

## 2021 NHSN Cardiovascular System Infection (CVS) Checklist

Documentation Review Checklist		
CVS - CARDIOVASCULAR SYSTEM INFECTION		
CARD-Myocarditis or pericarditis		
Element	Element Met	Date
Myocarditis or pericarditis must meet at least <b>one</b> of the following criteria:		
1. Patient has organism(s) identified from pericardial tissue or fluid by a culture or non-culture based microbiologic testing method, which is performed for purposes of clinical diagnosis or treatment, for example, not Active Surveillance Culture/Testing (ASC/AST).	<input type="checkbox"/>	
2. Patient has at least <b>two</b> of the following signs or symptoms:		
• Fever (>38.0°C)	<input type="checkbox"/>	
• Chest pain*	<input type="checkbox"/>	
• Paradoxical pulse*	<input type="checkbox"/>	
• Increased heart size*	<input type="checkbox"/>	
<b>AND</b> at least <b>one</b> of the following:		
a. Abnormal EKG consistent with myocarditis or pericarditis.	<input type="checkbox"/>	
b. Evidence of myocarditis or pericarditis on histologic exam of heart tissue.	<input type="checkbox"/>	
c. 4-fold rise in paired sera from IgG antibody titer.	<input type="checkbox"/>	
d. Pericardial effusion identified by echocardiogram, CT scan, MRI, or angiography.	<input type="checkbox"/>	
3. Patient <b>≤1 year of age</b> has at least <b>two</b> of the following signs or symptoms:		
• Fever (>38.0°C)	<input type="checkbox"/>	
• Hypothermia (<36.0°C)	<input type="checkbox"/>	
• Apnea*	<input type="checkbox"/>	
• Bradycardia*	<input type="checkbox"/>	
• Paradoxical pulse*	<input type="checkbox"/>	
• Increased heart size*	<input type="checkbox"/>	
<b>AND</b> at least <b>one</b> of the following:		
a. Abnormal EKG consistent with myocarditis or pericarditis.	<input type="checkbox"/>	
b. Histologic examination of heart tissue shows evidence of myocarditis or pericarditis.	<input type="checkbox"/>	
c. 4-fold rise in paired sera from IgG antibody titer.	<input type="checkbox"/>	
d. Pericardial effusion identified by echocardiogram, CT scan, MRI, or angiography.	<input type="checkbox"/>	
<i>*With no other recognized cause</i>		

## CVS - CARDIOVASCULAR SYSTEM INFECTION

### ENDO-Endocarditis

**Note: When meeting the Endocarditis (ENDO) definition:**

- The ENDO Infection Window Period is defined as the 21 days during which all site-specific infection criteria must be met. It includes the date the first positive diagnostic test that is used as an element of the ENDO criterion was obtained, the 10 calendar days before and the 10 calendar days after. The Infection Window Period is lengthened for this event to accommodate the **extended** diagnostic timeframe that is frequently required to reach a clinical determination of endocarditis.
- The RIT for Endocarditis (ENDO) is extended to include the remainder of the patient's current admission.
- When meeting the Endocarditis (ENDO) definition, the secondary BSI attribution period includes the 21-day infection window period **and all subsequent days of the patient's current admission.**
  - As a result of this lengthy secondary BSI attribution period, secondary BSI pathogen assignment for ENDO is limited to organism(s) identified in blood specimen that match the organism(s) used to meet the ENDO definition.

Element	Element Met	Date
Endocarditis of a natural or prosthetic heart valve must meet at least <b>one</b> of the following criteria:		
1. Organism(s) identified from cardiac vegetation* <sup>†</sup> , embolized vegetation (for example, solid-organ abscess) documented as originating from cardiac source, or intracardiac abscess by a culture or non-culture based microbiologic testing method, which is performed for purposes of clinical diagnosis or treatment, for example, not Active Surveillance Culture/Testing (ASC/AST).	<input type="checkbox"/>	
2. Organism(s) seen on histopathologic examination of cardiac vegetation*, embolized vegetation (for example, solid organ abscess) documented as originating from cardiac source, or intracardiac abscess.	<input type="checkbox"/>	
3. Endocarditis seen on histopathologic examination of cardiac vegetation* or intracardiac abscess.	<input type="checkbox"/>	
4. At least <b>one</b> of the following echocardiographic evidence of endocarditis* <sup>‡</sup> :		
i. Vegetation on cardiac valve or supporting structures	<input type="checkbox"/>	
ii. Intracardiac abscess	<input type="checkbox"/>	
iii. New partial dehiscence of prosthetic valve	<input type="checkbox"/>	
<b>AND</b> at least <b>one</b> of the following:		
a. Typical infectious endocarditis organism(s) (specifically, Viridans group streptococci, <i>Streptococcus bovis</i> , <i>Haemophilus</i> spp., <i>Actinobacillus actinomycetemcomitans</i> , <i>Cardiobacterium hominis</i> , <i>Eikenella corrodens</i> , <i>Kingella</i> spp., <i>Staphylococcus aureus</i> , <i>Enterococcus</i> spp.) identified from ≥2 matching blood collections drawn on separate occasions with no more than 1 calendar day between specimens by a culture or non-culture based microbiologic testing method, which is performed for purposes of clinical diagnosis or treatment, for example, not Active Surveillance Culture/Testing (ASC/AST).	<input type="checkbox"/>	
b. <i>Coxiella burnetii</i> identified by anti-phase I IgG antibody titer >1:800 or identified from blood by a culture or non-culture based microbiologic testing method, which is performed for purposes of clinical diagnosis or treatment, for example, not Active Surveillance Culture/Testing (ASC/AST).	<input type="checkbox"/>	



