

UPDATE: Multisystem Inflammatory Syndrome in Children (MIS-C) Case Definition

DATE:	January 6, 2023
TO:	Health Alert Network
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SUBJECT:	UPDATE: Multisystem Inflammatory Syndrome in Children (MIS-C) Case Definition
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- Effective January 1, 2023 a new surveillance case definition for multisystem inflammatory syndrome in children (MIS-C) will be implemented for reporting cases of MIS-C.
- MIS-C is a rare but severe complication in children and young adults infected with SARS-CoV-2, the virus that causes COVID-19.
- The new case definition criteria can be viewed at [Information for Healthcare Providers about Multisystem Inflammatory Syndrome in Children \(MIS-C\) | CDC](#). Key changes to the definition include:
 1. No required duration of subjective or measured fever
 2. A requirement of C-reactive protein ≥ 3.0 mg/dl to indicate systemic inflammation
 3. Adjustments to criteria of organ system involvement to include addition of shock as a separate category and elimination of respiratory, neurologic, and renal criteria
 4. A new requirement on timing of a positive SARS-CoV-2 laboratory testing within 60 days of MIS-C illness
- Healthcare providers must report suspect cases of MIS-C by faxing the 2023 [case report form](#) to 717-772-6975 or to your local health department or by securely emailing the form to rahcovidcontact@pa.gov.

This Health update provides an update about the case definition of multisystem inflammatory syndrome in children (MIS-C). This update is based on information from the Centers for Disease Control and Prevention and goes into effect on January 1, 2023. The Pennsylvania Department

of Health (DOH) provides this guidance based on available information about COVID-19 and is subject to change. This HAN replaces PA-HAN 636.

BACKGROUND

The Council of State and Territorial Epidemiologists (CSTE) and the Centers for Disease Control and Prevention (CDC) have developed a new CSTE/CDC multisystem inflammatory syndrome in children (MIS-C) surveillance case definition to be used starting January 1, 2023.

Nationally, there have been 9,139 confirmed cases and 74 deaths of MIS-C. As of December 22, Pennsylvania has reported 292 confirmed cases of MIS-C.

Patients with MIS-C usually present with persistent fever, abdominal pain, vomiting, diarrhea, skin rash, mucocutaneous lesions and, in severe cases, with hypotension and shock. They have elevated laboratory markers of inflammation (e.g., CRP), and in the majority of patients laboratory markers of damage to the heart (e.g., troponin; B-type natriuretic peptide (BNP) or proBNP). Some patients develop myocarditis, cardiac dysfunction, and acute kidney injury. There is a broad presentation in both symptoms and severity of symptoms. Many cases of MIS-C present 2–8 weeks after mild to asymptomatic infections with COVID-19 and, in some cases, the child and their caregivers may not even know they had been infected with COVID-19. Patients usually require intensive care and outcomes can be fatal.

Since May 14, 2020, CDC has conducted national surveillance for MIS-C associated with infection with SARS-CoV-2 among persons aged <21 years using a CDC case definition based on public health need and data from early reports of patients with this condition. Analyses of accumulated data indicated that certain criteria from the 2020 CDC MIS-C case definition performed better than others in distinguishing MIS-C from other illnesses. To incorporate lessons learned from MIS-C surveillance and public health investigations and to improve feasibility of implementation, CSTE and CDC developed a standardized MIS-C surveillance case definition with reduced risk for misclassification and reduced complexity for better ease of implementation.

NEW CLINICAL CASE DEFINITION FOR MIS-C

The new case definition for MIS-C effective January 1, 2023 is:

- An individual aged <21 presenting with fever*, laboratory evidence of inflammation by a C-reactive protein ≥ 3.0 mg/dL (30 mg/L), and evidence of clinically severe illness requiring hospitalization or resulting in death, with a new onset of multisystem (>2) organ involvement (cardiac, mucocutaneous, shock, gastrointestinal, or hematological)**; AND
- A more likely alternative diagnosis is not present; AND
- Detection of SARS-CoV-2 nucleic acid/antigen up to 60 days prior to or during hospitalization, or in a post-mortem specimen; or detection of SARS-CoV-2 specific antibodies associated with current illness; or exposure to a suspected or confirmed COVID-19 case within the 60 days prior to hospitalization.

*Fever $\geq 38.0^{\circ}\text{C}$, or report of subjective fever

** Multisystem involvement including: *Cardiac* indicated by left ventricular ejection fraction $< 55\%$; coronary artery dilatation, aneurysm, or ectasia; or troponin elevated above laboratory normal range or indicated as elevated in a clinical note. *Mucocutaneous* involvement indicated by rash, inflammation of the oral mucosa, conjunctivitis or conjunctival injection, or extremity findings. Clinician documentation of *shock*. *Gastrointestinal* involvement indicated by abdominal pain, vomiting, or diarrhea. *Hematologic* involvement indicated by platelet count $< 150,000$ cells/ μL or absolute lymphocyte count (ALC) $< 1,000$ cells/ μL .

KEY DIFFERENCES BETWEEN 2020 and 2023 MIS-C CASE DEFINITION

The 2023 CSTE/CDC MIS-C case definition includes four important changes in comparison with the 2020 CDC MIS-C case definition. These changes are:

1. No required duration of subjective or measured fever.
2. Requirement of C-reactive protein ≥ 3.0 mg/dl to indicate systemic inflammation.
3. Adjustments to criteria of organ system involvement to include addition of shock as a separate category and elimination of respiratory, neurologic, and renal criteria.
4. New requirements on timing of positive SARS-CoV-2 laboratory testing relative to MIS-C illness, with a change from 30 days (2020 definition) to 60 days (2023 definition)

REPORTING

Healthcare providers are reminded to report suspected cases of MIS-C by faxing the 2023 [case report form](#) to 717-772-6975 or to your local health department or by securely emailing the form to ra-dhccovidcontact@pa.gov.

If you have questions about this guidance or would like to consult about a patient with suspected MIS-C, please call your local health department or 1-877-PA-HEALTH (1-877-724-3258).

FOR MORE INFORMATION

CDC: [Council of State and Territorial Epidemiologists/CDC Surveillance Case Definition for Multisystem Inflammatory Syndrome in Children Associated with SARS-CoV-2 Infection, MMWR](#)

CDC: [Webinar Thursday, December 8, 2022 - Updates on Multisystem Inflammatory Syndrome in Children \(MIS-C\): Epidemiology, Case Definition, and COVID-19 Vaccination \(cdc.gov\)](#)

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Health Alert: conveys the highest level of importance; warrants immediate action or attention.

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This information is current as of January 6, 2023 but may be modified in the future.