

Appendix 8: Cases with Positive COVID-19 Serology Results and Management of Cases with Multisystem Inflammatory Syndrome in Children (MIS-C) Temporally Associated with COVID-19

Positive Serology Reports

Reporting of Positive Serology Results to the Medical Officer of Health

- As of August 6, 2020, detection of serum/plasma immunoglobulin [antibodies to SARS-CoV-2](#) will be reportable to the local Medical Officer of Health from laboratories in Ontario that are licensed to conduct serology testing for clinical purposes.
- Positive results are positive on both the screening and supplemental serology tests and will be reported to the local Medical Officer of Health. Negative and inconclusive results will not be reported.
- An individual that has evidence of antibodies to SARS-CoV-2, regardless of nucleic acid amplification testing (eg. real-time PCR), is considered a confirmed case. Given the limitations of serology testing at the individual level, this testing is only available for limited [clinical situations](#), and is not intended for acute diagnosis, for determining infectivity, or for determining immunity status of the individual.

Public Health Management of Positive Reports of Antibodies to SARS-CoV-2

- Detection of antibodies to SARS-CoV-2 indicate prior exposure to the virus; however, a single IgG antibody result cannot differentiate between a recent or remote infection.
- Antibodies (IgG) typically develop at least 7-14 days after symptom onset from COVID-19 illness

- The duration of the IgG response has not yet been well characterized, with studies showing a reduction in IgG levels and seronegativity after 2-3 months in some patients.
- Currently, the main indication for serology testing is for pediatric patients suspected to have multisystem inflammatory syndrome in children (MIS-C) with a negative, indeterminate, or inconclusive PCR test result or who were not tested.
- Given the timing of development of antibodies to SARS-CoV-2, and the indication for testing is in those who have had a negative or inconclusive PCR test result, it is less likely that cases reported to public health units will be within their period of communicability.
- In the event newly reported cases based on serology results also have a positive PCR result around the time of the serology result, the case should be assessed for evidence of more recent infection based on the clinical and epidemiological history of the case to guide any further clinical and public health management.
- If the case is **already known** to the local public health unit (through prior positive PCR test, or as a Probable case with prior symptoms and epidemiological exposure):
 - For existing probable cases - update the case classification to 'Confirmed'.
 - Update the case laboratory history with the positive serology result. Only the first positive serology result must be entered, and entry of any subsequent positive results are at the discretion of the Public Health Unit (PHU).
 - Follow-up with the case and/or the ordering provider to determine if there are any updates to their **complications** or **outcomes** (see PHO guidance on data entry scenarios).
 - Follow-up is not required for subsequent positive serology results.
 - Serology results do not change case and public health management from when the case was initially reported (e.g., their isolation period, contact follow-up).
- If the case has **not been previously reported** to the local PHU for COVID-19:

- Create a new confirmed case of COVID-19 (see PHO guidance on data entry scenarios).
 - Follow-up with case to obtain information on case as per PHO Data Entry guide.
 - Case follow-up should ascertain the clinical, laboratory and epidemiological context of the case.
 - Cases with a negative PCR test result around the time of the serology test, no contact management is required.
- If the case **currently** has symptoms of COVID-19 and there is no recent PCR result or no result pending, recommend obtaining a specimen for PCR testing.
 - A subsequent positive PCR result (after/around the time the serology result is reported) should be interpreted in the context of the clinical and epidemiological history.
 - PCR can remain positive for several weeks after initial infection, and does not necessarily mean the case is currently infectious.
 - As IgG antibody can be detected within 7-14 days of infection, it is possible that cases with current PCR positive results and symptoms are still within their period of communicability.
 - Case and contact management should proceed as outlined in the [Management of Cases and Contacts of COVID-19 in Ontario](#) based on date of symptom onset.
- Follow-up is not required for subsequent positive serology results

Multisystem Inflammatory Syndrome in Children (MIS-C) in Cases of COVID-19

- MIS-C has been added to the [list of symptoms](#) associated with SARS-CoV-2 infection in Ontario. Presentation may include persistent fever, abdominal pain, conjunctivitis, gastrointestinal symptoms (nausea, vomiting and diarrhea) and rash
- In Ontario, MIS-C is listed as a **complication** of cases of SARS-CoV-2 infection for case reporting purposes (see PHO guidance on data entry scenarios)
- PHUs may become aware of cases of MIS-C by 2 methods:
 1. Clinicians reporting cases of MIS-C to the local PHU when they identify this as a complication of COVID-19.
 2. Receipt of a positive serology result from a laboratory. In this case the local PHU should prompt public health follow-up of the case including assessment for complications, such as MIS-C, as this is the primary use of serology testing at this time.
- MIS-C is a clinical diagnosis as determined by the health care provider. It is not the responsibility of the PHU to determine whether a case meets the clinical definition of MIS-C, rather PHUs should rely on the clinical decision of the health care provider.
- Health care providers may be using case definitions established by the [World Health Organization Definition \(WHO\)](#) or [Canadian Paediatric Surveillance Program \(CPSP\)](#).

Public Health Unit Management of Reports of MIS-C

- The required data elements for national reporting of MIS-C cases include:
 - Age at time of illness
 - Gender
 - Symptom Onset Date
 - Hospitalization and/or ICU admission date
 - Case ever tested positive for SARS-CoV-2 (PCR or serology)
 - Disposition (including Death)
- PHUs receiving clinical reports of MIS-C should determine whether the case meets [case definition for COVID-19](#).

- Where a probable or confirmed case of COVID-19 is reported to have MIS-C, the health unit does not need to verify the case meets WHO or CPSP (or other) case definition, and should enter MIS-C as a complication of COVID-19 as reported by the clinician.
- Report of MIS-C as a complication in a case of COVID-19 does not change case/contact management of the case from when they were initially reported to the health unit (e.g., their isolation period, contact follow-up)