### Ataxia-Child

**Variant 1:** Child. Acute ataxia, no history of recent trauma. Initial imaging.

<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>MRI head without and with IV contrast</td>
<td>Usually appropriate</td>
<td>Limited</td>
<td>0 mSv</td>
<td>0 mSv [ped]</td>
<td>8</td>
<td>8</td>
<td>1 0 0 0 1 2 2 4 8</td>
</tr>
<tr>
<td>References</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 (31327588)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 (30932991)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 (30948362)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT head without IV contrast</td>
<td>Usually appropriate</td>
<td>Limited</td>
<td>1-3 mSv</td>
<td>0.3-3 mSv [ped]</td>
<td>7</td>
<td>7</td>
<td>0 0 0 0 5 3 3 2 5</td>
</tr>
<tr>
<td>References</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 (23683541)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 (31327588)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 (30932991)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 (27789117)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28 (26444039)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26 (25535060)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRI head without IV contrast</td>
<td>Usually appropriate</td>
<td>Limited</td>
<td>0 mSv</td>
<td>0 mSv [ped]</td>
<td>7</td>
<td>7</td>
<td>0 0 1 0 2 1 6 4 4</td>
</tr>
<tr>
<td>References</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 (31327588)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 (30932991)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procedure</td>
<td>May be appropriate</td>
<td>Limited</td>
<td>1-10 mSv</td>
<td>3-10 mSv [ped]</td>
<td>References</td>
<td>Study Quality</td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>--------------------</td>
<td>---------</td>
<td>----------</td>
<td>----------------</td>
<td>------------</td>
<td>---------------</td>
<td></td>
</tr>
<tr>
<td>CTA head and neck with IV contrast</td>
<td>Limited</td>
<td>☢☢☢ 1-10 mSv</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRA head without IV contrast</td>
<td>Limited</td>
<td>☢☢☢☢ 0 mSv [ped]</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRA head and neck without IV contrast</td>
<td>Limited</td>
<td>☢☢☢氡 0 mSv [ped]</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRA neck without IV contrast</td>
<td>Limited</td>
<td>☢☢☢氡 0 mSv [ped]</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRI complete spine without IV contrast</td>
<td>Limited</td>
<td>☢☢☢氡 0 mSv [ped]</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References:
- 20 (30932991)
- 7 (27789117)
- 26 (25535060)
<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness</th>
<th>Radiation Dose</th>
<th>References</th>
<th>Study Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRI complete spine without and with IV contrast</td>
<td>May be appropriate</td>
<td>0.0 mSv</td>
<td>20 (30932991)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.0 mSv [ped]</td>
<td>29 (19898915)</td>
<td></td>
</tr>
<tr>
<td>MRA neck with IV contrast</td>
<td>May be appropriate</td>
<td>0.0 mSv</td>
<td>20 (30932991)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.0 mSv [ped]</td>
<td>7 (27789117)</td>
<td>4</td>
</tr>
<tr>
<td>CTA head with IV contrast</td>
<td>May be appropriate</td>
<td>1-10 mSv</td>
<td>20 (30932991)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3-10 mSv [ped]</td>
<td>7 (27789117)</td>
<td>4</td>
</tr>
<tr>
<td>CTA neck with IV contrast</td>
<td>May be appropriate</td>
<td>1-10 mSv</td>
<td>20 (30932991)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.3-3 mSv [ped]</td>
<td>7 (27789117)</td>
<td>4</td>
</tr>
<tr>
<td>CT head with IV contrast</td>
<td>Usually not appropriate</td>
<td>1-10 mSv</td>
<td>13 (23683541)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.3-3 mSv [ped]</td>
<td>18 (31327588)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>20 (30932991)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7 (27789117)</td>
<td>4</td>
</tr>
<tr>
<td>CT head without and with IV contrast</td>
<td>Usually not appropriate</td>
<td>Limited</td>
<td>☢☢☢ 1-10 mSv</td>
<td>☢☢☢☢ 3-10 mSv [ped]</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>------------------------</td>
<td>--------</td>
<td>---------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>MRV head and neck without IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
</tr>
<tr>
<td>MRV head without IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
</tr>
<tr>
<td>CTV head with IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>☢☢☢ 1-10 mSv</td>
<td>☢☢☢☢ 3-10 mSv [ped]</td>
</tr>
<tr>
<td>MRV head without and with IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
</tr>
<tr>
<td>MRI chest abdomen pelvis without and with IV contrast</td>
<td>Usually not appropriate</td>
<td>Limited</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
</tr>
</tbody>
</table>