5. At least <b>three</b> of the following:		
i.	Prior endocarditis, prosthetic valve, uncorrected congenital heart disease, history of rheumatic heart disease, hypertrophic obstructive cardiomyopathy, or known IV drug use <sup>§</sup>	<input type="checkbox"/>
ii.	Fever (>38.0°C)	<input type="checkbox"/>
iii.	Vascular phenomena: major arterial emboli (specifically, embolic stroke, renal infarct, splenic infarct or abscess, digital ischemic/gangrene from embolic source), septic pulmonary infarcts, mycotic aneurysm (documented by imaging, seen in surgery, or described in gross pathological specimen), intracranial hemorrhage, conjunctival hemorrhage, or Janeway's lesions documented	<input type="checkbox"/>
iv.	Immunologic phenomena: glomerulonephritis (documented in chart, or white cell or red blood cell casts on urinalysis), Osler's nodes, Roth's spots, or positive rheumatoid factor	<input type="checkbox"/>
<b>AND</b> at least <b>one</b> of the following:		
a.	Typical infectious endocarditis organism(s) (specifically, Viridans group streptococci, <i>Streptococcus bovis</i> , <i>Haemophilus</i> spp., <i>Actinobacillus actinomycetemcomitans</i> , <i>Cardiobacterium hominis</i> , <i>Eikenella corrodens</i> , <i>Kingella</i> spp., <i>Staphylococcus aureus</i> , <i>Enterococcus</i> spp.) identified from ≥2 matching blood collections drawn on separate occasions with no more than 1 calendar day between specimens by a culture or non-culture based microbiologic testing method, which is performed for purposes of clinical diagnosis or treatment, for example, not Active Surveillance Culture/Testing (ASC/AST).	<input type="checkbox"/>
b.	<i>Coxiella burnetii</i> identified by anti-phase I IgG antibody titer >1:800 or identified from blood by a culture or non-culture based microbiologic testing method, which is performed for purposes of clinical diagnosis or treatment, for example, not Active Surveillance Culture/Testing (ASC/AST).	<input type="checkbox"/>
6. At least <b>one</b> of the following*†:		
i.	Vegetation on cardiac valve or supporting structures seen on echocardiogram	<input type="checkbox"/>
ii.	Intracardiac abscess seen on echocardiogram	<input type="checkbox"/>
iii.	New partial dehiscence of prosthetic valve seen on echocardiogram	<input type="checkbox"/>
<b>AND</b> at least <b>three</b> of the following:		
a.	Prior endocarditis, prosthetic valve, uncorrected congenital heart disease, history of rheumatic heart disease, hypertrophic obstructive cardiomyopathy, or known IV drug use <sup>§</sup>	<input type="checkbox"/>
b.	Fever (>38.0°C)	<input type="checkbox"/>
c.	Vascular phenomena: major arterial emboli (specifically, embolic stroke, renal infarct, splenic infarct or abscess, digital ischemic/gangrene from embolic source), septic pulmonary infarcts, mycotic aneurysm (documented by imaging, seen in surgery, or described in gross pathological specimen), intracranial hemorrhage, conjunctival hemorrhage, or Janeway's lesions documented	<input type="checkbox"/>
d.	Immunologic phenomena: glomerulonephritis (documented in chart, or white cell or red blood cell casts on urinalysis), Osler's nodes, Roth's spots, or positive rheumatoid factor	<input type="checkbox"/>
e.	Identification of organism(s) from the blood by at least <b>one</b> of the following methods: <ul style="list-style-type: none"> <li>Recognized pathogen(s) identified from blood by a culture or non-culture based microbiologic testing method, which is performed for purposes of clinical diagnosis or treatment, for example, not Active Surveillance Culture/Testing (ASC/AST).</li> </ul>	<input type="checkbox"/>



