

Multisystem Inflammatory Syndrome Associated with COVID-19 Case Report Form



MIS ID(REQUIRED): _____ Health Department ID: _____

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

Abstractor name: _____ NCOV ID (if available): _____ 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: Died Discharged 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> |
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SECTION 4 – COMPLICATIONS

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|---|---|
| <p>4.1 Arrhythmia <input type="radio"/> Yes <input type="radio"/> No
 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>): _____
 _____</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

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|--|--|
| <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) <input type="radio"/> Yes <input type="radio"/> No
 <i>(specify):</i> _____
 _____</p> <p>5.8 Steroids <input type="radio"/> Yes <input type="radio"/> No</p> <p>5.9 Immune modulators (e.g. anakinra, tocilizumab) <input type="radio"/> Yes <input type="radio"/> No
 <i>(specify):</i> _____
 _____</p> | <p>5.10 Antiplatelets (e.g. aspirin, clopidogrel) <input type="radio"/> Yes <input type="radio"/> No
 <i>(specify):</i> _____
 _____</p> <p>5.11 Anticoagulation (e.g. heparin, enoxaparin, warfarin) <input type="radio"/> Yes <input type="radio"/> No
 <i>(specify):</i> _____
 _____</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> |
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SECTION 6 – STUDIES

6.1 Blood Test Results

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|--------|-------------------------|----------------------|----------------------|--------------|--------|------|
| 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

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|-------|-------------------|----------------------|----------------------|--------------|--|--|
| 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): _____