



NC DEPARTMENT OF
**HEALTH AND
HUMAN SERVICES**

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Division of Public Health

To: All North Carolina Health Care Providers
From: Erica Wilson, MD, MPH, Medical Epidemiologist
Subject: Multisystem Inflammatory Syndrome in Children Associated with COVID-19 (**2 pages**)
Date: December 1, 2020 (*replaces version dated May 14, 2020*)

This memo updates previous guidance shared on May 14, 2020 and is intended to provide information regarding identification and reporting of Multisystem Inflammatory Syndrome in Children (MIS-C) potentially linked to COVID-19.

Background

A possible link between COVID-19 and a serious inflammatory disease in children and teenagers has been reported in multiple countries and in the United States.

While the specific features and range of disease manifestations are still being determined, most children and adolescents with this syndrome have gastrointestinal, dermatologic, and/or cardiovascular involvement including significantly elevated markers of inflammation and cardiac damage. Because the case definition is non-specific and clinical manifestations may overlap with acute COVID-19, Kawasaki disease, or toxic shock syndrome, it may be difficult to distinguish MIS-C from these other conditions.

According to CDC, 1,163 cases of MIS-C and 20 deaths had been reported in the US as of October 30, 2020. The mean age of cases was 8 years (range 0 – 20 years) and the majority of cases have occurred in children who are Hispanic or Latino (35.4%) or non-Hispanic black (31.7%). In a more detailed report in August 2020, the most common signs and symptoms reported were abdominal pain, vomiting, skin rash, diarrhea, hypotension, and conjunctival injection. The majority of patients did not have an underlying medical condition. Most were admitted to the intensive care units with a median length of stay of 5 days.

Case Classification

An individual aged <21 years presenting with fever (measured or subjective lasting at least 24 hours), laboratory evidence of inflammation (e.g. elevated CRP, elevated troponin, etc.), 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 diagnoses; **AND**

Positive for current or recent SARS-CoV-2 infection by RT-PCR, serology, or antigen test; or exposure to a suspected or confirmed COVID-19 case within the 4 weeks prior to the onset of symptoms.

Note that patients may present with typical or incomplete Kawasaki disease or symptoms similar to toxic shock syndrome. These cases should still be reported if they meet the case definition for MIS-C.

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MIS-C should be considered in any pediatric death with evidence of SARS-CoV-2 infection.

Reporting

Clinicians are requested to report suspected cases of MIS-C to the NC DPH Communicable Disease Branch using the secure online reporting form found at https://is.gd/NC_MISC_Submission.

Additional information, including admission and discharge notes, consult notes, and relevant laboratory and imaging results, should be provided along with the patient summary information.

Patients presenting with suspected MIS-C should be immediately referred for specialty or critical care as indicated. More information on evaluation and treatment can be found at <https://www.cdc.gov/mis-c/hcp/index.html>.

For questions about MIS-C reporting please contact the epidemiologist on call at 919-733-3419.

References

1. Riphagen S, Gomez X, Gonzales-Martinez C, Wilkinson N, Theocharis P. Hyperinflammatory shock in children during COVID-19 pandemic. *Lancet*. 2020. Advance online publication, doi: 10.1016/S0140-6736(20)31094 [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)31094-1/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31094-1/fulltext)
2. Feldstein LR, Rose EB, Horwitz SM, et al. Multisystem inflammatory syndrome in U.S. children and adolescents. *N Engl J Med* 2020;383:334–46.
3. Godfred-Cato S, Bryant B, Leung J, et al. COVID-19–Associated Multisystem Inflammatory Syndrome in Children — United States, March–July 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:1074–1080. DOI: <http://dx.doi.org/10.15585/mmwr.mm6932e2external icon>.

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