



**Maryland**  
DEPARTMENT OF HEALTH

# Multisystem Inflammatory Syndrome in Children

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# What is Multisystem Inflammatory Syndrome in Children (MIS-C)?

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- Multisystem inflammatory syndrome in children (MIS-C) is a new health condition associated with COVID-19 that is appearing in children the US and elsewhere. The syndrome was previously called pediatric multisystem inflammatory syndrome or PMIS.
- Features of Kawasaki Disease and Toxic Shock Syndrome
- Previously healthy children presenting with a severe inflammatory syndrome with Kawasaki disease-like features
- Most positive for current or recent infection by SARS-CoV-2, or had an epi link to a COVID-19 case



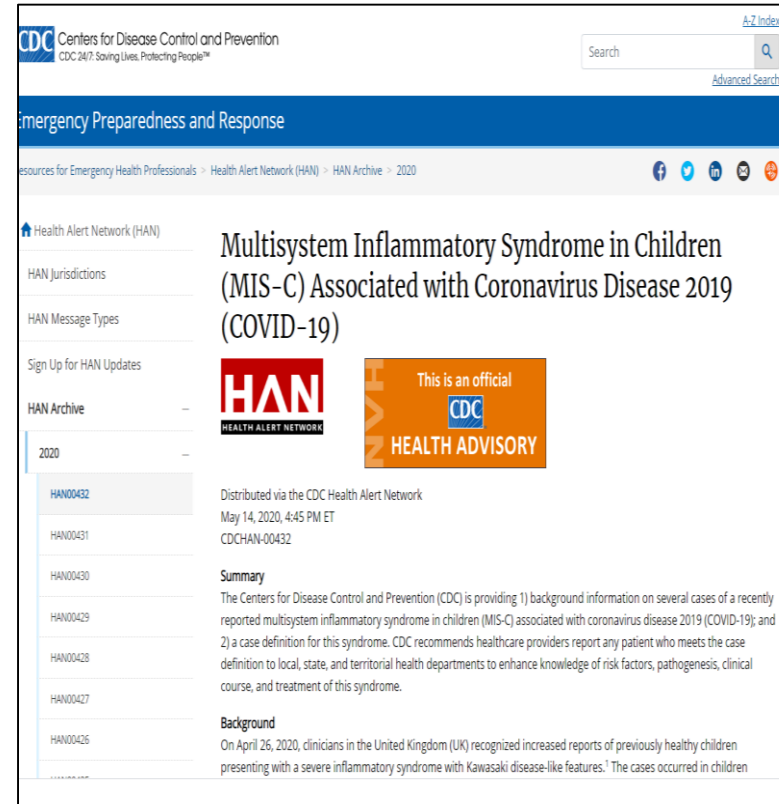
# Signs and Symptoms

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- Prolonged fever (temperature of 100.4 degrees F or 38.0 degrees C or greater)
- Irritability or decreased activity
- Abdominal pain without another explanation (often very severe), diarrhea, vomiting
- Rash, Swollen hands and feet, which might also be red
- Conjunctivitis (red or pink eyes)
- Poor feeding
- Hypotension
- Multiorgan involvement (cardiac, gastrointestinal, renal, hematologic, dermatologic and neurologic)
- Respiratory symptoms NOT present in all cases

# Centers for Disease Control and Prevention: HAN (5/14/2020)

- Situational summary
- Case definition
- Reporting requirements



The screenshot displays the CDC Health Alert Network (HAN) interface. At the top, the CDC logo and tagline "CDC 24/7: Saving Lives. Protecting People™" are visible. A search bar and "Advanced Search" link are in the top right. The main navigation bar is blue with the text "Emergency Preparedness and Response". Below this, the breadcrumb trail reads "Resources for Emergency Health Professionals > Health Alert Network (HAN) > HAN Archive > 2020". A sidebar on the left contains links for "Health Alert Network (HAN)", "HAN Jurisdictions", "HAN Message Types", "Sign Up for HAN Updates", and "HAN Archive". The "HAN Archive" section is expanded to show a list of alerts for the year 2020, with "HAN00432" selected. The main content area features the title "Multisystem Inflammatory Syndrome in Children (MIS-C) Associated with Coronavirus Disease 2019 (COVID-19)" and a "This is an official CDC HEALTH ADVISORY" badge. The alert text states: "Distributed via the CDC Health Alert Network May 14, 2020, 4:45 PM ET CDCHAN-00432". The "Summary" section reads: "The Centers for Disease Control and Prevention (CDC) is providing 1) background information on several cases of a recently reported multisystem inflammatory syndrome in children (MIS-C) associated with coronavirus disease 2019 (COVID-19); and 2) a case definition for this syndrome. CDC recommends healthcare providers report any patient who meets the case definition to local, state, and territorial health departments to enhance knowledge of risk factors, pathogenesis, clinical course, and treatment of this syndrome." The "Background" section begins with: "On April 26, 2020, clinicians in the United Kingdom (UK) recognized increased reports of previously healthy children presenting with a severe inflammatory syndrome with Kawasaki disease-like features.<sup>1</sup> The cases occurred in children".

<https://emergency.cdc.gov/han/2020/han00432.asp>



# CDC Case Definition

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## Case Definition for Multisystem Inflammatory Syndrome in Children (MIS-C)

- 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 ( $\geq 2$ ) 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 COVID-19 exposure within the 4 weeks prior to the onset of symptoms

<sup>i</sup>Fever  $\geq 38.0^{\circ}\text{C}$  for  $\geq 24$  hours, or report of subjective fever lasting  $\geq 24$  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

### Additional comments

- Some individuals may fulfill full or partial criteria for Kawasaki 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

<https://emergency.cdc.gov/han/2020/han00432.asp>

# Reporting MIS-C in Maryland

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- May 14: Clinician letter distributed
- Required reporting of MIS-C cases
- No case report form (at this time)

# Reporting MIS-C in Maryland

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- Information to Collect
  - Patient demographic information
  - **Date of symptom onset**
  - Maximum temperature
  - Laboratory value(s) fulfilling the above listed laboratory evidence of inflammation
  - Hospitalization status
  - Types of organ system involvement
  - SARS-CoV-2 testing results
  - Other relevant testing results (for example, those that have been used to exclude an alternative diagnosis)



# Serum specimen

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- Serum specimen
  - **Must be prior to administration of IVIG**
  - Tube types: Red top, tiger top, or gold top serum separator tube
  - Refrigerate to 2-8 degrees C
  - Serological Testing requisition  
<https://health.maryland.gov/laboratories/docs/MDH%204677%20Serological%20Testing%20Form%20and%20Instructions%202-2018.pdf>

# MIS-C Resources

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- CDC HAN

<https://emergency.cdc.gov/han/2020/han00432.asp>

- MDH One-Pager

[https://phpa.health.maryland.gov/Documents/MIS-C\\_onepage\\_051920.pdf](https://phpa.health.maryland.gov/Documents/MIS-C_onepage_051920.pdf)

- MDH Clinician Letter

[https://content.govdelivery.com/attachments/MDMBP/2020/05/15/file\\_attachments/1452516/COVID%20MIS-C%20Clinician%20Letter\\_5.15.2020%20FINAL.pdf](https://content.govdelivery.com/attachments/MDMBP/2020/05/15/file_attachments/1452516/COVID%20MIS-C%20Clinician%20Letter_5.15.2020%20FINAL.pdf)