

Health Alert:

Multisystem Inflammatory Syndrome in Children (MIS-C) Case Report Forms

May 24, 2020

This document will be updated as new information becomes available. The current version can always be viewed at <http://www.health.mo.gov>.

The Missouri Department of Health & Senior Services (DHSS) is now using four types of documents to provide important information to medical and public health professionals, and to other interested persons:

Health Alerts convey information of the highest level of importance which warrants immediate action or attention from Missouri health providers, emergency responders, public health agencies, and/or the public.

Health Advisories provide important information for a specific incident or situation, including that impacting neighboring states; may not require immediate action.

Health Guidances contain comprehensive information pertaining to a particular disease or condition, and include recommendations, guidelines, etc. endorsed by DHSS.

Health Updates provide new or updated information on an incident or situation; can also provide information to update a previously sent Health Alert, Health Advisory, or Health Guidance; unlikely to require immediate action.

Health Alert
May 24, 2020

**FROM: RANDALL W. WILLIAMS, MD, FACOG
DIRECTOR**

SUBJECT: Multisystem Inflammatory Syndrome in Children (MIS-C) Case Report Forms

On May 14, 2020 DHSS distributed a CDC-issued Health Advisory which detailed [Multisystem Inflammatory Syndrome in Children \(MIS-C\) Associated with Coronavirus Disease 2019 \(COVID-19\)](#).

The advisory made reference to case report forms under development by CDC. Forms were released Thursday, May 21. They include:

- MIS-C CRF Instructions
- MIS-C CRF Fillable
 - o This is a PDF with fillable fields
- MIS-C CRF Form
 - o Non-fillable form

Each form listed above can be found at <https://health.mo.gov/living/healthcondiseases/communicable/novel-coronavirus/professionals.php>.

Completed case report forms should be provided via email to your regional DHSS epidemiologist or via fax to the Bureau of Communicable Disease Control and Prevention at 573-526-0235. MIS-C as a reportable condition will be added to 19 CSR 20-20.020 at a later date.

Missouri healthcare providers and public health practitioners: Please contact your local public health agency or the Missouri Department of Health and Senior Services' (DHSS') Bureau of Communicable Disease Control and Prevention at 573-751-6113 or 800-392-0272 (24/7) with questions regarding this Alert.

Office of the Director
912 Wildwood
P.O. Box 570
Jefferson City, MO 65102
Telephone: 800-392-0272
Fax: 573-751-6041

Website: <http://www.health.mo.gov>

Multisystem Inflammatory Syndrome Associated with COVID-19 Case Report Form



MIS ID (REQUIRED): _____ **Health Department ID:** _____ **NCOV ID (if available):** _____

NNDSS ID (local_record_id/case_id): _____ **Tools for CRF data submission to supplement NNDSS case notification/data:** DCIPHER RedCap

Abstractor name: _____ **Date of abstraction:** ____/____/____

SECTION 1 – INCLUSION CRITERIA

- 1.1 Age <21, AND
- 1.2 Fever >38.0°C for ≥24 hours, or report of subjective fever lasting ≥24 hours, AND
- 1.3 Laboratory markers of inflammation (including, but not limited to one or more; 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, AND
- 1.4 Evidence of clinically severe illness requiring hospitalization, with multisystem (≥2) organ involvement (*check all applicable below*): AND
- 1.4.1 Cardiac (e.g. shock, elevated troponin, BNP, abnormal echocardiogram, arrhythmia)
- 1.4.2 Renal (e.g. acute kidney injury or renal failure)
- 1.4.3 Respiratory (e.g. pneumonia, ARDS, pulmonary embolism)
- 1.4.4 Hematologic (e.g. elevated D-dimers, thrombophilia, or thrombocytopenia)
- 1.4.5 Gastrointestinal (e.g. elevated bilirubin, elevated liver enzymes, or diarrhea)
- 1.4.6 Dermatologic, (e.g. rash, mucocutaneous lesions)
- 1.4.7 Neurological, (e.g. CVA, aseptic meningitis, encephalopathy)
- 1.5 No alternative plausible diagnosis; AND
- 1.6 Positive for current or recent SARS-COV-2 infection by (check all applicable below): OR
- 1.6.1 RT-PCR
- 1.6.2 Serology
- 1.6.3 Antigen test
- 1.7 COVID-19 exposure within the 4 weeks prior to the onset of symptoms
- 1.7.1 If yes, date of first exposure within the 4 weeks prior : (MM/DD/YYYY): ____/____/____ Unknown

