

# 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	Yes	No	2.11 Hospital admission date (MM/DD/YYYY): _____
2.10.2 Obesity	Yes	No	2.11.1 Number of days in the hospital: _____
2.10.3 Type 1 diabetes	Yes	No	2.12 If admitted to the ICU, admission date (MM/DD/YYYY): _____
2.10.4 Type 2 diabetes	Yes	No	2.12.1 Number of days in the ICU: _____
2.10.5 Seizures	Yes	No	2.13 Patient outcome: Died Discharged Still admitted
2.10.6 Congenital heart disease	Yes	No	2.13.2 Hospital discharge or death date (MM/DD/YYYY): _____
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): _____			

### 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°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*

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

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

### SECTION 5 – TREATMENTS

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

## 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: _____		
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### 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): \_\_\_\_\_

**SECTION 7 COVID-19 VACCINE INFORMATION**

**7.1 Has the patient received a COVID-19 vaccine?** Yes No Unknown

**7.2 If yes, how many doses?** 1 dose 2 doses Unknown

**7.2.1** Date dose 1 received (MM/DD/YYYY): \_\_\_\_\_

**7.2.2** Date dose 2 received (MM/DD/YYYY): \_\_\_\_\_

**7.3 COVID-19 Vaccine manufacturer** Pfizer Moderna Johnson & Johnson/Janssen

Other, (specify): \_\_\_\_\_ Unknown