Multisystem Inflammatory Syndrome in Children (MIS-C) Associated with Coronavirus Disease 2019 (COVID-19)

Date: May 16, 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:

- Cases characterized by persistent fever, features of Kawasaki disease and/or toxic shock syndrome were reported in the United Kingdom and have recently been identified in children in other countries\(^1\) and the United States.
- Following the recent CDC Health Advisory, Pediatric Multi-System Inflammatory Syndrome Potentially Associated with COVID-19 will now be called Multisystem Inflammatory Syndrome in Children (MIS-C) Associated with COVID-19.
- 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-C, 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-C criteria should report suspected cases to the local health department where the patient resides. Contact information is available at: localhealth.nj.gov.
- The attached updated case report form should be completed on any patient who meets the following criteria. This newest version includes additional important information and supersedes the previous form sent in the last LINCS communication on May 7th.
- All completed case report forms should be faxed to (609) 826-5972 or sent via secure email to pedcov@doh.nj.gov and the NJDOH team will review the form 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 any cases within their jurisdiction.

Contact Information:

- Rosemary Kidder, Stephen Perez or Deepam Thomas at pedcov@doh.nj.gov or the Communicable Disease Service (CDS) at (609) 826-5964 during business hours.

\(^1\) [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31103-X/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31103-X/fulltext)
Background:
The New Jersey Department of Health (NJDOH) is working closely with CDC and neighboring states to investigate reported cases of multi-system inflammatory syndrome that may possibly be associated with COVID-19. Below is information that is currently known.

- Authorities in the United Kingdom have reported presentations among children and young adults.²
- As of May 12, 2020, New York has identified 102 patients (including patients from New York City) with similar presentations.
- As of May 15, 2020, NJDOH has identified 7 patients that meet the MIS-C criteria listed below.

Case Definition:

- An individual aged <21 years presenting with feverⁱ, laboratory evidence of inflammationⁱⁱ, 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

ⁱFever >38.0°C for ≥24 hours, or report of subjective fever lasting ≥24 hours

ⁱⁱIncluding, 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 Kawasaki³ disease but should be reported if they meet the case definition for MIS-C
- Consider MIS-C 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. Early treatment of patients suspected to have Kawasaki disease with immune globulin and aspirin is recommended.

³ https://www.cdc.gov/kawasaki/index.html