Multisystem Inflammatory Syndrome (MIS) Associated with COVID-19: Case Report Form

This case report form should be completed on any patient who meets the following criteria: (1) Less than 21 years old, presenting with fever (> 38°C or subjective, for > 24 hours) laboratory evidence of inflammation, and evidence of clinically severe illness requiring hospitalization with multisystem (>2) organ involvement; and (2) No alternative plausible diagnosis; and (3) Positive for current or recent SARS-CoV-2 infection by RT-PCR, serology, or antigen test; OR COVID-19 exposure within 4 weeks prior to the onset of symptoms. All completed case report forms should be faxed to (609)-826-5972 or sent via secure email to pedcov@doh.nj.gov. The NJDOH team will review the form for missing information and coordinate securing medical records and conduct chart abstraction if necessary. Please note this is a dynamic and evolving situation, as more is learned about this syndrome this form may be modified or changed.

PROVIDER INFORMATION	
Hospital Name: _____	Date form completed: _____ / _____ / _____
Name of person completing form: _____	Title: _____
Phone Number: (_____) _____ - _____	Email: _____

PATIENT INFORMATION	
Patient Name: _____	Patient Date of Birth: _____ / _____ / _____
Patient Mailing Address: _____	
Patient Phone Number: (_____) _____ - _____	Medical Record #: _____

COMMENTS

---------- TO BE COMPLETED BY CDS ONLY ----------

MIS ID: _____	Health Department ID: _____	NCOV ID (if available): _____
NNDSS ID (local record id/case id): _____	Tools for CRF data submission to supplement NNDSS 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	○ 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)*: ____/____/_____

- **2.11.1** Number of days in the hospital: _____

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

- **2.12.1** Number of days in the ICU: _____

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	
3.4.7.5	Meningitis	○ Yes	○ No	
3.4.7.6	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**	○ Yes	○ No
	If yes:		
4.1.1	Ventricular arrhythmia:	○ Yes	○ No
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

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)*: ____/____/_____