<ul style="list-style-type: none"> <li>• Same common commensal organism(s) identified from <math>\geq 2</math> blood collections drawn on separate occasions on the same or consecutive days by a culture or non-culture based microbiologic testing method, which is performed for purposes of clinical diagnosis or treatment, for example, not Active Surveillance Culture/Testing (ASC/AST).</li> </ul>		
<b>7. <i>All</i> of the following criteria:</b>		
a. Prior endocarditis, prosthetic valve, uncorrected congenital heart disease, history of rheumatic heart disease, hypertrophic obstructive cardiomyopathy, or known IV drug use <sup>§</sup>	<input type="checkbox"/>	
b. Fever ( $>38.0^{\circ}\text{C}$ )	<input type="checkbox"/>	
c. Vascular phenomena: major arterial emboli (specifically, embolic stroke, renal infarct, splenic infarct or abscess, digital ischemic/gangrene from embolic source), septic pulmonary infarcts, mycotic aneurysm (documented by imaging, seen in surgery, or described in gross pathological specimen), intracranial hemorrhage, conjunctival hemorrhages, or Janeway’s lesions documented	<input type="checkbox"/>	
d. Immunologic phenomena: glomerulonephritis (documented on chart, or white cell or red blood cell casts on urinalysis), Osler’s nodes, Roth’s spots, or positive rheumatoid factor	<input type="checkbox"/>	
e. Identification of organism(s) from the blood by at least <b><i>one</i></b> of the following methods: <ul style="list-style-type: none"> <li>• Recognized pathogen(s) identified from blood by a culture or non-culture based microbiologic testing method, which is performed for purposes of clinical diagnosis or treatment, for example, not Active Surveillance Culture/Testing (ASC/AST).</li> <li>• Same common commensal organism(s) identified from <math>\geq 2</math> blood collections drawn on separate occasions on the same or consecutive days by a culture or non-culture based microbiologic testing method, which is performed for purposes of clinical diagnosis or treatment, for example, not Active Surveillance Culture/Testing (ASC/AST).</li> </ul>	<input type="checkbox"/>	
<p>* Cardiac vegetation can be found on a cardiac valve, pacemaker/defibrillator lead, or ventricular assist device (VAD) components within the heart.</p> <p>† The following can also meet the definition of a “cardiac vegetation”:</p> <ul style="list-style-type: none"> <li>• Positive culture from a cardiac valve, pacemaker/defibrillator lead, or ventricular assist device (VAD) components within the heart</li> </ul> <p>‡ Which if equivocal is supported by clinical correlation (specifically, physician documentation of antimicrobial treatment for endocarditis).</p> <p>§ Elements of 5i, 6a, and 7a documented during the current admission:</p> <ul style="list-style-type: none"> <li>• May be documented outside of the ENDO infection window period or SSI surveillance period.</li> <li>• Should not be used to set the ENDO date of event.</li> </ul>		

## CVS - CARDIOVASCULAR SYSTEM INFECTION

### MED-Mediastinitis

Element	Element Met	Date
Mediastinitis must meet at least <b>one</b> of the following criteria:		
1. Patient has organism(s) identified from mediastinal tissue or fluid by a culture or non-culture based microbiologic testing method, which is performed for purposes of clinical diagnosis or treatment, for example, not Active Surveillance Culture/Testing (ASC/AST).	<input type="checkbox"/>	
2. Patient has evidence of mediastinitis on gross anatomic or histopathologic exam.	<input type="checkbox"/>	
3. Patient has at least <b>one</b> of the following signs or symptoms:		
• Fever (>38.0°C)	<input type="checkbox"/>	
• Chest pain*	<input type="checkbox"/>	
• Sternal instability*	<input type="checkbox"/>	
<b>AND</b> at least <b>one</b> of the following:		
a. Purulent drainage from mediastinal area.	<input type="checkbox"/>	
b. Mediastinal widening on imaging test.	<input type="checkbox"/>	
4. Patient ≤1 year of age has at least <b>one</b> of the following signs or symptoms:		
• Fever (>38.0°C)	<input type="checkbox"/>	
• Hypothermia (<36.0°C)	<input type="checkbox"/>	
• Apnea*	<input type="checkbox"/>	
• Bradycardia*	<input type="checkbox"/>	
• Sternal instability*	<input type="checkbox"/>	
<b>AND</b> at least <b>one</b> of the following:		
a. Purulent drainage from mediastinal area.	<input type="checkbox"/>	
b. Mediastinal widening on imaging test.	<input type="checkbox"/>	
<i>*With no other recognized cause</i>		
<b>Comment:</b>		
<ul style="list-style-type: none"> <li>The mediastinal space is the area under the sternum and in front of the vertebral column, containing the heart and its large vessels, trachea, esophagus, thymus, lymph nodes, and other structures and tissues. It is divided into anterior, middle, posterior, and superior regions.</li> </ul>		
<b>Reporting instruction:</b>		
<ul style="list-style-type: none"> <li>Report mediastinitis (MED) following cardiac surgery that is accompanied by osteomyelitis as SSI-MED rather than SSI-BONE.</li> </ul>		

