

## CSTE/CDC Multisystem Inflammatory Syndrome in Children (MIS-C) Associated with SARS-CoV-2 Infection Surveillance Interim Case Reporting Guide



### Purpose

The purpose of this document is to assist local, state, and territorial health departments with reporting cases of MIS-C to CDC after the new CSTE/CDC MIS-C surveillance case definition has gone into effect on January 1, 2023. This guide is to be used for cases that are **reported to CDC after January 1, 2023** but have an **MIS-C illness onset before January 1, 2023**. These potential MIS-C illnesses should be adjudicated as MIS-C cases using the 2020 CDC MIS-C case definition but submitted to CDC using the new CSTE/CDC MIS-C surveillance case definition report form. The following table provides detailed guidance on how to adjudicate using the 2020 CDC case definition while reporting with the CSTE/CDC case report form.

	<b>2020 CDC MIS-C Surveillance Case Definition Inclusion Criteria</b>	<b>2023 CSTE/ CDC MIS-C Surveillance Case Definition Inclusion Criteria</b>	<b>Instructions for completing 2023 CSTE/CDC MIS-C Surveillance Case Report Form*</b>
<b>Age</b>	Age <21 years	Age <21 years	Select 1.1 if age <21 years
<b>Fever</b>	Fever >38.0°C for ≥24 hours, or report of subjective fever lasting ≥24 hours	Subjective or documented fever (≥38.0°C)	Select 1.2 only if fever ≥24 hours (per 2020 case definition)
<b>Illness Severity</b>	Clinically severe illness requiring hospitalization	Illness with clinical severity requiring hospitalization or resulting in death	Select 1.3 only if patient hospitalized for their potential MIS-C illness
<b>Alternative Diagnosis</b>	No alternative plausible diagnosis	A more likely alternative diagnosis is not present	Select 1.4 if an alternative plausible diagnosis is not present
<b>Laboratory markers of inflammation</b>	Including, but not limited to one or more: elevated C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), fibrinogen, procalcitonin, d-dimer, ferritin, lactic acid dehydrogenase (LDH), or interleukin 6 (IL-6)	C-reactive protein ≥3.0 mg/dL (30 mg/L)	<ul style="list-style-type: none"> <li>• If CRP ≥3.0 mg/dL (30 mg/L), select 1.5</li> <li>• If CRP is elevated but &lt;3.0 mg/dL (30 mg/L), do not select 1.5 (i.e. leave blank)</li> <li>• If CRP result is not available but the patient has another elevated lab marker of inflammation that was previously included in the 2020 case definition do not select 1.5 (i.e. leave blank)</li> </ul>
<b>Organ System Involvement</b>			
	Multisystem (≥2) organ involvement	New onset manifestations in ≥2 of the following categories:	
<b>Cardiac</b>	Cardiac involvement includes: <ul style="list-style-type: none"> <li>• Shock/receipt of vasopressors</li> <li>• Elevated troponin</li> <li>• Elevated BNP/NT-proBNP</li> <li>• Abnormal echocardiogram</li> <li>• Arrhythmia</li> <li>• Congestive heart failure</li> </ul>	Includes only: <ul style="list-style-type: none"> <li>• Left ventricular ejection fraction &lt;55%</li> <li>• Coronary artery dilatation, aneurysm, or ectasia</li> </ul>	Select 1.6.1 if any 2020 markers of cardiac involvement are present <b>except shock</b> . If shock plus other 2020 markers of cardiac involvement are present, select 1.6.1 and 1.6.3 and report shock in 5.6. If shock is the only 2020 marker of cardiac involvement, select 1.6.3 only (do not select 1.6.1) and report shock in 5.6. Report elevated troponin in 4.1.1. Report congestive heart failure, myocarditis, pericarditis, pericardial

