel products (e.g. raw milk or meat, secretions or excretions, including urine). The risk of MERS-CoV infection for individuals from these other affected countries without exposure to a case of MERS CoV, a health care facility or camels/ camel products is extremely low. As this list of affected countries is subject to change, health care workers and health sector employers should review this footnote regularly for the latest information.

10.0 Document History

Table 1: History of Revisions

Revision Date	Document Section	Description of Revisions
January 2020		The appendix was created.

