

## Multisystem Inflammatory Syndrome (MIS) Associated with COVID-19

Date: June 26, 2020

**Public Health Message Type:**    Alert    Advisory    Update    Information

**Intended Audience:**    All public health partners    Healthcare providers    Infection preventionists  
                                   Local health departments    Schools/Childcare centers    ACOs  
                                   Animal health professionals    Other:

### **Key Points:**

- Following CDC reporting guidelines, Multisystem Inflammatory Syndrome in Children (MIS-C) Associated with COVID-19 will now be called Multisystem Inflammatory Syndrome (MIS) Associated with COVID-19.
- Multisystem Inflammatory Syndrome (MIS) associated with Coronavirus Disease 2019 (COVID-19) has been added as a separate disease in CDRSS.
- These cases occurred in children testing positive for current or recent infection by SARS-CoV-2 or who had an epidemiologic link to a COVID-19 case.
- Patients presented with persistent fever and symptoms including hypotension, multiorgan involvement, and elevated inflammatory markers.
- Limited information is currently available about risk factors, pathogenesis, clinical course and treatment for MIS, but early recognition and specialist referral are essential, including critical care if warranted.

### **Action Items:**

- Healthcare providers who have cared for or are caring for patients younger than 21 years of age meeting MIS criteria should continue to report suspected cases to the local health department where the patient resides. Contact information is available at: [localhealth.nj.gov](http://localhealth.nj.gov)
- The [NJDOH MIS Case Report Form](#) should be completed on any patient who meets the criteria mentioned on the next page of this document. This newest version includes additional important information requested by CDC and supersedes the previous form sent in the last LINCS communication on May 16<sup>th</sup>.
- All completed case report forms should be faxed to (609) 826-5972 or sent via secure email to [pedcov@doh.nj.gov](mailto:pedcov@doh.nj.gov). CDS staff will review forms for missing information and coordinate securing medical records and conduct chart abstraction if necessary.
- The information collected on these cases will be included within CDRSS and Local Health Departments will be informed of cases within their jurisdiction.

### **Contact Information:**

- Rosemary Kidder or Deepam Thomas at [pedcov@doh.nj.gov](mailto:pedcov@doh.nj.gov) or the Communicable Disease Service (CDS) at (609) 826-5964 during business hours.

## Background:

The New Jersey Department of Health (NJDOH) is working closely with CDC<sup>1</sup> and neighboring states to investigate reported cases of multi-system inflammatory syndrome that may possibly be associated with COVID-19. As of June 26, 2020, NJDOH has identified 47 patients that meet the MIS criteria listed below.

## Case Definition:

- An individual aged <21 years presenting with fever<sup>i</sup>, laboratory evidence of inflammation<sup>ii</sup>, and evidence of clinically severe illness requiring hospitalization, with multisystem (>2) organ involvement (cardiac, renal, respiratory, hematologic, gastrointestinal, dermatologic or neurological); AND
- No alternative plausible diagnosis; AND
- Positive for current or recent SARS-CoV-2 infection by RT-PCR, serology, or antigen test; or COVID-19 exposure within the 4 weeks prior to the onset of symptoms

<sup>i</sup>Fever >38.0°C for ≥24 hours, or report of subjective fever lasting ≥24 hours

<sup>ii</sup>Including, but not limited to, one or more of the following: an elevated C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), fibrinogen, procalcitonin, d-dimer, ferritin, lactic acid dehydrogenase (LDH), or interleukin 6 (IL-6), elevated neutrophils, reduced lymphocytes and low albumin

## Comments:

- Some individuals may fulfill full or partial criteria for Kawasaki<sup>2</sup> disease but should be reported if they meet the case definition for MIS
- Consider MIS in any pediatric death with evidence of SARS-CoV-2 infection

## Additional Considerations:

- This syndrome should be considered by pediatricians and specialists, particularly when other microbial etiologies have not been identified.
- Early recognition by pediatricians and prompt referral to an in-patient specialist, including to critical care is essential.
- Pediatricians and specialists should elicit any recent history of illness with COVID-19 or close contact with individuals who are known to have COVID-19
- Most patients who have presented with this syndrome have tested positive for the SARS-COV-2 virus or corresponding antibodies. Some tested positive on diagnostic, molecular testing for SARS-COV-2, others were positive on serological testing for corresponding antibodies.
- Patients should receive supportive treatment and healthcare providers should provide disease-specific treatments as appropriate.
- There are currently no published guidelines or CDC recommendations regarding treatment<sup>3</sup> for MIS-C and no studies comparing efficacy of various treatment options, but Anti-inflammatory measures have included the frequent use of intravenous immunoglobulin (IVIG) and steroids

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<sup>1</sup> <https://www.cdc.gov/coronavirus/2019-ncov/hcp/pediatric-hcp.html>

<sup>2</sup> <https://www.cdc.gov/kawasaki/index.html>

<sup>3</sup> <https://www.cdc.gov/mis-c/hcp/>