## CVS - CARDIOVASCULAR SYSTEM INFECTION

### VASC-Arterial or venous infection, excluding infections involving vascular access devices with organisms identified in the blood

**Note: If a patient meets the criteria for an LCBI in the presence of an arterial or vascular infection (VASC) report as an LCBI not as a VASC.**

\*\*Occasionally, a patient with both a central line and another vascular access device will have pus at the other access site. If the BSI meets the CLABSI criteria and **BOTH** of the following are present within the infection window period, mark the vascular access data field, "Matching organism is identified in blood and from a site-specific specimen, both collected within the infection window period and pus is present at one of the following vascular sites from which the specimen was collected" as "Yes" and risk factor "Central line" as "Yes":

- Pus at the site

**AND**

- Specimen collected from the site of one of the following has at least one matching organism to organism(s) identified in a blood specimen:
  - Arterial catheters
  - Arteriovenous fistula
  - Arteriovenous graft
  - Atrial catheters (also known as transthoracic intra-cardiac catheters, those catheters inserted directly into the right or left atrium via the heart wall)
  - Hemodialysis reliable outflow (HERO) dialysis catheters
  - Intra-aortic balloon pump (IABP) devices
  - Non-accessed central line (not accessed nor inserted during the hospitalization)
  - Peripheral IV or Midlines

Element	Element Met	Date
Arterial or venous infection must meet at least <b><u>one</u></b> of the following criteria:		
1. Patient has organism(s) from extracted arteries or veins identified by a culture or non-culture based microbiologic testing method, which is performed for purposes of clinical diagnosis or treatment, for example, not Active Surveillance Culture/Testing (ASC/AST).	<input type="checkbox"/>	
2. Patient has evidence of arterial or venous infection on gross anatomic or histopathologic exam.	<input type="checkbox"/>	
3. Patient has at least <b><u>one</u></b> of the following signs or symptoms:		
• Fever (>38.0°C)	<input type="checkbox"/>	
• Pain*	<input type="checkbox"/>	
• Erythema*	<input type="checkbox"/>	
• Heat at involved vascular site*	<input type="checkbox"/>	
<b><u>AND</u></b>		
• More than 15 colonies cultured from intravascular cannula tip using semi-quantitative culture method.	<input type="checkbox"/>	
4. Patient has purulent drainage at involved vascular site.	<input type="checkbox"/>	
5. Patient ≤1 year of age has at least <b><u>one</u></b> of the following signs or symptoms:		
• Fever (>38.0°C)	<input type="checkbox"/>	
• Hypothermia (<36.0°C)	<input type="checkbox"/>	

• Apnea*	<input type="checkbox"/>	
• Bradycardia*	<input type="checkbox"/>	
• Lethargy*	<input type="checkbox"/>	
• Pain*	<input type="checkbox"/>	
• Erythema*	<input type="checkbox"/>	
• Heat at involved vascular site*	<input type="checkbox"/>	
<b>AND</b>		
• More than 15 colonies cultured from intravascular cannula tip using semi-quantitative culture method.	<input type="checkbox"/>	
<i>*With no other recognized cause</i>		
<b>Reporting instructions:</b> <ul style="list-style-type: none"> <li>• Report infections of an arteriovenous graft, shunt, fistula, or intravascular cannulation site without organism(s) identified from blood as CVS-VASC.</li> <li>• Report Organ Space VASC infections as an SSI and not an LCBI when you have an SSI with secondary BSI.</li> <li>• Report intravascular infections with organism(s) identified from the blood and meeting the LCBI criteria as BSI-LCBI.</li> </ul>		