# American College of Radiology

**ACR Appropriateness Criteria®**

**Growth Disturbances–Risk of Fetal Growth Restriction**

**Variant 1:** Growth disturbance. Low risk for fetal growth restriction. Initial evaluation.

<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>
</tr>
</thead>
<tbody>
<tr>
<td>US pregnant uterus transabdominal</td>
<td>Usually appropriate</td>
<td>Limited</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>US pregnant uterus biophysical profile</td>
<td>Usually not appropriate</td>
<td>Limited</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>US duplex Doppler fetal umbilical artery</td>
<td>Usually not appropriate</td>
<td>Limited</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>US duplex Doppler maternal uterine artery</td>
<td>Usually not appropriate</td>
<td>Limited</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>US duplex Doppler ductus venosus</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

References

- Study Quality
  - 1
  - 2
  - 3
  - 4
  - 5
  - 6
  - 7
  - 8
  - 9

- 26 (26031399)
- 27 (2404302)
- 31 (2178428)
- 28 (26112630)
- 29 (28712949)
- 30 (24277892)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness</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>US duplex Doppler fetal middle cerebral artery</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>0 0 mSv</td>
<td>0 0 mSv [ped]</td>
<td>2</td>
<td>2</td>
<td>4 6 2 0 0 0 0 0 0</td>
</tr>
<tr>
<td>US pregnant uterus transabdominal</td>
<td>Usually appropriate</td>
<td>Expert Consensus</td>
<td>0 0 mSv</td>
<td>0 0 mSv [ped]</td>
<td>9</td>
<td>9</td>
<td>0 0 0 0 0 0 2 10 0</td>
</tr>
<tr>
<td>US pregnant uterus biophysical profile</td>
<td>Usually appropriate</td>
<td>Limited</td>
<td>0 0 mSv</td>
<td>0 0 mSv [ped]</td>
<td>7</td>
<td>7</td>
<td>0 0 0 0 3 2 3 4 1</td>
</tr>
</tbody>
</table>

**References**

- Study Quality
  - 18 (16319247)
  - 27 (2404302)
  - 32 (-3130664)

- Study Quality
  - 35 (7755042)
  - 19 (17267821)
  - 33 (25810352)
  - 34 (25346413)

**Study Quality**

- M
- 3
Variant 3: Established fetal growth restriction. Follow-up evaluation.

<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>US pregnant uterus biophysical profile</td>
<td>Usually appropriate</td>
<td>Limited</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>9</td>
<td>9</td>
<td>0 0 0 0 0 0 1 0 2 9</td>
</tr>
<tr>
<td>US pregnant uterus transabdominal</td>
<td>Usually appropriate</td>
<td>Limited</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>9</td>
<td>9</td>
<td>0 0 0 0 0 0 1 1 1 1</td>
</tr>
<tr>
<td>US duplex Doppler fetal umbilical artery</td>
<td>Usually appropriate</td>
<td>Strong</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>8</td>
<td>8</td>
<td>0 0 0 0 0 1 2 4 5 5</td>
</tr>
</tbody>
</table>

References

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Study Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>US pregnant uterus biophysical profile</td>
<td>25 (24931475)</td>
</tr>
<tr>
<td></td>
<td>32 (-3130664)</td>
</tr>
<tr>
<td>US pregnant uterus transabdominal</td>
<td>1 (24785859)</td>
</tr>
<tr>
<td></td>
<td>8 (24839087)</td>
</tr>
<tr>
<td></td>
<td>11 (23635765)</td>
</tr>
<tr>
<td>US duplex Doppler fetal umbilical artery</td>
<td>9 (15302194)</td>
</tr>
<tr>
<td></td>
<td>18 (16319247)</td>
</tr>
<tr>
<td></td>
<td>37 (24635223)</td>
</tr>
<tr>
<td></td>
<td>38 (25603682)</td>
</tr>
<tr>
<td></td>
<td>39 (25068564)</td>
</tr>
<tr>
<td></td>
<td>40 (23999424)</td>
</tr>
<tr>
<td></td>
<td>41 (25754212)</td>
</tr>
<tr>
<td></td>
<td>42 (25545442)</td>
</tr>
<tr>
<td></td>
<td>43 (25751217)</td>
</tr>
<tr>
<td></td>
<td>44 (28032647)</td>
</tr>
<tr>
<td></td>
<td>45 (23585420)</td>
</tr>
<tr>
<td>Procedure</td>
<td>Appropriateness</td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>US duplex Doppler ductus venosus</td>
<td>Usually appropriate</td>
</tr>
<tr>
<td></td>
<td>References</td>
</tr>
<tr>
<td>18 (16319247)</td>
<td></td>
</tr>
<tr>
<td>44 (28032647)</td>
<td></td>
</tr>
<tr>
<td>47 (25747582)</td>
<td></td>
</tr>
<tr>
<td>48 (28938063)</td>
<td></td>
</tr>
<tr>
<td>49 (27854382)</td>
<td></td>
</tr>
<tr>
<td>US duplex Doppler fetal middle cerebral artery</td>
<td>Usually appropriate</td>
</tr>
<tr>
<td></td>
<td>References</td>
</tr>
<tr>
<td>25 (24931475)</td>
<td></td>
</tr>
<tr>
<td>40 (23999424)</td>
<td></td>
</tr>
<tr>
<td>US duplex Doppler maternal uterine artery</td>
<td>May be appropriate</td>
</tr>
<tr>
<td></td>
<td>References</td>
</tr>
<tr>
<td>23 (25098960)</td>
<td></td>
</tr>
<tr>
<td>36 (25358519)</td>
<td></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.