

# Multisystem Inflammatory Syndrome in Children Associated with SARS-CoV-2 Infection Case Report Form



CDC MIS ID (REQUIRED): \_\_\_\_\_ Health Department ID: \_\_\_\_\_ NCOV ID (if available): \_\_\_\_\_

NNDSS ID: \_\_\_\_\_ Abstractor name: \_\_\_\_\_ Date of abstraction: \_\_\_\_\_

## SECTION 1 – MIS-C INCLUSION CRITERIA

1. Did the patient meet all inclusion criteria for case ascertainment? Yes No
- 1.1 Age <21 years
- 1.2 Subjective or documented fever ( $\geq 38.0^{\circ}\text{C}$ )
- 1.3 Illness with clinical severity requiring hospitalization or resulting in death
- 1.4 A more likely alternative diagnosis is not present
- 1.5 C-reactive protein  $\geq 3.0$  mg/dL (30 mg/L)
- 1.6 New onset manifestations in  $\geq 2$  of the following categories:
- 1.6.1 Cardiac involvement indicated by left ventricular ejection fraction <55%; coronary artery dilatation, aneurysm, or ectasia; or troponin elevated above laboratory normal range or indicated as elevated in a clinical note
- 1.6.2 Mucocutaneous involvement indicated by rash, inflammation of the oral mucosa, conjunctivitis or conjunctival injection, or extremity findings
- 1.6.3 Shock
- 1.6.4 Gastrointestinal involvement indicated by abdominal pain, vomiting, or diarrhea
- 1.6.5 Hematologic involvement indicated by platelet count <150,000 cells/ $\mu\text{L}$  or absolute lymphocyte count (ALC) <1,000 cells/ $\mu\text{L}$
- 1.7 Meets laboratory criteria for SARS-CoV-2 infection or epidemiologic linkage criteria
- 1.7.1 Positive viral test (i.e., NAAT/PCR or antigen) during hospitalization or within 60 days prior
- 1.7.2 Positive viral test (i.e., NAAT/PCR or antigen) in a post-mortem specimen
- 1.7.3 Detection of SARS-CoV-2 specific antibodies associated with current illness
- 1.7.4 Close contact with a confirmed or probable case of COVID-19 disease in the 60 days prior to hospitalization
- 1.8 Death certificate lists MIS-C as an underlying cause of death or a significant condition contributing to death

## SECTION 2 – PATIENT DEMOGRAPHICS AND MEDICAL HISTORY

### 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 Age: \_\_\_\_\_ Months Days Years
- 2.5 Sex: Male Female
- 2.6 Ethnicity: Hispanic or Latino Not Hispanic or Latino Refused or Unknown
- 2.7 Race (mark all that apply, selecting more than one option as necessary):
- 2.7.1 White 2.7.5 Asian
- 2.7.2 Black or African American 2.7.6 Other Race
- 2.7.3 American Indian or Alaska Native 2.7.7 Unknown
- 2.7.4 Native Hawaiian or other Pacific Islander
- 2.8 Height: \_\_\_\_\_ cm
- 2.9 Weight: \_\_\_\_\_ kg
- 2.10 BMI: \_\_\_\_\_

### Underlying conditions:

- 2.11.1 No underlying medical conditions 2.11.6 Cardiovascular condition
- 2.11.2 Immunosuppressive disorder/malignancy 2.11.7 Sickle cell disease
- 2.11.3 Obesity 2.11.8 Chronic lung disease (including asthma)
- 2.11.4 Diabetes mellitus 2.11.9 Other congenital malformations
- 2.11.4.1 Type 1 2.11.10 Other, specify: \_\_\_\_\_
- 2.11.4.2 Type 2
- 2.11.5 Neurologic/neuromuscular or developmental condition

### Other medical history:

- 2.12 Does the patient have a history of the following at least 90 days prior to developing their current MIS-C illness?
- 2.12.1 Kawasaki Disease Date of diagnosis (MM/DD/YYYY): \_\_\_\_\_
- 2.12.2 MIS-C Date of diagnosis (MM/DD/YYYY): \_\_\_\_\_