SECTION 2 – PATIENT DEMOGRAPHICS

- 2.1 **State of Residence:** _____
- 2.2 **Patient zip code/postal code (primary residence):** _____
- 2.3 **Date of birth (MM/DD/YYYY):** ____/____/____
- 2.4 **Sex:** Male Female
- 2.5 **Ethnicity:** Hispanic or Latino Not Hispanic or Latino Refused or Unknown
- 2.6 **Race (mark all that apply, selecting more than one option as necessary):**
- 2.6.1 White
- 2.6.2 Black or African American
- 2.6.3 American Indian
- 2.6.4 Alaska Native or Aboriginal Canadian
- 2.6.5 Native Hawaiian
- 2.6.6 Other Pacific Islander
- 2.6.7 Asian
- 2.6.8 Other
- 2.6.9 Refused or Don't know
- 2.7 **Height:** _____ inches
- 2.8 **Weight:** _____ lbs
- 2.9 **BMI:** _____
- Comorbidities:**
- | | | | | | |
|---------|---------------------------------------|---------------------------|--------------------------|--------|--|
| 2.10.1 | Immunosuppressive disorder/malignancy | <input type="radio"/> Yes | <input type="radio"/> No | 2.11 | Hospital admission date |
| 2.10.2 | Obesity | <input type="radio"/> Yes | <input type="radio"/> No | | (MM/DD/YYYY): ____/____/____ |
| 2.10.3 | Type 1 diabetes | <input type="radio"/> Yes | <input type="radio"/> No | 2.11.1 | Number of days in the hospital: _____ |
| 2.10.4 | Type 2 diabetes | <input type="radio"/> Yes | <input type="radio"/> No | 2.12 | If admitted to the ICU, admission date |
| 2.10.5 | Seizures | <input type="radio"/> Yes | <input type="radio"/> No | | (MM/DD/YYYY): ____/____/____ |
| 2.10.6 | Congenital heart disease | <input type="radio"/> Yes | <input type="radio"/> No | 2.12.1 | Number of days in the ICU: _____ |
| 2.10.7 | Sickle cell disease | <input type="radio"/> Yes | <input type="radio"/> No | 2.13 | Patient outcome: <input type="radio"/> Died <input type="radio"/> Discharged <input type="radio"/> Still admitted |
| 2.10.8 | Chronic lung disease | <input type="radio"/> Yes | <input type="radio"/> No | 2.13.2 | Hospital discharge or death date |
| 2.10.9 | Other congenital malformations | <input type="radio"/> Yes | <input type="radio"/> No | | (MM/DD/YYYY): ____/____/____ |
| 2.10.10 | Other (specify): _____ | | | | |

SECTION 3 – CLINICAL SIGNS AND SYMPTOMS

- 3.1 Did the patient have preceding COVID-like illness? Yes No
- 3.1.1 Date of symptom onset (MM/DD/YYYY): ___/___/___
- 3.2 Date of symptom onset of MIS (MM/DD/YYYY): ___/___/___
- 3.3 Fever $\geq 38.0^{\circ}\text{C}$: Yes No
- 3.3.1 Date of fever onset (MM/DD/YYYY): ___/___/___
- 3.3.2 Highest Temperature: _____ $^{\circ}\text{C}$
- 3.3.3 Number of days febrile: _____

