

Note: the case definition in this LAHAN is superseded by the [5/14/20 CDC HAN](#).



LAC DPH Health Alert:
Pediatric Multi-System Inflammatory Syndrome Potentially Associated with COVID-19



May 12, 2020

*This message is intended for all healthcare providers in Los Angeles County.
Please distribute as appropriate.*

Key Messages

- A pediatric multi-system inflammatory syndrome characterized by persistent fever and features of Kawasaki disease and/or toxic shock syndrome is being reported by hospitals in the United Kingdom and New York City. It is possible that this syndrome is associated with COVID-19 infection.
- Early recognition and specialist referral are essential, including referral to critical care if warranted.
- Healthcare providers are asked to report possible cases by phone within one working day.
- Children's Hospital Los Angeles is hosting a webinar "Kawasaki-like Disease Related to COVID-19 Physician Informational Session" with Q&A tomorrow May 13, 4-5 pm. Pediatricians and emergency medicine clinicians are encouraged to attend. Click [here](#) for more information and to register for the session.

Situation

A pediatric multi-system inflammatory syndrome has recently been reported by authorities in the United Kingdom and in New York City. Clinical features vary but have been noted to have common overlapping features of toxic shock syndrome and atypical Kawasaki disease. Abdominal pain and gastrointestinal symptoms have been a common feature as has cardiac inflammation. Many, but not all, of these children have tested positive for COVID-19 and the possible association with COVID-19 is still being investigated.

The Centers for Disease Control and Prevention (CDC) is monitoring the situation and will be sending a HAN with a case definition and guidance in the near future. The Los Angeles County Department of Public Health (LAC DPH) has contacted pediatric intensive care units (PICUs) regarding any hospitalizations compatible with this syndrome.

It is important to highlight that there have been very few cases of critically unwell children with COVID-19. See recent publications from the CDC and JAMA Pediatrics: [Coronavirus Disease 2019 in Children — United States, February 12–April 2, 2020](#) and [Characteristics and Outcomes of Children With Coronavirus Disease 2019 \(COVID-19\) Infection Admitted to US and Canadian Pediatric Intensive Care Units](#).

Actions Requested of Providers

- **Immediately refer patients with a picture of toxic shock or Kawasaki Disease to a specialist in pediatric infectious disease, rheumatology, and/or critical care, as indicated.** Early diagnosis and treatment of patients meeting full or partial criteria for Kawasaki disease is critical to preventing end-organ damage and other long-term complications.
- **Consider testing patients with Kawasaki disease, atypical Kawasaki disease, and/or toxic shock syndrome-like for COVID-19.**
- **Report possible cases to LAC DPH.** Any patient less than 21 years of age with persistent fever (four or more days) **AND** either typical Kawasaki disease, atypical Kawasaki disease, and/or toxic shock syndrome-like presentation; **AND** no alternative etiology identified that explains the clinical presentation. Note: patients should be reported regardless of SARS-CoV-2 PCR test result.

Features of Pediatric Multi-System Inflammatory Syndrome

Clinical features vary, depending on the affected organ system, but have been noted to include features of Kawasaki disease or features of shock. Patients with this syndrome who have been admitted to PICUs have required cardiac and/or respiratory support. Persistent fever and elevated inflammatory markers (CRP, troponin, ESR, ferritin, etc.) have been seen among affected patients.

The NYC Health Department on May 4 released a [HAN](#) that described 15 patients aged 2-15 years were hospitalized with a compatible syndrome between April 17 and May 1. All patients had subjective or measured fever and more than half reported rash, abdominal pain, vomiting, or diarrhea. Respiratory symptoms were reported in less than half of these patients. Only 4 of the 15 patients were PCR positive for SARS-CoV-2. Six patients with negative PCR results were positive by serology. More than half of the patients required blood pressure support and five required mechanical ventilation.

[The Lancet](#) describes a similar syndrome in 8 children, aged 4-14 in England. Clinical presentations were similar, with fever, variable rash, conjunctivitis, peripheral edema, and generalized extremity pain with significant gastrointestinal symptoms. All progressed to warm, vasogenic shock, refractory to volume resuscitation and eventually requiring blood pressure support. Most of the children had no significant respiratory involvement, although seven of the children required mechanical ventilation for cardiovascular stabilization. All were initially SARS CoV-2 negative (3 became positive on re-testing). All 8 eventually tested positive for SARS CoV-2 antibody.

Kawasaki Disease

[Kawasaki disease](#) (KD), also known as Kawasaki syndrome, is an acute febrile illness of unknown cause that primarily affects children younger than 5 years of age. Clinical signs include fever, rash, swelling of the hands and feet, irritation and redness of the whites of the eyes, swollen lymph glands in the neck, and irritation and inflammation of the mouth, lips, and throat.

KD is a leading cause of acquired heart disease in the United States. Serious complications include coronary artery dilatations and aneurysms. The standard treatment, intravenous immunoglobulin and aspirin substantially decreases the development of these coronary artery abnormalities.

For epidemiologic surveillance, CDC defines a case of KD as illness in a patient with fever of 5 or more days duration (or fever until the date of administration of intravenous immunoglobulin if it is given before the fifth day of fever), and the presence of at least 4 of the following 5 clinical signs:

- Rash
- Cervical lymphadenopathy (at least 1.5 cm in diameter)
- Bilateral conjunctival injection
- Oral mucosal changes
- Peripheral extremity changes

Patients whose illness does not meet the above KD case definition but who have fever and coronary artery abnormalities are classified as having atypical or incomplete KD.

Reporting

Providers are asked to report possible cases of Pediatric Multi-System Inflammatory Syndrome by phone within 1 working day.

Los Angeles County DPH Acute Communicable Disease Control:

- Call 888-397-3993 or 213-240-7821

Long Beach Health and Human Services:

- Call 562-570-4302.

Pasadena Public Health Department:

- Call 626-744-6089.

Visit the LAC DPH COVID-19 Provider [website](#) for up-to-date resources and guidance.

Refresh your browser to view the latest versions. publichealth.lacounty.gov/acd/ncorona2019/

This communication was sent by Sharon Balter, MD, Director, Division of Communicable Disease Control and Prevention, Los Angeles County Department of Public Health

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