American College of Radiology  
ACR Appropriateness Criteria®

Thoracic Aorta Interventional Planning and Follow-up

Variant 1: Planning for pre–thoracic endovascular repair (TEVAR) of thoracic aorta disease.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness Category</th>
<th>SOE</th>
<th>Adults RRL</th>
<th>Peds RRL</th>
<th>Rating</th>
<th>Median</th>
<th>Final Tabulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTA chest abdomen pelvis with IV contrast</td>
<td>Usually appropriate</td>
<td>✓✓✓✓✓ 30-100 mSv</td>
<td>9</td>
<td>n/a</td>
<td></td>
<td></td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>CTA chest with IV contrast</td>
<td>Usually appropriate</td>
<td>✓✓✓ 1-10 mSv</td>
<td>✓✓✓✓ 3-10 mSv [ped]</td>
<td>7</td>
<td>n/a</td>
<td></td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>MRA chest abdomen pelvis with IV contrast</td>
<td>Usually appropriate</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>7</td>
<td>n/a</td>
<td></td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>MRA chest with IV contrast</td>
<td>Usually appropriate</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>7</td>
<td>n/a</td>
<td></td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>MRA chest without IV contrast</td>
<td>May be appropriate</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>6</td>
<td>n/a</td>
<td></td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>MRA chest abdomen pelvis without IV contrast</td>
<td>May be appropriate</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>6</td>
<td>n/a</td>
<td></td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>US echocardiography transesophageal</td>
<td>May be appropriate</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>5</td>
<td>n/a</td>
<td></td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>Aortography chest abdomen pelvis</td>
<td>May be appropriate</td>
<td>✓✓✓✓ 10-30 mSv</td>
<td></td>
<td>5</td>
<td>n/a</td>
<td></td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>US duplex Doppler iliofemoral arteries</td>
<td>May be appropriate</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>5</td>
<td>n/a</td>
<td></td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>Procedure</td>
<td>Appropriateness Category</td>
<td>SOE</td>
<td>Adults RRL</td>
<td>Peds RRL</td>
<td>Rating</td>
<td>Median</td>
<td>Final Tabulations</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>--------------------------</td>
<td>-------</td>
<td>--------------------------</td>
<td>------------------------</td>
<td>--------</td>
<td>--------</td>
<td>------------------</td>
</tr>
<tr>
<td>CT chest abdomen pelvis without IV contrast</td>
<td>May be appropriate</td>
<td></td>
<td>✭✭✭✭ 10-30 mSv</td>
<td></td>
<td>4</td>
<td>n/a</td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>CT chest without IV contrast</td>
<td>May be appropriate</td>
<td></td>
<td>✭✭✭ 1-10 mSv</td>
<td>✭✭✭✭ 3-10 mSv</td>
<td>4</td>
<td>n/a</td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>US echocardiography transthoracic resting</td>
<td>May be appropriate</td>
<td></td>
<td>O 0 mSv</td>
<td></td>
<td>4</td>
<td>n/a</td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>US intravascular aorta</td>
<td>May be appropriate</td>
<td></td>
<td>O 0 mSv</td>
<td></td>
<td>4</td>
<td>n/a</td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>CT chest abdomen pelvis without and with IV contrast</td>
<td>Usually not appropriate</td>
<td></td>
<td>✭✭✭✭ 10-30 mSv</td>
<td></td>
<td>3</td>
<td>n/a</td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>CT chest abdomen pelvis with IV contrast</td>
<td>Usually not appropriate</td>
<td></td>
<td>✭✭✭✭ 10-30 mSv</td>
<td></td>
<td>3</td>
<td>n/a</td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>CT chest without and with IV contrast</td>
<td>Usually not appropriate</td>
<td></td>
<td>✭✭✭ 1-10 mSv</td>
<td>✭✭✭✭ 3-10 mSv</td>
<td>3</td>
<td>n/a</td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>CT chest with IV contrast</td>
<td>Usually not appropriate</td>
<td></td>
<td>✭✭✭ 1-10 mSv</td>
<td>✭✭✭✭ 3-10 mSv</td>
<td>3</td>
<td>n/a</td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>FDG-PET/CT skull base to mid-thigh</td>
<td>Usually not appropriate</td>
<td></td>
<td>✭✭✭✭ 10-30 mSv</td>
<td>✭✭✭✭ 3-10 mSv</td>
<td>3</td>
<td>n/a</td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>Radiography chest</td>
<td>Usually not appropriate</td>
<td></td>
<td>✭ &lt;0.1 mSv</td>
<td>✭ &lt;0.03 mSv [ped]</td>
<td>2</td>
<td>n/a</td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
</tbody>
</table>