Signs and symptoms *during present illness*

- | | |
|---|---|
| <p>3.4.1 Cardiac</p> <p>3.4.1.1 Shock <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.1.2 Elevated troponin <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.1.3 Elevated BNP or NT-proBNP <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.2 Renal</p> <p>3.4.2.1 Acute kidney injury <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.2.2 Renal failure <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.3 Respiratory</p> <p>3.4.3.1 Cough <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.3.2 Shortness of breath <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.3.3 Chest pain/tightness <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.3.4 Pneumonia <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.3.5 ARDS <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.3.6 Pulmonary embolism <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.4 Hematologic</p> <p>3.4.4.1 Elevated D-dimers <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.4.2 Thrombophilia <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.4.3 Thrombocytopenia <input type="radio"/> Yes <input type="radio"/> No</p> | <p>3.4.5 Gastrointestinal</p> <p>3.4.5.1 Abdominal pain <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.5.2 Vomiting <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.5.3 Diarrhea <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.5.4 Elevated bilirubin <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.5.5 Elevated liver enzymes <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.6 Dermatologic</p> <p>3.4.6.1 Rash <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.6.2 Mucocutaneous lesions <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.7 Neurological</p> <p>3.4.7.1 Headache <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.7.2 Altered mental state <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.7.3 Syncope/near syncope <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.7.5 Meningitis <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.7.6 Encephalopathy <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.8 Other</p> <p>3.4.8.1 Neck pain <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.8.2 Myalgia <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.8.3 Conjunctival injection <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.8.4 Periorbital edema <input type="radio"/> Yes <input type="radio"/> No</p> <p>3.4.8.5 Cervical lymphadenopathy >1.5 cm diameter <input type="radio"/> Yes <input type="radio"/> No</p> |
|---|---|

SECTION 4 – COMPLICATIONS

- | | |
|---|--|
| <p>4.1 Arrhythmia <input type="radio"/> Yes <input type="radio"/> No</p> <p>If yes:</p> <p>4.1.1 Ventricular arrhythmia: <input type="radio"/> Yes <input type="radio"/> No</p> <p>4.1.2 Supraventricular arrhythmia: <input type="radio"/> Yes <input type="radio"/> No</p> <p>4.1.3 Other arrhythmia (<i>specify</i>): _____ <input type="radio"/> Yes <input type="radio"/> No</p> <p>4.2 Congestive heart failure <input type="radio"/> Yes <input type="radio"/> No</p> <p>4.3 Myocarditis <input type="radio"/> Yes <input type="radio"/> No</p> | <p>4.4 Pericarditis <input type="radio"/> Yes <input type="radio"/> No</p> <p>4.5 Liver failure <input type="radio"/> Yes <input type="radio"/> No</p> <p>4.6 Deep vein thrombosis or PE <input type="radio"/> Yes <input type="radio"/> No</p> <p>4.7 ARDS <input type="radio"/> Yes <input type="radio"/> No</p> <p>4.8 Pneumonia <input type="radio"/> Yes <input type="radio"/> No</p> <p>4.9 CVA or stroke <input type="radio"/> Yes <input type="radio"/> No</p> <p>4.10 Encephalitis or aseptic meningitis <input type="radio"/> Yes <input type="radio"/> No</p> <p>4.11 Shock <input type="radio"/> Yes <input type="radio"/> No</p> <p>4.12 Hypotension <input type="radio"/> Yes <input type="radio"/> No</p> |
|---|--|

SECTION 5 – TREATMENTS

- | | |
|---|---|
| <p>5.1 Low flow nasal cannula <input type="radio"/> Yes <input type="radio"/> No</p> <p>5.2 High flow nasal cannula <input type="radio"/> Yes <input type="radio"/> No</p> <p>5.3 Non-invasive ventilation <input type="radio"/> Yes <input type="radio"/> No</p> <p>5.4 Intubation <input type="radio"/> Yes <input type="radio"/> No</p> <p>5.5 Mechanical ventilation <input type="radio"/> Yes <input type="radio"/> No</p> <p>5.6 ECMO <input type="radio"/> Yes <input type="radio"/> No</p> <p>5.7 Vasoactive medications (e.g. epinephrine, milrinone, norepinephrine, or vasopressin) (<i>specify</i>): _____ <input type="radio"/> Yes <input type="radio"/> No</p> <p>5.8 Steroids <input type="radio"/> Yes <input type="radio"/> No</p> <p>5.9 Immune modulators (e.g. anakinra, tocilizumab) (<i>specify</i>): _____ <input type="radio"/> Yes <input type="radio"/> No</p> | <p>5.10 Antiplatelets (e.g. aspirin, clopidogrel) (<i>specify</i>): _____ <input type="radio"/> Yes <input type="radio"/> No</p> <p>5.11 Anticoagulation (e.g. heparin, enoxaparin, warfarin) (<i>specify</i>): _____ <input type="radio"/> Yes <input type="radio"/> No</p> <p>5.12 Dialysis <input type="radio"/> Yes <input type="radio"/> No</p> <p>5.13 First IVIG <input type="radio"/> Yes <input type="radio"/> No</p> <p>5.14 Second IVIG <input type="radio"/> Yes <input type="radio"/> No</p> |
|---|---|