References

<table>
<thead>
<tr>
<th>Study Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 (23683541)</td>
</tr>
<tr>
<td>18 (31327588)</td>
</tr>
<tr>
<td>20 (30932991)</td>
</tr>
<tr>
<td>7 (27789117)</td>
</tr>
<tr>
<td>28 (26444039)</td>
</tr>
<tr>
<td>26 (25535060)</td>
</tr>
</tbody>
</table>

MRV head with IV contrast

| Usually not appropriate | Expert Consensus | O 0 mSv | O 0 mSv [ped] | 2 | 2 | 8 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

References

<table>
<thead>
<tr>
<th>Study Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 (23683541)</td>
</tr>
<tr>
<td>2 (24716559)</td>
</tr>
</tbody>
</table>

CTM chest abdomen pelvis with IV contrast

<p>| Usually not appropriate | Limited | ☢☢☢ 10-30 mSv | ☢☢☢☢ 3-10 mSv [ped] | 1 | 1 | 10 | 1 | 1 | 2 | 4 | 0 | 0 | 0 | 0 |</p>
<table>
<thead>
<tr>
<th>Test Description</th>
<th>Appropriateness</th>
<th>Radiation Dose (mSv)</th>
<th>Study Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT chest abdomen pelvis without IV contrast</td>
<td>Usually not appropriate</td>
<td>☢☢☢☢ 10-30 mSv, ☢☢☢ 3-10 mSv [ped]</td>
<td>1 1 15 2 1 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>☢☢☢☢ 10-30 mSv, ☢☢☢☢ 3-10 mSv [ped]</td>
<td>1 1 14 1 2 0 1 0 0 0</td>
</tr>
<tr>
<td>MR spectroscopy head without IV contrast</td>
<td>Usually not appropriate</td>
<td>☢☢☢☢ 10-30 mSv</td>
<td>1 1 11 1 3 2 1 0 0 0</td>
</tr>
<tr>
<td>MIBG scan</td>
<td>Usually not appropriate</td>
<td>☢☢☢ 1-10 mSv, ☢☢☢☢ 3-10 mSv [ped]</td>
<td>1 1 11 7 0 1 0 0 0 0</td>
</tr>
<tr>
<td>MRI chest abdomen pelvis without IV contrast</td>
<td>Usually not appropriate</td>
<td>☢☢☢☢ 10-30 mSv</td>
<td>1 1 10 0 2 5 1 0 0 0</td>
</tr>
<tr>
<td>CT complete spine without and with IV contrast</td>
<td>Usually not appropriate</td>
<td>☢☢☢☢ 10-30 mSv, ☢☢☢☢ 3-10 mSv [ped]</td>
<td>1 1 14 2 2 0 0 0 0 0</td>
</tr>
<tr>
<td>CT complete spine without IV contrast</td>
<td>Usually not appropriate</td>
<td>☢☢☢☢ 10-30 mSv</td>
<td>1 1 13 3 2 0 0 0 0 0</td>
</tr>
</tbody>
</table>
### Variant 2: Child. Acute ataxia, history of recent trauma. Initial imaging.

