# American College of Radiology

## ACR Appropriateness Criteria®

### Dementia

#### Variant 1:  Cognitive decline. Suspected Alzheimer disease. Initial imaging.

<table>
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<th>Procedure</th>
<th>Appropriateness Category</th>
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<th>Peds RRL</th>
<th>Rating</th>
<th>Median</th>
<th>Final Tabulations</th>
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<td>Limited</td>
<td>0 0 mSv</td>
<td>0 0 mSv [ped]</td>
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<td>1-10 mSv</td>
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<td>10-30 mSv</td>
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## Procedure Details

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<th>Peds RRL</th>
<th>Rating</th>
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### References

- **MRI functional (fMRI) head without IV contrast**
  - Study Quality: 3
  - Studies: 38 (18855165)
  - References: 3

- **MR spectroscopy head without IV contrast**
  - Study Quality: 4
  - Studies: 31 (22078171), 32 (21807094)
  - References: 3

- **CT head with IV contrast**
  - Study Quality: 4
  - Studies: 29 (24035276), 13 (2105589), 9 (11342678)
  - References: 3

- **CT head without and with IV contrast**
  - Study Quality: 4
  - Studies: 13 (2105589), 9 (11342678)
  - References: 3

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**Variant 2:** Suspected frontotemporal dementia. Initial imaging.
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Variant 3: Suspected dementia with Lewy bodies. Initial imaging.

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References: 44 (25171901)

Study Quality:

- 1: Very Low
- 2: Low
- 3: Moderate
- 4: High
- 5: Very High
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Variant 4: Suspected vascular dementia. Initial imaging.

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| US duplex Doppler carotid                      | Usually not appropriate| O 0 mSv       | 3             |
|                                                |                       | O 0 mSv [ped]| 3             |
|                                                |                       | 3             |               |
|                                                |                       | 4             |               |
|                                                |                       | 3             |               |
|                                                |                       | 1             |               |
|                                                |                       | 5             |               |
|                                                |                       | 0             |               |
|                                                |                       | 0             |               |
|                                                |                       | 0             |               |

| Tc-99m HMPAO SPECT/CT brain                    | Usually not appropriate| ☢☢☢☢ 10-30 mSv| 3             |
|                                                |                       | ☢☢☢☢ 3-10 mSv [ped]| n/a         |
|                                                |                       | 0              |               |
|                                                |                       | 0              |               |
|                                                |                       | 0              |               |
|                                                |                       | 0              |               |
|                                                |                       | 0              |               |
|                                                |                       | 0              |               |

| MRA head without and with IV contrast         | Usually not appropriate| Expert Consensus| O 0 mSv       | 2             |
|                                                |                       |                 | O 0 mSv [ped]| 2             |
|                                                |                       |                 | 6             |               |
|                                                |                       |                 | 3             |               |
|                                                |                       |                 | 4             |               |
|                                                |                       |                 | 0             |               |
|                                                |                       |                 | 1             |               |
|                                                |                       |                 | 1             |               |
|                                                |                       |                 | 0             |               |
|                                                |                       |                 | 1             |               |
|                                                |                       |                 | 0             |               |

| CT head with IV contrast                      | Usually not appropriate| Expert Consensus| ☢☢ 1-10 mSv   | 1             |
|                                                |                       |                 | ☢☢ 0.3-3 mSv [ped]| 1           |
|                                                |                       |                 | 10            |               |
|                                                |                       |                 | 5             |               |
|                                                |                       |                 | 1             |               |
|                                                |                       |                 | 0             |               |
|                                                |                       |                 | 0             |               |
|                                                |                       |                 | 0             |               |
|                                                |                       |                 | 0             |               |
|                                                |                       |                 | 0             |               |

| CT head without and with IV contrast          | Usually not appropriate| Expert Consensus| ☢☢ 1-10 mSv   | 1             |
|                                                |                       |                 | ☢☢ 3-10 mSv [ped]| 1           |
|                                                |                       |                 | 13            |               |
|                                                |                       |                 | 2             |               |
|                                                |                       |                 | 1             |               |
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| MRI functional (fMRI) head without IV contrast| Usually not appropriate| Expert Consensus| O 0 mSv       | 1             |
|                                                |                       |                 | O 0 mSv [ped]| 1             |
|                                                |                       |                 | 9             |               |
|                                                |                       |                 | 4             |               |
|                                                |                       |                 | 2             |               |
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|                                                |                       |                 | 0             |               |
|                                                |                       |                 | 0             |               |
|                                                |                       |                 | 0             |               |
|                                                |                       |                 | 1             |               |

| MR spectroscopy head without IV contrast      | Usually not appropriate| Limited         | O 0 mSv       | 1             |
|                                                |                       |                 | O 0 mSv [ped]| 1             |
|                                                |                       |                 | 9             |               |
|                                                |                       |                 | 4             |               |
|                                                |                       |                 | 2             |               |
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|                                                |                       |                 | 0             |               |
|                                                |                       |                 | 1             |               |

References: 61 (23043907) 67 (22537454) 50 (9527139)

Variant 5: Suspected idiopathic normal-pressure hydrocephalus. Initial imaging.
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<th>Appropriateness Category</th>
<th>SOE</th>
<th>Adults RRL</th>
<th>Peds RRL</th>
<th>Rating</th>
<th>Median</th>
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<td>Limited</td>
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<td>O 0 mSv [ped]</td>
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<td>O 0 mSv [ped]</td>
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<td>Expert  Consensus</td>
<td>☢☢☢ 1-10 mSv</td>
<td>☢☢☢ 3-10 mSv [ped]</td>
<td>1</td>
<td>1</td>
<td>12 3 1 0 0 0 0 0 0</td>
</tr>
<tr>
<td>MR spectroscopy head without IV contrast</td>
<td>Usually not appropriate</td>
<td>Limited</td>
<td>0 0 mSv</td>
<td>O 0 mSv [ped]</td>
<td>1</td>
<td>1</td>
<td>12</td>
</tr>
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<tr>
<td>References</td>
<td>Study Quality</td>
<td></td>
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<tr>
<td>69 (20647518)</td>
<td>2</td>
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</table>

References:
- 69 (20647518)
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.