SECTION 6 – STUDIES**6.1 Blood Test Results**

- 6.1.1 Fibrinogen Highest value: _____ units: _____ Low Normal High
- 6.1.2 CRP Highest value: _____ units: _____ Low Normal High
- 6.1.3 Ferritin Highest value: _____ units: _____ Low Normal High
- 6.1.4 Troponin Highest value: _____ units: _____ Low Normal High
- 6.1.5 BNP Highest value: _____ units: _____ Low Normal High
- 6.1.6 NT-proBNP Highest value: _____ units: _____ Low Normal High
- 6.1.7 D-dimer Highest value: _____ units: _____ Low Normal High
- 6.1.8 IL-6 Highest value: _____ units: _____ Low Normal High
- 6.1.9 Serum White blood count Highest value: _____ Lowest value : _____ units: _____
- 6.1.10 Platelets Highest value : _____ Lowest value : _____ units: _____
- 6.1.11 Neutrophils Highest value: _____ Lowest value : _____ units: _____
- 6.1.12 Lymphocytes Highest value: _____ Lowest value : _____ units: _____
- 6.1.13 Bands Highest value: _____ Lowest value : _____ units: _____

6.2 CSF Studies

- 6.2.1 White blood count Highest value : _____ Lowest value : _____ units: _____
- 6.2.2 Protein Highest value : _____ Lowest value : _____ units: _____
- 6.2.3 Glucose Highest value : _____ Lowest value : _____ units: _____

6.3 Urinalysis

- 6.3.1 Urine White blood count Highest value : _____ Lowest value : _____ units: _____

6.4 Echocardiogram (check if seen on ANY echocardiogram)

- 6.4.1 Not done
- 6.4.2 Normal results
- 6.4.3 Coronary artery aneurysms
6.4.3.1 Max coronary artery Z-score: _____
- 6.4.4 Coronary artery dilatation
- 6.4.5 Cardiac dysfunction (decreased function), specify type:
6.4.5.1 left ventricular dysfunction
6.4.5.2 right ventricular dysfunction
- 6.4.6 Pericardial effusion
- 6.4.7 Pleural effusion
- 6.4.8 Mitral regurgitation, specify type: mild moderate severe
- 6.4.9 Other (specify): _____

6.5 Date of first test showing coronary artery aneurysm or dilatation (MM/DD/YYYY): ___/___/___**6.6 Abdominal imaging** Ultrasound CT Not done

- 6.6.1 Normal
- 6.6.2 Mesenteric lymphadenopathy
- 6.6.3 Free fluid
- 6.6.4 Other (specify): _____

6.7 Chest imaging Chest x-ray CT Not done

- 6.7.1 Normal
- 6.7.2 Pneumonia
- 6.7.3 Atelectasis
- 6.7.4 Pleural effusion
- 6.7.5 Other (specify): _____

SARS-COV-2 testing

- 6.8 **RT-PCR:** Positive Negative Not done
6.8.1 If performed, date (MM/DD/YYYY): ___/___/___
- 6.9 **Antigen:** Positive Negative Not done
6.9.1 If performed, date (MM/DD/YYYY): ___/___/___
- 6.10 **IgG:** Positive Negative Not done
6.10.1 If performed, date (MM/DD/YYYY): ___/___/___
- 6.11 **IgM:** Positive Negative Not done
6.11.1 If performed, date (MM/DD/YYYY): ___/___/___
- 6.12 **IgA:** Positive Negative Not done
6.12.1 If performed, date (MM/DD/YYYY): ___/___/___