<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>CT head without IV contrast</td>
<td>Usually appropriate</td>
<td>Limited</td>
<td>1-10 mSv</td>
<td>0.3-3 mSv [ped]</td>
<td>9</td>
<td>9</td>
<td>0 0 0 0 1 0 1 2 14</td>
</tr>
<tr>
<td>References</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>References</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7 (27789117)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>MRI head without IV contrast</td>
<td>Usually appropriate</td>
<td>Limited</td>
<td>0 mSv</td>
<td>0 mSv   [ped]</td>
<td>7</td>
<td>7</td>
<td>0 0 1 0 4 4 3 2 4</td>
</tr>
<tr>
<td>References</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>References</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 (22595899)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>26 (25535060)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>33 (21292802)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>32 (19863638)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>CTA head and neck with IV contrast</td>
<td>May be appropriate</td>
<td>Expert Consensus</td>
<td>1-10 mSv</td>
<td>0.3-3 mSv [ped]</td>
<td>6</td>
<td>6</td>
<td>0 0 0 1 6 4 8 0 0</td>
</tr>
<tr>
<td>CTA head with IV contrast</td>
<td>May be appropriate</td>
<td>Expert Consensus</td>
<td>1-10 mSv</td>
<td>0.3-3 mSv [ped]</td>
<td>5</td>
<td>5</td>
<td>0 0 0 0 15 3 1 0 0</td>
</tr>
<tr>
<td>CTA neck with IV contrast</td>
<td>May be appropriate</td>
<td>Expert Consensus</td>
<td>1-10 mSv</td>
<td>0.3-3 mSv [ped]</td>
<td>5</td>
<td>5</td>
<td>0 0 0 0 15 3 1 0 0</td>
</tr>
<tr>
<td>MRA head without IV contrast</td>
<td>May be appropriate</td>
<td>Expert Consensus</td>
<td>0 mSv</td>
<td>0 mSv [ped]</td>
<td>5</td>
<td>5</td>
<td>0 0 0 0 18 1 0 0 0</td>
</tr>
<tr>
<td>MRA head and neck without IV contrast</td>
<td>May be appropriate</td>
<td>Expert Consensus</td>
<td>0 mSv</td>
<td>0 mSv [ped]</td>
<td>5</td>
<td>5</td>
<td>0 0 0 0 17 2 0 0 0</td>
</tr>
<tr>
<td>Procedure</td>
<td>Appropriateness</td>
<td>Expert Consensus</td>
<td>Radiation Dose</td>
<td>Study Quality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>----------------------------------</td>
<td>-------------------</td>
<td>----------------</td>
<td>---------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRA neck without IV contrast</td>
<td>May be appropriate</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRA neck with IV contrast</td>
<td>May be appropriate</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRI head without and with IV contrast</td>
<td>Usually not appropriate</td>
<td>Limited</td>
<td>O 0 mSv</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT head with IV contrast</td>
<td>Usually not appropriate</td>
<td>Limited</td>
<td>1-10 mSv</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT head without and with IV contrast</td>
<td>Usually not appropriate</td>
<td>Limited</td>
<td>1-10 mSv</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRI complete spine without IV contrast</td>
<td>Usually not appropriate</td>
<td>Limited</td>
<td>O 0 mSv</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRI complete spine with IV contrast</td>
<td>Usually not appropriate</td>
<td>Limited</td>
<td>O 0 mSv</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRV head without IV contrast</td>
<td>Usually not appropriate</td>
<td>Limited</td>
<td>1-10 mSv</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CTV head with IV contrast</td>
<td>Usually not appropriate</td>
<td>Limited</td>
<td>3-10 mSv</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRV head and neck without IV contrast</td>
<td>Usually not appropriate</td>
<td>Limited</td>
<td>O 0 mSv</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References:
- 4 (22595899)
- 26 (25535060)
- 33 (21292802)
- 32 (19863638)
- 7 (27789117)

Study Quality:
- 4
- 2
- 4
### Variant 3: Child. Recurrent ataxia with interval normal neurology examination. Initial imaging.

