Multisystem Inflammatory Syndrome in Children Associated with COVID-19 (MIS-C)

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Multisystem Inflammatory Syndrome in Children

- MIS-C is a severe inflammatory syndrome similar to Kawasaki Disease
- First noted in the United Kingdom in April 2020
- Saw increased reports of previously healthy children presenting with severe inflammatory syndrome with Kawasaki-like features
- Occurring in children testing positive for current or recent infection of SARS-CoV-2 (by PCR or Serologic assay) or had a epi link to a COVID-19 case

https://emergency.cdc.gov/han/2020/han00432.asp
Multisystem Inflammatory Syndrome in Children (MIS-C) Associated with COVID-19

Case Definition

• An individual aged <21 years presenting with **fever ≥ 38.0°C** for ≥24 hours, laboratory evidence of inflammation ii, and evidence of clinically severe illness requiring **hospitalization**, with **multisystem (≥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

https://emergency.cdc.gov/han/2020/han00432.asp
MIS-C in the United States

- CDC began tracking MIS-C in mid-May, 2020
- As of October 2\textsuperscript{nd}
  - 1,027 cases in 46 Jurisdictions
  - 20 deaths
  - 98% tested positive for SARS CoV-2
  - Most develop MIS-C 2-6 weeks after infection with SARS-CoV-2
- Anticipate increase in cases with return to school and opening of daycares

https://www.cdc.gov/mis-c/cases/index.html
MIS-C Case Ranges by Territory, State, New York City, and Washington, DC*

Reported MIS-C Cases

- No cases reported
- 1-10
- 11-20
- 21-30
- 31+

 Territories

Image courtesy of CDC [https://www.cdc.gov/mis-c/cases/index.html](https://www.cdc.gov/mis-c/cases/index.html)
MIS-C in Kentucky

- 11 Confirmed Cases; 0 deaths
- Onset 4/23-9/16
- No cases report known exposure to COVID-19
Case Demographics

Cases by Race
- White
- Black
- Other
- Unknown

Cases by Ethnicity
- Non Hispanic
- Hispanic
Hospitalization Information

- All 11 were hospitalized
- 7 had ICU stay
- 3 required Ventilator
Kentucky Clinical Presentation

Kentucky Case Clinical Presentation

Systems Involved

- Cardiac
- Respiratory
- Gastrointestinal
- Renal
- Hematologic
- Neurologic
- Dermatologic

Percentage of Cases

- Cardiac: 80%
- Respiratory: 60%
- Gastrointestinal: 80%
- Renal: 20%
- Hematologic: 60%
- Neurologic: 40%
- Dermatologic: 40%
Suspect a case of MIS-C?

• MIS-C must have **fever ≥38.0°** for ≥24hrs

• Laboratory evidence of **inflammation** such as but not limited to: Elevated CRP, ESR, Fibrinogen, d-dimer, IL-6 etc.

• Evidence of clinically severe illness requiring **hospitalization**, with ≥2 system involvement.

• **No alternative** plausible cause AND

• **Positive** SARS-COV-2 lab **OR**

• **COVID-19 Exposure** in 4 weeks prior to onset of symptoms. *
Hospitals reporting suspected case MIS-C

• Notify KDPH by phone 502-564-3261 of a suspect MIS-C case.
  Need Reporting hospital, contact person/phone(IP), Case name, date of birth

• Complete MIS-C Case Report Form Available at:

• Complete Epid 200 Reportable Disease Form Available at:

• Send these with a brief note of the case presentation and illness course and any positive SARS-COV-2 labs, any rule out labs to KDPH (later a discharge summary)

• Send via secure fax to: KDPH 502-696-3803 ATTENTION MIS-C

• or by Encrypted Email to Stacy.Davidson@ky.gov ATTENTION MIS-C
### Reporting

**EPID 200 Reportable Disease form**

- **Department for Public Health**
- **Division of Epidemiology and Health Planning**
- **Address:** 275 East Main St., Mailbox H525-A, Frankfort, KY 40621-0581

#### Kentucky Reportable Disease Form

**Fax or Mail the Completed Form to the Local Health Department**

<table>
<thead>
<tr>
<th><strong>DEMOGRAPHIC DATA</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient’s Last Name:</td>
</tr>
<tr>
<td>Address:</td>
</tr>
<tr>
<td>Phone Number:</td>
</tr>
<tr>
<td>Age:</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>DISEASE INFORMATION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease Name:</td>
</tr>
<tr>
<td>Last Symptom/Complaint:</td>
</tr>
<tr>
<td>Date of Onset:</td>
</tr>
<tr>
<td>Days of Illness:</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th><strong>AdDITIONAL INFORMATION FOR SEXUALLY TRANSMITTED DISEASES ONLY</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory Name:</td>
</tr>
<tr>
<td>Date of Test:</td>
</tr>
<tr>
<td>Name of Laboratory:</td>
</tr>
</tbody>
</table>

If applicable, please provide additional details or notes:

- **If applicable, have previous treatment been administered?**
  - Yes
  - No

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Reporting

MIS-C Case Report

Important: Please fill out case report completely. Except: MIS-ID, Health Dept Id, NCOV ID, NNDS ID at top will be completed at KDPH

Patient name and DOB can be noted at the top of the form to send. All identifying information is redacted before being submitted to CDC
3.1 Onset of initial covid-19 like symptoms
Fever, Chills, Myalgia, Sore throat, Nausea, Vomiting Diarrhea, Fatigue, Cough, Congestion, Runny nose. May occur a few days to 4 weeks before.

3.2 Typically short time later develop new or worsening symptoms that bring them to PCP or ER. Onset of MIS-C symptoms.
Reporting

Send EPID 200 and MIS-C Case report via secure fax to: KDPH 502-696-3803 **ATTENTION MIS-C**

- Complete MIS-C Case Report Form Available at: [https://www.cdc.gov/mis-c/pdfs/hcp/mis-c-form-fillable.pdf](https://www.cdc.gov/mis-c/pdfs/hcp/mis-c-form-fillable.pdf)
- We also will ask for a Discharge summary after Discharge.

**Stacy Davidson RN BSN**

Email: [Stacy.Davidson@ky.gov](mailto:Stacy.Davidson@ky.gov)

Phone: 502-564-3261 ext. 4238

Can also ask for Amanda Hunt or Carrell Rush
Additional Questions or More Information

Multisystem Inflammatory Syndrome in Children (MIS-C) Associated with COVID-19

Kentucky Pediatric COVID-19 Helpline – 1-800-722-5725

• Norton Children’s Hospital Staffed Hotline
  • Parent Advice or Related Questions
  • Statewide Provider to Provider Pediatric Infectious Disease Consult

• For more information:

• CDC MIS-C webpage [https://www.cdc.gov/mis-c/hcp/](https://www.cdc.gov/mis-c/hcp/)
  • CDC Health Advisory [https://emergency.cdc.gov/han/2020/han00432.asp](https://emergency.cdc.gov/han/2020/han00432.asp)
  • CDC Kawasaki webpage [https://www.cdc.gov/kawasaki/case-definition.html](https://www.cdc.gov/kawasaki/case-definition.html)
Thank you