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	<ul style="list-style-type: none"> <li>• Myocarditis</li> <li>• Pericarditis</li> <li>• Hypotension</li> <li>• Coronary artery aneurysm</li> <li>• Coronary artery dilatation</li> <li>• Cardiac dysfunction/ Left ventricular dysfunction/ Right ventricular dysfunction</li> <li>• Pericardial effusion</li> <li>• Mitral valve regurgitation (any severity)</li> <li>• Other</li> </ul>	<ul style="list-style-type: none"> <li>• Troponin elevated above laboratory normal range or indicated as elevated in a clinical note</li> </ul>	effusion, coronary artery dilation/aneurysm, and cardiac dysfunction in 5.4. Report hypotension in 5.6. Report elevated BNP/NT-proBNP, arrhythmia, and mitral valve regurgitation in 5.4 under “other cardiac complications”.
<b>Shock</b>	In the 2020 case definition, shock was included within the cardiac organ system	Clinician diagnosis documented in medical records.	
<b>Renal</b>	Renal involvement includes: <ul style="list-style-type: none"> <li>• Acute kidney injury</li> <li>• Renal failure/ receipt of dialysis or continuous renal replacement therapy (CRRT)</li> </ul>	Renal involvement not included in 2023 case definition	If the patient has any 2020 markers of renal involvement (plus one other organ system involved) select 1.6 (indicating that two organ systems are involved). Report elevated creatinine in 4.1.5. Report renal failure/dialysis/CRRT in 6.1.
<b>Respiratory</b>	Respiratory involvement includes: <ul style="list-style-type: none"> <li>• Pneumonia</li> <li>• Acute respiratory distress syndrome (ARDS)</li> <li>• Pulmonary embolism</li> <li>• Cough</li> <li>• Shortness of breath</li> <li>• Chest pain/tightness</li> </ul>	Respiratory involvement not included in 2023 case definition	If the patient has any 2020 markers of respiratory involvement (plus one other organ system involved) select 1.6 (indicating that two organ systems are involved). Report cough and shortness of breath in 3.6.3. Report chest pain/tightness in 3.6.5. Report pneumonia and ARDS in 5.5. Report pulmonary embolism in 5.5 under “other respiratory complications”.
<b>Hematologic</b>	Hematologic involvement includes: <ul style="list-style-type: none"> <li>• Elevated D-dimers</li> <li>• Thrombophilia</li> <li>• Thrombocytopenia</li> <li>• Deep vein thrombosis (DVT)</li> <li>• Lymphopenia</li> </ul>	Includes only: <ul style="list-style-type: none"> <li>• Thrombocytopenia (platelet count &lt;150,000 cells/μL)</li> <li>• Lymphopenia (absolute lymphocyte count [ALC] &lt;1,000 cells/μL)</li> </ul>	Select 1.6.5 if any 2020 markers of hematologic involvement are present. Even though the 2020 MIS-C case definition does not specifically name lymphopenia as hematologic involvement, lymphopenia (ALC <1,000 cells/μL) can be used as a marker of hematologic involvement for the 2020 case definition. If lymphopenia is present, select 1.6.5. and also report lymphopenia under 5.8. Report DVT, thrombophilia, and elevated D-dimer in 5.9 under other complications.