<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>MRI head without IV contrast</td>
<td>Usually appropriate</td>
<td>Limited</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>8</td>
<td>8</td>
<td>1 2 3 4 5 6 7 8 9</td>
</tr>
<tr>
<td>MRI head without and with IV contrast</td>
<td>May be appropriate</td>
<td>Limited</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>5</td>
<td>5</td>
<td>2 0 1 0 10 6 0 0 0</td>
</tr>
</tbody>
</table>

References | Study Quality
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (28257643)</td>
<td>4</td>
</tr>
<tr>
<td>34 (28043238)</td>
<td>4</td>
</tr>
<tr>
<td>25 (22764177)</td>
<td>4</td>
</tr>
</tbody>
</table>

References | Study Quality
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (28257643)</td>
<td>4</td>
</tr>
<tr>
<td>34 (28043238)</td>
<td>4</td>
</tr>
<tr>
<td>25 (22764177)</td>
<td>4</td>
</tr>
<tr>
<td>Procedure</td>
<td>Appropriateness</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>MR spectroscopy head without IV contrast</td>
<td>May be appropriate</td>
</tr>
<tr>
<td>CTA neck with IV contrast</td>
<td>Usually not</td>
</tr>
<tr>
<td>CTA head and neck with IV contrast</td>
<td>Usually not</td>
</tr>
<tr>
<td>CT head without IV contrast</td>
<td>Usually not</td>
</tr>
<tr>
<td>MRA head without IV contrast</td>
<td>Usually not</td>
</tr>
<tr>
<td>MRA head and neck without IV contrast</td>
<td>Usually not</td>
</tr>
<tr>
<td>MRA neck without IV contrast</td>
<td>Usually not</td>
</tr>
<tr>
<td>MRA neck with IV contrast</td>
<td>Usually not</td>
</tr>
<tr>
<td>CTA head with IV contrast</td>
<td>Usually not</td>
</tr>
<tr>
<td>CT head with IV contrast</td>
<td>Usually not</td>
</tr>
<tr>
<td>CT head without and with IV contrast</td>
<td>Usually not</td>
</tr>
<tr>
<td>MRI complete spine without IV contrast</td>
<td>Usually not</td>
</tr>
<tr>
<td>MRI complete spine without and with IV contrast</td>
<td>Usually not</td>
</tr>
<tr>
<td>MRV head without IV contrast</td>
<td>Usually not</td>
</tr>
<tr>
<td>Procedure</td>
<td>Appropriateness Category</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>CTV head with IV contrast</td>
<td>Usually not appropriate</td>
</tr>
<tr>
<td>MRV head without and with IV contrast</td>
<td>Usually not appropriate</td>
</tr>
<tr>
<td>MRV head and neck without IV contrast</td>
<td>Usually not appropriate</td>
</tr>
<tr>
<td>MRV head with IV contrast</td>
<td>Usually not appropriate</td>
</tr>
<tr>
<td>CT complete spine without and with IV contrast</td>
<td>Usually not appropriate</td>
</tr>
<tr>
<td>CT complete spine without IV contrast</td>
<td>Usually not appropriate</td>
</tr>
<tr>
<td>CT complete spine with IV contrast</td>
<td>Usually not appropriate</td>
</tr>
</tbody>
</table>

**Variant 4:** Child. Chronic progressive ataxia. Initial imaging.

<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>MRI head without IV contrast</td>
<td>Usually appropriate</td>
<td>Strong</td>
<td>0 0 mSv</td>
<td>0 0 mSv</td>
<td>8</td>
<td>8</td>
<td>0 0 0 0 1 0 3 6 8</td>
</tr>
</tbody>
</table>

**References**

<table>
<thead>
<tr>
<th>Study Quality</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>41 (21701895)</td>
</tr>
<tr>
<td>2</td>
<td>46 (19631275)</td>
</tr>
<tr>
<td>4</td>
<td>45 (22764178)</td>
</tr>
<tr>
<td>4</td>
<td>4 (22595899)</td>
</tr>
<tr>
<td>4</td>
<td>39 (22816526)</td>
</tr>
<tr>
<td>3</td>
<td>42 (29922574)</td>
</tr>
<tr>
<td>MRI head without and with IV contrast</td>
<td>Usually appropriate</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>References</td>
<td>Study Quality</td>
</tr>
<tr>
<td>1 (28257643)</td>
<td></td>
</tr>
<tr>
<td>44 (27126632)</td>
<td></td>
</tr>
<tr>
<td>40 (20378176)</td>
<td></td>
</tr>
<tr>
<td>47 (30086112)</td>
<td></td>
</tr>
<tr>
<td>43 (27423800)</td>
<td></td>
</tr>
<tr>
<td>11 (27142713)</td>
<td></td>
</tr>
<tr>
<td>28 (26444039)</td>
<td></td>
</tr>
<tr>
<td>5 (23622410)</td>
<td></td>
</tr>
<tr>
<td>25 (22764177)</td>
<td></td>
</tr>
</tbody>
</table>