**SECTION 3 – CLINICAL SIGNS AND SYMPTOMS****Illness Details:**

- 3.1** Did patient have close contact with an individual with COVID-19 within 60 days prior to hospitalization:      Yes      No
- 3.1.1** If yes, first date of contact (*MM/DD/YYYY*): \_\_\_\_\_      Date unknown
- 3.2** Onset date of symptoms that led to hospitalization for MIS-C (*MM/DD/YYYY*): \_\_\_\_\_
- 3.3.** Hospital admission date (*MM/DD/YYYY*): \_\_\_\_\_
- 3.3.1** Number of days in the hospital: \_\_\_\_\_
- 3.4** Admitted to the ICU?      Yes      No
- 3.5** Patient outcome:      Died      Discharged      Still admitted
- 3.5.1** Hospital discharge or death date (*MM/DD/YYYY*): \_\_\_\_\_

**3.6 Signs and symptoms associated with MIS-C illness**

- |   |  |
|---|--|
| <p><b>3.6.1</b> Mucocutaneous</p> <ul style="list-style-type: none"> <li>Rash</li> <li>Inflammation of oral mucosa</li> <li>Conjunctival injection</li> <li>Peripheral extremity changes</li> </ul> <p><b>3.6.2</b> Neurologic</p> <ul style="list-style-type: none"> <li>Meningismus/meningeal signs</li> <li>Altered mental status</li> <li>Headache</li> </ul> | <p><b>3.6.3</b> Respiratory</p> <ul style="list-style-type: none"> <li>Cough</li> <li>Shortness of breath</li> </ul> <p><b>3.6.4</b> Gastrointestinal</p> <ul style="list-style-type: none"> <li>Abdominal pain</li> <li>Vomiting</li> <li>Diarrhea</li> </ul> <p><b>3.6.5</b> Other</p> <ul style="list-style-type: none"> <li>Neck pain</li> <li>Chest pain/tightness</li> </ul> |
|---|--|

**SECTION 4 – LABORATORY STUDIES****4.1 Laboratory Studies**

- 4.1.1** Elevated troponin
- 4.1.2** Elevated BNP/NT-pro BNP
- 4.1.3** Elevated AST
- 4.1.4** Elevated ALT
- 4.1.5** Elevated creatinine

**4.2 CSF Studies**

- 4.2.1** White blood count: \_\_\_\_\_ cells/mm<sup>3</sup> or cells/μL
- 4.2.2** Protein: \_\_\_\_\_ mg/dL      g/L
- 4.2.3** Glucose: \_\_\_\_\_ mg/dL      mmol/L

**4.3 SARS-CoV-2 testing during hospitalization for current MIS-C illness:**

- 4.3.1.** SARS-CoV-2 Antibody (IgG or IgM):      Positive      Negative      Not done
- 4.3.1.1** If performed, date (*MM/DD/YYYY*): \_\_\_\_\_
- 4.3.1.2** Antibody type:      Anti-Spike      Anti-Nucleocapsid      Anti-Spike and Anti-Nucleocapsid      Unknown
- 4.3.2.** SARS CoV-2 Viral Test:      Positive      Negative      Not done
- 4.3.2.1** If performed, date (*MM/DD/YYYY*): \_\_\_\_\_
- 4.3.2.2** SARS CoV-2 test type:      RT-PCR/NAAT      Antigen      Unknown

**SECTION 5 – IMAGING STUDIES AND COMPLICATIONS**

If any studies from a particular type of imaging are abnormal during hospitalization, select “abnormal” for that imaging type. If all studies from a particular type of imaging are normal throughout hospitalization, select “normal” for that imaging type.

|              |                      |        |          |          |
|--------------|----------------------|--------|----------|----------|
| <b>5.1</b>   | Cardiac Imaging      |        |          |          |
| <b>5.1.1</b> | Echocardiogram       | Normal | Abnormal | Not done |
| <b>5.2</b>   | Chest Imaging        |        |          |          |
| <b>5.2.1</b> | Chest X-ray          | Normal | Abnormal | Not done |
| <b>5.2.2</b> | Chest CT             | Normal | Abnormal | Not done |
| <b>5.3</b>   | Abdominal Imaging    |        |          |          |
| <b>5.3.1</b> | Abdominal ultrasound | Normal | Abnormal | Not done |
| <b>5.3.2</b> | Abdominal X-ray      | Normal | Abnormal | Not done |
| <b>5.3.3</b> | Abdominal CT         | Normal | Abnormal | Not done |

Please indicate clinical findings identified during hospitalization for MIS-C illness.