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<b>Gastrointestinal</b>	Gastrointestinal involvement includes: <ul style="list-style-type: none"> <li>Elevated bilirubin</li> <li>Elevated liver enzymes (aspartate aminotransferase [AST] or alanine aminotransferase [ALT])</li> <li>Diarrhea</li> <li>Abdominal pain</li> <li>Vomiting</li> </ul>	Includes only: <ul style="list-style-type: none"> <li>Abdominal pain</li> <li>Vomiting</li> <li>Diarrhea</li> </ul>	Select 1.6.4 if any 2020 markers of gastrointestinal involvement are present. Report elevated bilirubin in 5.7 under “other complications”. Report elevated liver enzymes under 4.1.3 and/or 4.1.4. Report diarrhea, abdominal pain, and vomiting under 3.6.4.
<b>Dermatologic/ Mucocutaneous</b>	Dermatologic/mucocutaneous involvement Includes: <ul style="list-style-type: none"> <li>rash</li> <li>mucocutaneous lesions (including conjunctival injection)</li> </ul>	Includes only: <ul style="list-style-type: none"> <li>Rash</li> <li>Inflammation of the oral mucosa</li> <li>Conjunctivitis or conjunctival injection</li> <li>Extremity findings</li> </ul>	Select 1.6.2 if any 2020 markers of dermatologic/mucocutaneous involvement are present. Report rash, inflammation of oral mucosa, and conjunctival injection in 3.6.1.
<b>Neurologic</b>	Neurologic involvement Includes: <ul style="list-style-type: none"> <li>Cerebrovascular accident (CVA) or stroke</li> <li>Aseptic meningitis</li> <li>Encephalopathy</li> <li>Altered mental status</li> <li>Headache</li> <li>Meningitis/encephalitis</li> <li>Encephalopathy</li> <li>Cerebrospinal fluid (CSF) white blood cell count (WBC) or protein elevated above normal range OR, CSF glucose decreased below normal range</li> </ul>	Neurologic involvement not included in 2023 case definition	If the patient has any 2020 markers of neurologic involvement (plus one other organ system involved) select 1.6 (indicating that two organ systems are involved). Report CVA/stroke, meningitis, encephalitis, encephalopathy under 5.9. Report headache and altered mental status under 3.6.2. Report CSF studies in 4.2.
<b>SARS-CoV-2 laboratory testing criteria or epidemiologic linkage criteria</b>			
	Positive for current or recent SARS-COV-2 infection by RT-PCR or antigen test	Positive viral test (i.e., NAAT/PCR or antigen) during hospitalization or within 60 days prior	The 2020 MIS-C case definition does not specify a time interval from prior positive SARS-CoV-2 test to MIS-C illness onset.  If the patient has a past positive SARS-CoV-2 NAAT/PCR or antigen test reported in the medical record as clinically relevant to their current MIS-C hospitalization

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			<p>but not within 60 days of their MIS-C hospitalization, select 1.7 (but not 1.7.1).</p> <p>If the patient has a past positive SARS-CoV-2 NAAT/PCR or antigen test within 60 days of their MIS-C hospitalization, select 1.7 and 1.7.1.</p> <p>If the patient has a positive SARS-CoV-2 NAAT/PCR or antigen <u>during MIS-C admission</u>, select 1.7 and 1.7.1 and provide the test details in 4.3.</p>
	Positive viral test in a post-mortem specimen is not specifically mentioned in the 2020 case definition but can be used to satisfy the SARS-CoV-2 testing criterion.	Positive viral test (i.e., NAAT/PCR or antigen) in a post-mortem specimen	If the patient has a SARS-CoV-2 positive post-mortem specimen test select 1.7 and 1.7.2.
	Positive for current or recent SARS-COV-2 infection by serology test	Detection of SARS-CoV-2 specific antibodies associated with current illness	<p>If the patient has a past positive SARS-CoV-2 antibody test reported in the medical record as clinically relevant to their current MIS-C hospitalization select 1.7 and 1.7.3.</p> <p>If the patient has a positive antibody test <u>during MIS-C admission</u>, select 1.7 and 1.7.3 and provide the test details in 4.3.</p>
	COVID-19 exposure within the 4 weeks prior to the onset of symptoms	Close contact with a confirmed or probable case of COVID-19 disease in the 60 days prior to hospitalization	The 2020 MIS-C case definition close contact criterion specifies “exposure to a suspected or confirmed COVID-19 case within the 4 weeks prior to the onset of symptoms.” If the patient has had exposure within 4 weeks, select 1.7, 1.7.4, and report details in 3.1, and 3.1.1.
	Deaths were reported on case report form but not included in the case definition criteria.	Death certificate lists MIS-C as an underlying cause of death or a significant condition contributing to death	Enter all available information into the case report form as usual and enter death as the outcome under 3.5.

\*MIS-C cases reported after January 1, 2023 with MIS-C illness onset before January 1, 2023