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

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


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.
Multisystem Inflammatory Syndrome Associated with COVID-19 Case Report Form

MIS ID (REQUIRED): ____________________________ Health Department ID: ____________________________ NCOVID (if available): ____________________________

NNDSS ID (local_record_id/case id): ____________ Tools for CRF data submission to supplement NNDSS case notification/data: ○ DCIPHER ○ RedCap

Abstracter 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 ○ Yes ○ No

2.10.2 Obesity ○ Yes ○ No

2.10.3 Type 1 diabetes ○ Yes ○ No

2.10.4 Type 2 diabetes ○ Yes ○ No

2.10.5 Seizures ○ Yes ○ No

2.10.6 Congenital heart disease ○ Yes ○ No

2.10.7 Sickle cell disease ○ Yes ○ No

2.10.8 Chronic lung disease ○ Yes ○ No

2.10.9 Other congenital malformations ○ Yes ○ No

2.10.10 Other (specify): ____________________________

2.11 Hospital admission date (MM/DD/YYYY): __/__/____

2.12 If admitted to the ICU, admission date (MM/DD/YYYY): __/__/____

2.13 Patient outcome: ○ Died ○ Discharged ○ Still admitted

2.13.2 Hospital discharge or death date (MM/DD/YYYY): __/__/____
### 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 ≥ 38.0°C:  ○ Yes  ○ No

3.3.1 Date of fever onset (MM/DD/YYYY): __/__/______

3.3.2 Highest Temperature: _____°C

3.3.3 Number of days febrile: ______

### Signs and symptoms during present illness

#### 3.4.1 Cardiac

- 3.4.1.1 Shock  ○ Yes  ○ No
- 3.4.1.2 Elevated troponin  ○ Yes  ○ No
- 3.4.1.3 Elevated BNP or NT-proBNP  ○ Yes  ○ No

#### 3.4.2 Renal

- 3.4.2.1 Acute kidney injury  ○ Yes  ○ No
- 3.4.2.2 Renal failure  ○ Yes  ○ No

#### 3.4.3 Respiratory

- 3.4.3.1 Cough  ○ Yes  ○ No
- 3.4.3.2 Shortness of breath  ○ Yes  ○ No
- 3.4.3.3 Chest pain/tightness  ○ Yes  ○ No
- 3.4.3.4 Pneumonia  ○ Yes  ○ No
- 3.4.3.5 ARDS  ○ Yes  ○ No
- 3.4.3.6 Pulmonary embolism  ○ Yes  ○ No

#### 3.4.4 Hematologic

- 3.4.4.1 Elevated D-dimers  ○ Yes  ○ No
- 3.4.4.2 Thrombophilia  ○ Yes  ○ No
- 3.4.4.3 Thrombocytopenia  ○ Yes  ○ No

#### 3.4.5 Gastrointestinal

- 3.4.5.1 Abdominal pain  ○ Yes  ○ No
- 3.4.5.2 Vomiting  ○ Yes  ○ No
- 3.4.5.3 Diarrhea  ○ Yes  ○ No
- 3.4.5.4 Elevated bilirubin  ○ Yes  ○ No
- 3.4.5.5 Elevated liver enzymes  ○ Yes  ○ No

#### 3.4.6 Dermatologic

- 3.4.6.1 Rash  ○ Yes  ○ No
- 3.4.6.2 Mucocutaneous lesions  ○ Yes  ○ No

#### 3.4.7 Neurological

- 3.4.7.1 Headache  ○ Yes  ○ No
- 3.4.7.2 Altered mental state  ○ Yes  ○ No
- 3.4.7.3 Syncope/near syncope  ○ Yes  ○ No
- 3.4.7.4 Meningitis  ○ Yes  ○ No
- 3.4.7.5 Encephalopathy  ○ Yes  ○ No

#### 3.4.8 Other

- 3.4.8.1 Neck pain  ○ Yes  ○ No
- 3.4.8.2 Myalgia  ○ Yes  ○ No
- 3.4.8.3 Conjunctival injection  ○ Yes  ○ No
- 3.4.8.4 Periorbital edema  ○ Yes  ○ No
- 3.4.8.5 Cervical lymphadenopathy >1.5 cm diameter  ○ Yes  ○ No