- 5.4 Cardiac Complications**  
 Myocarditis  
 Coronary artery dilatation, ectasia, or aneurysm on cardiac imaging  
 Left ventricular systolic dysfunction  
 Lowest LV ejection fraction:  
 <50%  
 50% to <55%  
 Right ventricular systolic dysfunction  
 Pericarditis/pericardial effusion  
 Congestive heart failure  
 Other cardiac complication, specify: \_\_\_\_\_
- 5.5 Respiratory Complications**  
 Acute respiratory distress syndrome (ARDS)  
 Pneumonia  
 Other respiratory complication, specify: \_\_\_\_\_
- 5.6 Hypotension or shock**  
 Hypotension  
 Shock
- 5.7 Gastrointestinal Complications**  
 Appendicitis/inflamed appendix  
 Cholecystitis/inflamed gallbladder  
 Mesenteric adenitis  
 Other abdominal complication, specify: \_\_\_\_\_
- 5.8 Hematologic Complications**  
 Thrombocytopenia (platelets <150,000 cells/μL)  
 Lymphopenia (absolute lymphocyte count/ALC <1000 cells/μL)
- 5.9 Other Complications**  
 Meningitis/encephalitis  
 Encephalopathy  
 Other neurologic complication, specify: \_\_\_\_\_  
 Retropharyngeal edema/phlegmon on head/neck ultrasound or CT  
 Lymph nodes ≥1.5 cm on head/neck ultrasound or CT  
 Other complication, specify: \_\_\_\_\_

**SECTION 6 – CLINICAL MANAGEMENT**

- 6.1 Please indicate all treatments or medical interventions that the subject received for this illness.**
- |   |   |
|---|---|
| High-flow nasal cannula   | Steroids (e.g., prednisone, methylprednisolone)         |
| CPAP or BiPAP   | Immune modulators (e.g., anakinra, infliximab)          |
| Invasive mechanical ventilation (intubation)  | Dialysis or continuous renal replacement therapy (CRRT) |
| ECMO  | First IVIG  |
| Vasoactive medications (e.g., epinephrine, milrinone, norepinephrine, or vasopressin) | Second IVIG   |

**SECTION 7 – COVID-19 VACCINE INFORMATION**

|              |   |                          |                     |                 |         |
|--------------|---|--------------------------|---------------------|-----------------|---------|
| <b>7.1</b>   | <b>Has the patient received a COVID-19 vaccine?</b> | Yes                      | No                  | Unknown         |         |
| <b>7.2</b>   | <b>If yes, how many doses?</b>                      | 1 dose                   | 2 doses             | 3 or more doses | Unknown |
| <b>7.3</b>   | <b>Date vaccine dose(s) received</b>                |                          |                     |                 |         |
| <b>7.3.1</b> | <b>Vaccine Dose 1</b>                               | Date (MM/DD/YYYY): _____ | Manufacturer: _____ |                 |         |
| <b>7.3.2</b> | <b>Vaccine Dose 2</b>                               | Date (MM/DD/YYYY): _____ | Manufacturer: _____ |                 |         |
| <b>7.3.3</b> | <b>Vaccine Dose 3</b>                               | Date (MM/DD/YYYY): _____ | Manufacturer: _____ |                 |         |
| <b>7.3.4</b> | <b>Vaccine Dose 4</b>                               | Date (MM/DD/YYYY): _____ | Manufacturer: _____ |                 |         |
| <b>7.3.5</b> | <b>Vaccine Dose 5</b>                               | Date (MM/DD/YYYY): _____ | Manufacturer: _____ |                 |         |