| CT head without IV contrast | May be appropriate | Limited | ⚠️⚠️ 1-10 mSv | ⚠️⚠️ 0.3-3 mSv [ped] | 5 | 5 | 1 | 0 | 0 | 2 | 13 | 2 | 1 | 0 | 0 |
|-----------------------------|-------------------|---------|---------------|-------------------|----|----|---|---|---|---|----|----|---|---|---|---|
| References                  | Study Quality     |         |               |                   |    |    |   |   |   |   |   |   |   |   |   |   |
| 14 (26940752)               |                   |         |               |                   |    |    |   |   |   |   |   |   |   |   |   |   |   |   |

MRI head without and with IV contrast: Usually appropriate

CT head without IV contrast: May be appropriate
## MRI complete spine without IV contrast
- May be appropriate
- Expert Consensus: O 0 mSv [ped]

## MRI complete spine without and with IV contrast
- May be appropriate
- Expert Consensus: O 0 mSv [ped]

## CT head with IV contrast
- Usually not appropriate
- Limited: ☢☢☢ 1-10 mSv [ped]
- ☢☢☢ 0.3-3 mSv [ped]

<table>
<thead>
<tr>
<th>References</th>
<th>Study Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 (26940752)</td>
<td>4</td>
</tr>
<tr>
<td>28 (26444039)</td>
<td>4</td>
</tr>
</tbody>
</table>

## CT head without and with IV contrast
- Usually not appropriate
- Limited: ☢☢☢ 1-10 mSv [ped]
- ☢☢☢ 3-10 mSv [ped]

<table>
<thead>
<tr>
<th>References</th>
<th>Study Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 (26940752)</td>
<td>4</td>
</tr>
<tr>
<td>28 (26444039)</td>
<td>4</td>
</tr>
</tbody>
</table>

