

CDC Health Alert Network (HAN) Advisory on 5/14/20: Multisystem Inflammatory Syndrome in Children (MIS-C) Associated with COVID-19

Executive Summary:

A new syndrome, now named MIS-C, has been identified in multiple countries in the past few weeks which seems to be associated with COVID-19 infection, even if COVID was asymptomatic or unrecognized. It manifests itself as a Kawasaki-like illness and/or as Toxic Shock-Like Syndrome. It needs to be recognized as early as possible, so that monitoring, treatment, and testing can be started early in its course for the best outcomes. That makes it essential for Pre-hospital & Hospital Providers to be aware of this new syndrome, as well as looking for signs and symptoms when evaluating those younger than 21.

Physicians from multiple countries (the UK, Italy, Norway) and states (New York, Massachusetts, New Jersey and California) within the U.S. have reported seeing children from infancy through young adult hood with a presentation of a severe inflammatory syndrome targeting multiple systems like Kawasaki Disease (KD) and/or a septic shock like Toxic Shock Syndrome (TSS). **The systems affected include one or more of the following: cardiac, gastrointestinal (GI), renal, hematologic (blood), dermatologic, or neurologic. Other more generalized signs symptoms included persistent fever, hypotension or other signs of shock.** Further testing found either positive testing for SARS-CoV-2 infection by RT-PCR or antibody testing, even if there were no COVID-19 symptoms noted at any time. These syndromes can present days to weeks after COVID illness. There have been deaths in the U.S. and internationally and many have required care in the PICU/ICU. Cases continue to occur.

The Case Definition provided by the CDC in this case is not very helpful for the prehospital environment but a list of signs/symptoms, suggested monitoring, and treatments may help. Until further investigation can be performed, it should be noted that these syndromes being associated with COVID-19 are just that, associations/observations. A direct cause and effect have not been made at this time.

As more health care workers detect these syndromes around the world, investigate, and report them, more specifics should become available and be provided. It is important to note that severe inflammatory responses have already been identified in adults and more links may continue to be found. Important and appropriate information will be published on this site as it becomes available.

What EMS Can Do:

1. Consult with your agency's Medical Director or Medical Oversight for guidance in developing a protocol or for assistance with a particular patient.

2. Use full COVID-19 PPE and other precautions with those meeting these criteria.

3. Evaluate for signs/symptoms of the syndromes listed below:

Signs/Symptoms associated with Toxic Shock-Like Syndrome could include: high fever, chills, severe headache, sore throat, conjunctivitis, muscle/joint aches, pain, nausea, vomiting, diarrhea, changes in mental status (unresponsiveness, listlessness, dizziness, confusion, or behavior not consistent with age), a “bad sunburn-like” skin rash which can later result in peeling of the skin, especially on the palms and soles, loss of peripheral pulses, hypotension, SOB, and/or rapid respiratory rate.

Signs/Symptoms associated with Kawasaki-Like Syndrome could include: fever, nausea, vomiting, abdominal pain (often severe), conjunctivitis, cough, headache, swollen lymph glands, sore throat, changes to the mucous membranes (red or blue-tinged), rash, swollen hands and feet, diarrhea, vomiting, syncope, chest and/or abdominal pain, palpitations, EKG changes due to heart or blood vessel damage.

4. Changes in a patient’s status can occur rapidly. If there is any question that these syndromes may be occurring in a particular patient, transport should take place to an appropriate facility.

5. Monitor vital signs including BP, pulse, respirations, pulse oximetry, & EKG.

6. Treat supportively.

7. If signs of shock or dehydration, start an IV and adjust rate according to status and protocol.

8. Alert medical direction to changes in EKG for orders or treat per protocol (serious heart or vessel damage may be occurring).

9. Treat shock aggressively if permitted by protocol or medical direction.

Resources:

CDC HAN Advisory – MIS-C Associated with COVID-19 (5/14/20):

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

American Academy of Pediatrics – COVID and Kawasaki in Pediatrics:

<https://hosppeds.aappublications.org/content/hosppeds/early/2020/04/06/hped.2020-0123.full-text.pdf>

Rheumatology Advisor on COVID / Kawasaki Disease:

<https://www.rheumatologyadvisor.com/home/topics/pediatric-rheumatology/kawasaki-disease-symptoms-and-covid-19-in-pediatric-populations-whats-the-link/>

AHA Report of Pediatric Kawasaki and COVID:

<https://newsroom.heart.org/news/kids-with-kawasaki-disease-symptoms-possibly-linked-to-covid-19-coronavirus-infection-leading-to-critical-illness-in-children-remains-very-infrequent>

Gov. Cuomo of N.Y. State on COVID-19 & Inflammatory Syndromes (5/13/20):

<https://www.governor.ny.gov/news/governor-cuomo-announces-state-department-health-will-host-statewide-webinar-tomorrow>

Royal College Paediatrics & Child Health Guidance – Multisystem Inflammatory...:

<https://www.rcpch.ac.uk/sites/default/files/2020-05/COVID-19-Paediatric-multisystem-%20inflammatory%20syndrome-20200501.pdf>

Lancet Prepublication 2020 - Hyperinflammatory Shock in Children in COVID-19:

[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)

Lancet Prepublication 2020 - Outbreak of Severe Kawasaki-like Syndrome in SARS-CoV Epidemic:

[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)

Rare Diseases Journal Defines and Discusses Toxic Shock Syndrome:

<https://rarediseases.org/rare-diseases/toxic-shock-syndrome/>

MedPage Today - COVID & Kawasaki Disease (5/8/20):

<https://www.medpagetoday.com/infectiousdisease/covid19/86393>