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## Maine Health Alert Network (HAN) System

### PUBLIC HEALTH ADVISORY

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**To:** Health Care Providers  
**From:** Dr. Siiri Bennett, State Epidemiologist  
**Subject:** **Pediatric Multi-System Inflammatory Syndrome Potentially Associated with COVID-19**  
**Date / Time:** Monday, May 11, 2020 at 4:00PM  
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## Pediatric Multi-System Inflammatory Syndrome Potentially Associated with COVID-19

### Key Points:

- Seventy-three cases compatible with multi-system inflammatory syndrome have been identified in children in New York hospitals.
- Three children have died as of 5/10/2020.
- The syndrome appears to be characterized by persistent fever and features of Kawasaki disease and/or toxic shock syndrome; abdominal symptoms are common.
- This inflammatory syndrome may occur days to weeks after acute COVID-19 illness.
- Providers should perform a diagnostic and serological test to detect the presence of SARS-CoV-2, the virus that causes COVID-19, or corresponding antibodies in the patient.
- Polymerase chain reaction testing for SARS-CoV-2 may be positive or negative.
- Early recognition and specialist referral are essential, including to critical care if warranted. Cases may require intensive care unit admission for cardiac and/or respiratory support.
- Health care providers must immediately report cases of pediatric multi-system inflammatory syndrome potentially associated with COVID-19 in patients who are under 21 years of age to the Maine CDC at 1-800-821-5821.

### Symptoms:

A pediatric multi-system inflammatory syndrome, recently reported by authorities in the United Kingdom, is also being observed among children and young adults in New York and elsewhere in the

United States. Clinical features vary, depending on the affected organ system, but have been noted to include features of Kawasaki disease or features of shock; however, the full spectrum of disease is not yet known. Only severe cases may have been recognized at this time. This inflammatory syndrome may occur days to weeks after acute COVID-19 illness.

This syndrome has features which overlap with Kawasaki Disease and Toxic Shock Syndrome. Inflammatory markers may be elevated (CRP, troponin etc.), and fever and abdominal symptoms may be prominent. Rash also may be present. Myocarditis and other cardiovascular changes may be seen.

Some patients have developed cardiogenic or vasogenic shock and required intensive care. Patients with this syndrome who have been admitted to pediatric intensive care units have required cardiac and/or respiratory support.

• The syndrome may include:

- A child presenting with persistent fever, inflammation (*e.g.*, neutrophilia, elevated C-reactive protein and lymphopenia) and evidence of single or multi-organ dysfunction (shock, cardiac, respiratory, renal, gastrointestinal or neurological disorder). This may include children meeting full or partial criteria for Kawasaki disease.
- Exclusion of any other microbial cause, including bacterial sepsis, staphylococcal or streptococcal shock syndromes, and infections associated with myocarditis such as enterovirus. Clinicians should not delay seeking expert advice while waiting for results of these investigations.

The NYC Health Department contacted PICUs in NYC during April 29-May 3, 2020 and identified 15 patients aged 2-15 years who had been hospitalized from April 17- May 1, 2020 with illnesses compatible with this syndrome (*i.e.*, typical Kawasaki disease, incomplete Kawasaki disease, and/or shock). All patients had subjective or measured fever and more than half reported rash, abdominal pain, vomiting, or diarrhea. Respiratory symptoms were reported in fewer than half of these patients.

Polymerase chain reaction (PCR) testing for SARS-CoV-2 has been positive (4), negative (10), and initially indeterminate and then negative (1). Six patients with negative testing by PCR were positive by serology. More than half of the reported patients required blood pressure support and five required mechanical ventilation.

As of May 10, 2020, there were 73 cases reported in New York hospitals. Three (3) fatalities have been reported among these cases as of May 10, 2020.

If the above-described inflammatory syndrome is suspected, pediatricians should immediately refer patients to a specialist in pediatric infectious disease, pediatric cardiology, 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. Patients meeting criteria for Kawasaki disease should be treated with intravenous immunoglobulin and aspirin.

Consistent with Maine's Rules for the Control of Notifiable Diseases and Conditions at 10-144 CMR Ch. 258, Section 2(I), the Director of Maine CDC, in consultation with the State Epidemiologist or designee, is authorized to advise through publicly noticed Health Alerts the public health need for the temporary reporting of any disease or condition in the state of Maine in order to study and control any apparent outbreak or unusual occurrence of communicable disease, when the disease or condition can cause serious morbidity or mortality and the report of the disease or condition is necessary to monitor, prevent, or control the disease or condition to protect public health. Outbreaks and suspected outbreaks of syndromes of known or unknown etiology and of unusual manifestations of disease of public health

interest, must be reported immediately for any patient who meets the following criteria. Please report to the Maine CDC by calling 800-821-5821.

Patients that should be reported include those who are:

- Younger than 21 years old, with persistent fever (four or more days), and either incomplete Kawasaki disease, typical 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).

**What to do:**

- Treat patients meeting criteria for Kawasaki disease with intravenous immunoglobulin and aspirin.
- Refer early to specialists, including to critical care if warranted.
- Report immediately any patient who meets criteria to the Maine CDC by calling 800-821-5821, 24 hours a day, 7 days a week.

**Additional information:**

- Pediatric Intensive Care Society. PICS Statement: Increased number of reported cases of novel presentation of multi-system inflammatory disease. April 27, 2020, available at <https://picsociety.uk/wpcontent/uploads/2020/04/PICS-statement-re-novel-KD-C19-presentation-v2-27042020.pdf>.