### SECTION 4 – COMPLICATIONS

#### 4.1 Arrhythmia

- 4.1.1 Ventricular arrhythmia:  ○ Yes  ○ No

If yes:

- 4.1.2 Supraventricular arrhythmia:  ○ Yes  ○ No
- 4.1.3 Other arrhythmia (specify):  ○ Yes  ○ No

#### 4.2 Congestive heart failure

- ○ Yes  ○ No

#### 4.3 Myocarditis

- ○ Yes  ○ No

#### 4.4 Pericarditis

- ○ Yes  ○ No

#### 4.5 Liver failure

- ○ Yes  ○ No

#### 4.6 Deep vein thrombosis or PE

- ○ Yes  ○ No

#### 4.7 ARDS

- ○ Yes  ○ No

#### 4.8 Pneumonia

- ○ Yes  ○ No

#### 4.9 CVA or stroke

- ○ Yes  ○ No

#### 4.10 Encephalitis or aseptic meningitis

- ○ Yes  ○ No

#### 4.11 Shock

- ○ Yes  ○ No

#### 4.12 Hypotension

- ○ Yes  ○ No

### SECTION 5 – TREATMENTS

#### 5.1 Low flow nasal cannula

- ○ Yes  ○ No

#### 5.2 High flow nasal cannula

- ○ Yes  ○ No

#### 5.3 Non-invasive ventilation

- ○ Yes  ○ No

#### 5.4 Intubation

- ○ Yes  ○ No

#### 5.5 Mechanical ventilation

- ○ Yes  ○ No

#### 5.6 ECMO

- ○ Yes  ○ No

#### 5.7 Vasoactive medications

(e.g. epinephrine, milrinone, norepinephrine, or vasopressin) (specify):

- ○ Yes  ○ No

#### 5.8 Steroids

- ○ Yes  ○ No

#### 5.9 Immune modulators

(e.g. anakinra, tocilizumab) (specify):

- ○ Yes  ○ No

#### 5.10 Antiplatelets

(e.g. aspirin, clopidogrel) (specify):

- ○ Yes  ○ No

#### 5.11 Anticoagulation

(e.g. heparin, enoxaparin, warfarin) (specify):

- ○ Yes  ○ No

#### 5.12 Dialysis

- ○ Yes  ○ No

#### 5.13 First IVIG

- ○ Yes  ○ No

#### 5.14 Second IVIG

- ○ Yes  ○ No
## SECTION 6 – STUDIES

### 6.1 Blood Test Results

<table>
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<tr>
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<th>Units</th>
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<tbody>
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<td>Fibrinogen</td>
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<tr>
<td>Ferritin</td>
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<tr>
<td>BNP</td>
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<tr>
<td>NT-proBNP</td>
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<tr>
<td>D-dimer</td>
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<tr>
<td>IL-6</td>
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<tr>
<td>Serum White blood count</td>
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</tr>
<tr>
<td>Platelets</td>
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<tr>
<td>Neutrophils</td>
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<tr>
<td>Lymphocytes</td>
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<tr>
<td>Bands</td>
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### 6.2 CSF Studies

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<td>Protein</td>
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<td>Glucose</td>
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### 6.3 Urinalysis

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<tbody>
<tr>
<td>Urine White blood count</td>
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</table>

### 6.4 Echocardiogram (check if seen on ANY echocardiogram)

- Not done
- Normal results
- Coronary artery aneurysms
  - Max coronary artery Z-score:
- Coronary artery dilatation
- Cardiac dysfunction (decreased function), specify type:
  - Left ventricular dysfunction
  - Right ventricular dysfunction
- Pericardial effusion
- Pleural effusion
- Mitral regurgitation, specify type:
  - Mild
  - Moderate
  - Severe
- 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

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<td>Mesenteric lymphadenopathy</td>
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<td>Free fluid</td>
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<td>Other (specify):</td>
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### 6.7 Chest imaging

- Chest x-ray
- CT
- Not done

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<td>Pleural effusion</td>
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<td>Other (specify):</td>
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### SARS-COV-2 testing

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- Positive
- Negative
- Not done

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- Positive
- Negative
- Not done

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<td>IgG:</td>
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- Negative
- Not done

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- Positive
- Negative
- Not done

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- Positive
- Negative
- Not done

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