American College of Radiology
ACR Appropriateness Criteria®

Congenital or Acquired Heart Disease

Variant 1: Child or adult. Repaired tetralogy of Fallot or pulmonary valve stenosis with concern for pulmonary valve dysfunction or branch pulmonary artery stenosis. Incomplete or inadequate assessment of cardiovascular morphology and function after transthoracic echocardiography. Next imaging study.

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**Variant 2:** Child or adult. Transposition of the great arteries after atrial switch. Incomplete or inadequate assessment of cardiovascular morphology and function after transthoracic echocardiography. Next imaging study.

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**Variant 3:** Child or adult. Transposition of the great arteries after arterial switch. Incomplete or inadequate assessment of cardiovascular morphology and function after transthoracic echocardiography. Next imaging study.

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50 (24254479)

49 (-3194075)

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Variant 8: Child or adult. Known or suspected anomalous pulmonary venous return with inadequate evaluation after transthoracic echocardiography. Next imaging study.

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- 68 (22236895)
- 67 (29550261)
- 66 (19506848)
- 65 (23341089)
- 64 (11044048)

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- 70 (8126275)
- 69 (19184180)
- 68 (22236895)

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MRI heart function with stress without and with IV contrast

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MRA neck with and with IV contrast

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FDG-PET/CT heart

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SPECT or SPECT/CT MPI rest and stress

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Variant 9: Child or adult. Suspected aortic coarctation with inadequate evaluation after transthoracic echocardiography. Next imaging study.
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CTA chest with IV contrast
- 79 (25714305)
- 78 (28377475)
- 77 (14975985)

MRA chest without and with IV contrast
- 82 (21861960)
- 81 (15699283)
- 80 (8489869)
- 79 (25714305)

MRA chest without IV contrast
- 82 (21861960)
- 81 (15699283)
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MRI heart function and morphology without IV contrast
- 75 (21947983)

MRI heart function and morphology without and with IV contrast
- 75 (21947983)
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Usually not appropriate

[variant 10: Child. Known aortopathy or connective tissue disease. Surveillance of the aorta after inadequate or incomplete evaluation by transthoracic echocardiography. Next imaging study.]

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<td>0 mSv</td>
<td>7</td>
</tr>
<tr>
<td>MRA neck without and with IV contrast</td>
<td>Usually appropriate</td>
<td>0 mSv</td>
<td>7</td>
</tr>
<tr>
<td>MRI heart function and morphology without and with IV contrast</td>
<td>May be appropriate</td>
<td>0 mSv</td>
<td>6</td>
</tr>
<tr>
<td>CTA coronary arteries with IV contrast</td>
<td>May be appropriate</td>
<td>1-10 mSv</td>
<td>5</td>
</tr>
<tr>
<td>MRI heart function and morphology without IV contrast</td>
<td>May be appropriate</td>
<td>0 mSv</td>
<td>5</td>
</tr>
<tr>
<td>US echocardiography transesophageal</td>
<td>May be appropriate</td>
<td>0 mSv</td>
<td>4</td>
</tr>
<tr>
<td>CT heart function and morphology with IV contrast</td>
<td>Usually not appropriate</td>
<td>10-30 mSv</td>
<td>3</td>
</tr>
<tr>
<td>Procedure</td>
<td>Appropriateness</td>
<td>Expert Consensus</td>
<td>Radiation Dose</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>-----------------</td>
<td>------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Radiography chest</td>
<td>Usually not appropriate</td>
<td></td>
<td>☢ &lt;0.1 mSv ☢ &lt;0.03 mSv [ped]</td>
</tr>
<tr>
<td>Arteriography pulmonary</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>☢☢☢☢ 10-30 mSv</td>
</tr>
<tr>
<td>Arteriography coronary with ventriculography</td>
<td>Usually not appropriate</td>
<td>Limited</td>
<td>☢☢☢ 1-10 mSv ☢☢☢☢ 3-10 mSv [ped]</td>
</tr>
<tr>
<td>MRI heart function with stress</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>O 0 mSv O 0 mSv [ped]</td>
</tr>
<tr>
<td>MRI heart function with stress without IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>O 0 mSv O 0 mSv [ped]</td>
</tr>
<tr>
<td>FDG-PET/CT heart</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>☢☢☢☢ 10-30 mSv ☢☢☢☢ 3-10 mSv [ped]</td>
</tr>
<tr>
<td>SPECT or SPECT/CT MPI rest and stress</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>☢☢☢☢ 10-30 mSv ☢☢☢☢ 10-30 mSv [ped]</td>
</tr>
</tbody>
</table>
Appendix Key
A more complete discussion of the items presented below can be found by accessing the supporting documents at the designated hyperlinks.

**Appropriateness Category**: The panel’s recommendation for a procedure based on the assessment of the risks and benefits of performing the procedure for the specified clinical scenario.

**SOE**: Strength of Evidence. The assessment of the amount and quality of evidence found in the peer reviewed medical literature for an appropriateness recommendation.

- **References**: The citation number and PMID for the reference(s) associated with the recommendation.
- **Study Quality**: The assessment of the quality of an individual reference based on the number of study quality elements described in the reference.

**RRL**: Relative Radiation Level. A population based assessment of the amount of radiation a typical patient may be exposed to during the specified procedure.

**Rating**: The final rating (1-9 scale) for the procedure as determined by the panel during rating rounds.

**Median**: The median rating (1-9 scale) for the procedure as determined by the panel during rating rounds.

**Final tabulations**: A histogram showing the number of panel members who rated the procedure as noted in the column heading (ie, 1, 2, 3, etc.).

Additional supporting documents about the AC methodology and processes can be found at [www.acr.org/ac](http://www.acr.org/ac).