Variant 2: Follow-up for post–thoracic endovascular repair (TEVAR) of thoracic aortic disease.
<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness</th>
<th>Radiation Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTA chest with IV contrast</td>
<td>Usually appropriate</td>
<td>☢☢☢ 1-10 mSv ☢☢☢☢ 3-10 mSv [ped]</td>
</tr>
<tr>
<td>MRA chest abdomen pelvis with IV contrast</td>
<td>May be appropriate</td>
<td>0 0 mSv 0 0 mSv [ped]</td>
</tr>
<tr>
<td>MRA chest with IV contrast</td>
<td>May be appropriate</td>
<td>0 0 mSv 0 0 mSv [ped]</td>
</tr>
<tr>
<td>MRA chest without IV contrast</td>
<td>May be appropriate</td>
<td>0 0 mSv 0 0 mSv [ped]</td>
</tr>
<tr>
<td>MRA chest abdomen pelvis without IV contrast</td>
<td>May be appropriate</td>
<td>0 0 mSv 0 0 mSv [ped]</td>
</tr>
<tr>
<td>Aortography chest abdomen pelvis</td>
<td>May be appropriate</td>
<td>☢☢☢☢ 10-30 mSv</td>
</tr>
<tr>
<td>CT chest without IV contrast</td>
<td>May be appropriate</td>
<td>☢☢☢ 1-10 mSv ☢☢☢☢ 3-10 mSv [ped]</td>
</tr>
<tr>
<td>Radiography chest</td>
<td>May be appropriate</td>
<td>☢ &lt;0.1 mSv ☢ &lt;0.03 mSv [ped]</td>
</tr>
<tr>
<td>CT chest abdomen pelvis without IV contrast</td>
<td>May be appropriate</td>
<td>☢☢☢☢ 10-30 mSv</td>
</tr>
<tr>
<td>US echocardiography transesophageal</td>
<td>May be appropriate</td>
<td>0 0 mSv 0 0 mSv [ped]</td>
</tr>
<tr>
<td>US echocardiography transthoracic resting</td>
<td>May be appropriate</td>
<td>0 0 mSv 0 0 mSv [ped]</td>
</tr>
<tr>
<td>CT chest without and with IV contrast</td>
<td>Usually not appropriate</td>
<td>☢☢☢ 1-10 mSv ☢☢☢☢ 3-10 mSv [ped]</td>
</tr>
<tr>
<td>CT chest abdomen pelvis with IV contrast</td>
<td>Usually not appropriate</td>
<td>☢☢☢☢ 10-30 mSv</td>
</tr>
<tr>
<td>CT chest abdomen pelvis without and with IV contrast</td>
<td>Usually not appropriate</td>
<td>☢☢☢☢ 10-30 mSv</td>
</tr>
<tr>
<td>Procedure</td>
<td>Appropriateness</td>
<td>Radiation Exposure</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>--------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>CT chest with IV contrast</td>
<td>Usually not appropriate</td>
<td>1-10 mSv</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3-10 mSv [ped]</td>
</tr>
<tr>
<td>US duplex Doppler aorta abdomen</td>
<td>Usually not appropriate</td>
<td>0 mSv</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 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).