## MRA head without IV contrast
- Usually not appropriate
- Expert Consensus: O 0 mSv [ped]

## MRA head and neck without IV contrast
- Usually not appropriate
- Expert Consensus: O 0 mSv [ped]

## MRA neck without IV contrast
- Usually not appropriate
- Expert Consensus: O 0 mSv [ped]

## MR spectroscopy head without IV contrast
- Usually not appropriate
- Expert Consensus: O 0 mSv [ped]

## CTA head with IV contrast
- Usually not appropriate
- Expert Consensus: ☢☢☢ 1-10 mSv [ped]
- ☢☢☢ 0.3-3 mSv [ped]

## CTA neck with IV contrast
- Usually not appropriate
- Expert Consensus: ☢☢☢ 1-10 mSv [ped]
- ☢☢☢ 0.3-3 mSv [ped]
<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>MRI head without IV contrast</td>
<td>Usually appropriate</td>
<td>Limited</td>
<td>O 0 mSv</td>
<td>O 0 mSv</td>
<td>9</td>
<td>9</td>
<td>0 0 1 0 1 3 13</td>
</tr>
<tr>
<td>CTA head and neck with IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>1-10 mSv</td>
<td>O 0 mSv [ped]</td>
<td>1</td>
<td>1</td>
<td>11 1 1 2 2 1 0 0 0</td>
</tr>
<tr>
<td>MRV head without IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>1</td>
<td>1</td>
<td>11 3 0 0 2 2 0 0 0</td>
</tr>
<tr>
<td>CTV head with IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>1-10 mSv</td>
<td>O 0 mSv [ped]</td>
<td>1</td>
<td>1</td>
<td>13 1 0 2 2 0 0 0 0</td>
</tr>
<tr>
<td>MRV head without and with IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>1</td>
<td>1</td>
<td>13 2 0 0 1 2 0 0 0</td>
</tr>
<tr>
<td>MRV head and neck without IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>1</td>
<td>1</td>
<td>10 3 0 1 3 1 0 0 0</td>
</tr>
<tr>
<td>MRA neck with IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>1</td>
<td>1</td>
<td>11 3 1 0 2 1 0 0 0</td>
</tr>
<tr>
<td>MRV head with IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>O 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>1</td>
<td>1</td>
<td>13 2 0 0 1 2 0 0 0</td>
</tr>
<tr>
<td>CT complete spine without and with IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>10-30 mSv</td>
<td>O 0 mSv [ped]</td>
<td>1</td>
<td>1</td>
<td>17 0 1 0 0 0 0 0 0</td>
</tr>
<tr>
<td>CT complete spine without IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>10-30 mSv</td>
<td>O 0 mSv [ped]</td>
<td>1</td>
<td>1</td>
<td>15 0 2 0 1 0 0 0 0</td>
</tr>
<tr>
<td>CT complete spine with IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>10-30 mSv</td>
<td>O 0 mSv [ped]</td>
<td>1</td>
<td>1</td>
<td>15 1 2 0 0 0 0 0 0</td>
</tr>
</tbody>
</table>

Variant 5:  Child. Chronic nonprogressive ataxia. Initial imaging.
<table>
<thead>
<tr>
<th>Modality</th>
<th>Appropriateness</th>
<th>Radiation Dose</th>
<th>References</th>
<th>Study Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT head without IV contrast</td>
<td>May be appropriate</td>
<td>1-10 mSv</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.3-3 mSv [ped]</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>MRI complete spine without IV contrast</td>
<td>May be appropriate</td>
<td>0 mSv</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>CT head with IV contrast</td>
<td>Usually not appropriate</td>
<td>1-10 mSv</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>MRI head without and with IV contrast</td>
<td>Usually not appropriate</td>
<td>0 mSv</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

References: 4 (22595899), 52 (27785688), 43 (27423800), 6 (26413479), 32 (19863638), 50 (26132530)
### MRI complete spine without and with IV contrast

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness</th>
<th>Dose Level</th>
<th>Study Quality</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRI complete spine without and with IV contrast</td>
<td>Usually not appropriate</td>
<td>Limited</td>
<td>O 0 mSv [ped]</td>
<td>2 2 5 5 3 5 1 0 0 0</td>
</tr>
</tbody>
</table>

### CTA head with IV contrast

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness</th>
<th>Dose Level</th>
<th>Study Quality</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTA head with IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>☢☢☢ 1-10 mSv</td>
<td>1 1 11 3 1 1 1 1 0 0 0</td>
</tr>
</tbody>
</table>

### CTA neck with IV contrast

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness</th>
<th>Dose Level</th>
<th>Study Quality</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTA neck with IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>☢☢☢ 1-10 mSv</td>
<td>1 1 11 2 2 1 1 1 0 0 0</td>
</tr>
</tbody>
</table>

### CT head without and with IV contrast

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness</th>
<th>Dose Level</th>
<th>Study Quality</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT head without and with IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>☢☢☢ 1-10 mSv</td>
<td>1 1 10 2 2 2 2 0 0 0</td>
</tr>
</tbody>
</table>

### CTA head and neck with IV contrast

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness</th>
<th>Dose Level</th>
<th>Study Quality</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTA head and neck with IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>☢☢☢ 1-10 mSv</td>
<td>1 1 11 3 1 0 2 1 0 0 0</td>
</tr>
</tbody>
</table>

### MRA head without IV contrast

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness</th>
<th>Dose Level</th>
<th>Study Quality</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRA head without IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>O 0 mSv [ped]</td>
<td>1 1 10 3 1 1 2 1 0 0 0</td>
</tr>
</tbody>
</table>

