**MYOPERICARDITIS EVALUATION**

After COVID-19 Vaccination

**SYMPTOMS**
(Children, age 12 and older*)

- Chest Pain
- Shortness of breath
- Palpitations

**EVALUATION**

**RECENT MRNA COVID19 VACCINE?¹**

<table>
<thead>
<tr>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine Chest Pain Evaluation</td>
<td>Check cardiac enzymes²</td>
</tr>
<tr>
<td>History &amp; Physical Exam</td>
<td>WNL</td>
</tr>
<tr>
<td>Referral to Pediatric Cardiology, if indicated³</td>
<td>Elevated</td>
</tr>
</tbody>
</table>

**DIAGNOSIS**

Elevated WNL: Consult Pediatric Cardiology

**MANAGEMENT**

Consider Admission (at discretion of physician)

EKG⁵, Echo, SARS-CoV-2 Evaluation⁴, Trend Enzymes

<table>
<thead>
<tr>
<th>Normal</th>
<th>Abnormal</th>
</tr>
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<tbody>
<tr>
<td>Supportive care (NSAID, rest)</td>
<td>Care concurrent with diagnostic and clinical findings</td>
</tr>
<tr>
<td>Pediatric Infectious Diseases consult and additional work-up⁷</td>
<td></td>
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</tbody>
</table>

**FOOTNOTES**

* Children <12 years of age may instead present with 2 or more of the following: irritability, vomiting, poor feeding, tachypnea or lethargy

¹ Recent vaccination = within past 7 days; ask if 1st or 2nd dose

² Cardiac Enzymes = Troponin I, CK-MB. May also add inflammatory markers such as ESR and CRP.

³ Refer to “red flag cardiac symptoms”: chest pain or fainting with exercise, pain that radiates to back, jaw, left arm or shoulder, pain worse when lying down or pain with fever.


⁵ VAERS (Vaccine Adverse Event Reporting System) – all post-vaccination cases of myopericarditis should be reported to VAERS, regardless of clinician causality assessment; primary team/physician should report online at www.vaers.hhs.gov

⁶ EKG abnormalities (per CDC working case definition) include ST elevation and T wave inversion or PR-depression (pericarditis)

⁷ Additional Infectious Diseases Evaluation (per CNH Myocarditis Protocol); obtain prior to any IVIg administration if possible

- Lyme Disease Screen with reflex confirmatory Western Blot
- EBV antibody panel (including VCA IgG, VCA IgM, EBNA IgG)
- EBV quantitative blood PCR
- CMV IgM and IgG
- CMV quantitative blood PCR
- Adenovirus blood PCR
- Enterovirus blood PCR
- Parechoivirus blood PCR
- Parvovirus blood PCR
- HIV 1/2 Ag/Ab screen (4th gen)
- Multiplex Respiratory Pathogen PCR Panel
- Mycoplasma blood PCR

All probable or confirmed cases of myopericarditis following COVID-19 vaccination should be reported to VAERS online by primary team/PCP⁴ www.vaers.hhs.gov
### CDC Case Definition for Acute Myocarditis

#### Probable
Presence of ≥ 1 new or worsening clinical symptoms:
- Chest pain/pressure/discomfort
- Dyspnea/shortness of breath/pain with breathing
- Palpitations
- Syncope

**OR**
Infant and children < 12 may instead present with ≥ 2 of the following symptoms:
- Irritability
- Vomiting
- Poor feeding
- Tachypnea
- Lethargy

**AND**
- ≥ 1 new finding of:
  - Troponin > ULN
  - Abnormal EKG findings, specifically:
    - ST-segment or T-wave abnormalities
    - Paroxysmal or sustained arrhythmias
    - AV nodal conduction delays or IV conduction defects
  - Abnormal cardiac function on echocardiogram
  - cMRI findings consistent with myocarditis (Lake Louise criteria)

**AND**
No other identifiable cause of the symptoms/finding

#### Confirmed
Presence of ≥ 1 new or worsening clinical symptoms:
- Chest pain/pressure/discomfort
- Dyspnea/shortness of breath/pain with breathing
- Palpitations
- Syncope

**OR**
Infant and children < 12 may instead present with ≥ 2 of the following symptoms:
- Irritability
- Vomiting
- Poor feeding
- Tachypnea
- Lethargy

**AND**
- Histopathologic confirmation of myocarditis
- Troponin > ULN PLUS cMRI findings consistent with myocarditis (Dallas criteria)

**AND**
No other identifiable cause of symptoms/findings

### CDC Case Definition for Acute Pericarditis

Presence of ≥ 2 new or worsening of the following clinical features:
- Acute chest pain
- Typically worse when lying down, with deep inspiration or with cough and relieved by sitting up/leaning forward
- Pericardial rub on exam
- New ST-elevation or PR-depression on EKG
- New or worsening pericardial effusion on echocardiogram or MRI

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For questions regarding this algorithm, please contact Dr. Annette Ansong at AAnsong@ChildrensNational.org or Dr. Alexandra Yonts at AYonts@ChildrensNational.org