### MRA head and neck without IV contrast

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness</th>
<th>Dose Level</th>
<th>Study Quality</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRA head and neck without IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>O 0 mSv [ped]</td>
<td>1 1 10 3 1 0 2 2 0 0 0</td>
</tr>
</tbody>
</table>

### MRA neck without IV contrast

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness</th>
<th>Dose Level</th>
<th>Study Quality</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRA neck without IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>O 0 mSv [ped]</td>
<td>1 1 10 3 1 1 2 1 0 0 0</td>
</tr>
</tbody>
</table>

### MR spectroscopy head without IV contrast

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness</th>
<th>Dose Level</th>
<th>Study Quality</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>MR spectroscopy head without IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>O 0 mSv [ped]</td>
<td>1 1 10 2 3 2 0 0 0 1 0</td>
</tr>
</tbody>
</table>

### MRV head without IV contrast

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness</th>
<th>Dose Level</th>
<th>Study Quality</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRV head without IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>O 0 mSv [ped]</td>
<td>1 1 11 3 0 1 2 1 0 0 0</td>
</tr>
</tbody>
</table>

### CTV head with IV contrast

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness</th>
<th>Dose Level</th>
<th>Study Quality</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTV head with IV contrast</td>
<td>Usually not appropriate</td>
<td>Expert Consensus</td>
<td>☢☢☢ 1-10 mSv</td>
<td>1 1 13 1 1 0 2 1 0 0 0</td>
</tr>
<tr>
<td>Procedure</td>
<td>Appropriateness</td>
<td>Expert Consensus</td>
<td>Radiation Dose</td>
<td>Risk Group</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>-----------------</td>
<td>------------------</td>
<td>----------------</td>
<td>------------</td>
</tr>
<tr>
<td>MRV head without and with IV contrast</td>
<td>Usually not</td>
<td>Expert</td>
<td>0.0 mSv</td>
<td></td>
</tr>
<tr>
<td></td>
<td>appropriate</td>
<td>Consensus</td>
<td>0.0 mSv [ped]</td>
<td></td>
</tr>
<tr>
<td>MRV head and neck without IV contrast</td>
<td>Usually not</td>
<td>Expert</td>
<td>0.0 mSv</td>
<td></td>
</tr>
<tr>
<td></td>
<td>appropriate</td>
<td>Consensus</td>
<td>0.0 mSv [ped]</td>
<td></td>
</tr>
<tr>
<td>MRA neck with IV contrast</td>
<td>Usually not</td>
<td>Expert</td>
<td>0.0 mSv</td>
<td></td>
</tr>
<tr>
<td></td>
<td>appropriate</td>
<td>Consensus</td>
<td>0.0 mSv [ped]</td>
<td></td>
</tr>
<tr>
<td>MRV head with IV contrast</td>
<td>Usually not</td>
<td>Expert</td>
<td>0.0 mSv</td>
<td></td>
</tr>
<tr>
<td></td>
<td>appropriate</td>
<td>Consensus</td>
<td>0.0 mSv [ped]</td>
<td></td>
</tr>
<tr>
<td>CT complete spine without and with IV contrast</td>
<td>Usually not</td>
<td>Expert</td>
<td>20-30 mSv</td>
<td></td>
</tr>
<tr>
<td></td>
<td>appropriate</td>
<td>Consensus</td>
<td>3-10 mSv [ped]</td>
<td></td>
</tr>
<tr>
<td>CT complete spine without IV contrast</td>
<td>Usually not</td>
<td>Expert</td>
<td>20-30 mSv</td>
<td></td>
</tr>
<tr>
<td></td>
<td>appropriate</td>
<td>Consensus</td>
<td>3-10 mSv [ped]</td>
<td></td>
</tr>
<tr>
<td>CT complete spine with IV contrast</td>
<td>Usually not</td>
<td>Expert</td>
<td>20-30 mSv</td>
<td></td>
</tr>
<tr>
<td></td>
<td>appropriate</td>
<td>Consensus</td>
<td>3-10 mSv [ped]</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](http://www.acr.org/ac).