# American College of Radiology
# ACR Appropriateness Criteria®

## Tinnitus

**Variant 1: Subjective or objective pulsatile tinnitus (no myoclonus or Eustachean tube dysfunction).**

| Procedure | Appropriateness Category | SOE | Adults RRL | Peds RRL | Rating | Median | Final Tabulations | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| CTA head with IV contrast | Usually appropriate | | ☢☢☢ 1-10 mSv | ☢☢☢☢ 3-10 mSv [ped] | 8 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CTA head and neck with IV contrast | Usually appropriate | | ☢☢☢ 1-10 mSv | ☢☢☢☢ 3-10 mSv [ped] | 8 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CT temporal bone without IV contrast | Usually appropriate | | ☢☢☢ 1-10 mSv | | 8 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CTV head with IV contrast | Usually appropriate | | ☢☢☢ 1-10 mSv | ☢☢☢☢ 3-10 mSv [ped] | 7 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MRA head without and with IV contrast | Usually appropriate | | O 0 mSv | O 0 mSv [ped] | 7 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MRI head and internal auditory canal without and with IV contrast | Usually appropriate | | O 0 mSv | O 0 mSv [ped] | 7 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MRA head without IV contrast | May be appropriate | | O 0 mSv | O 0 mSv [ped] | 6 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MRV head without and with IV contrast | May be appropriate | | O 0 mSv | O 0 mSv [ped] | 6 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Arteriography cervicocerebral | May be appropriate | | ☢☢☢ 1-10 mSv | ☢☢☢☢ 3-10 mSv [ped] | 6 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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| MRV head without IV contrast | May be appropriate | | O 0 mSv | O 0 mSv [ped] | 5 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MRI head and internal auditory canal without IV contrast | May be appropriate | | O 0 mSv | O 0 mSv [ped] | 5 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| US duplex Doppler carotid | May be appropriate | | O 0 mSv | O 0 mSv [ped] | 5 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CT temporal bone with IV contrast | May be appropriate | | ☢☢☢ 1-10 mSv | | 4 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CT temporal bone without and with IV contrast | Usually not appropriate | | ☢☢☢ 1-10 mSv | | 2 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**Variant 2: Asymmetric or unilateral, subjective, nonpulsatile tinnitus (no otoscopic finding; no asymmetric hearing loss, neurologic deficit, or trauma).**

| Procedure | Appropriateness Category | SOE | Adults RRL | Peds RRL | Rating | Median | Final Tabulations | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| MRI head and internal auditory canal without and with IV contrast | Usually appropriate | | O 0 mSv | O 0 mSv [ped] | 8 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MRI head and internal auditory canal without IV contrast | May be appropriate | | O 0 mSv | O 0 mSv [ped] | 6 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CT temporal bone without IV contrast | May be appropriate | | ☢☢☢ 1-10 mSv | | 5 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CT temporal bone with IV contrast | May be appropriate | | ☢☢☢ 1-10 mSv | | 5 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CTA head with IV contrast | May be appropriate | | ☢☢☢ 1-10 mSv | ☢☢☢☢ 3-10 mSv [ped] | 4 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CTA head and neck with IV contrast | Usually not appropriate | | ☢☢☢ 1-10 mSv | ☢☢☢☢ 3-10 mSv [ped] | 3 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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| CTV head with IV contrast | Usually not appropriate | | ☢☢☢ 1-10 mSv | ☢☢☢☢ 3-10 mSv [ped] | 3 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MRA head without IV contrast | Usually not appropriate | | O 0 mSv | O 0 mSv [ped] | 3 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MRA head without and with IV contrast | Usually not appropriate | | O 0 mSv | O 0 mSv [ped] | 3 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MRV head without IV contrast | Usually not appropriate | | O 0 mSv | O 0 mSv [ped] | 3 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MRV head without and with IV contrast | Usually not appropriate | | O 0 mSv | O 0 mSv [ped] | 3 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CT temporal bone without and with IV contrast | Usually not appropriate | | ☢☢☢ 1-10 mSv | | 2 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Arteriography cervicocerebral | Usually not appropriate | | ☢☢☢ 1-10 mSv | ☢☢☢☢ 3-10 mSv [ped] | 2 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| US duplex Doppler carotid | Usually not appropriate | | O 0 mSv | O 0 mSv [ped] | 2 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MRI functional (fMRI) head without IV contrast | Usually not appropriate | | O 0 mSv | O 0 mSv [ped] | 2 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MEG | Usually not appropriate | | O 0 mSv | | 1 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**Variant 3: Symmetric or bilateral, subjective, nonpulsatile tinnitus (no hearing loss, neurologic deficit, or trauma).**

| Procedure | Appropriateness Category | SOE | Adults RRL | Peds RRL | Rating | Median | Final Tabulations | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| CT temporal bone without IV contrast | Usually not appropriate | | ☢☢☢ 1-10 mSv | | 3 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CTV head with IV contrast | Usually not appropriate | | ☢☢☢ 1-10 mSv | ☢☢☢☢ 3-10 mSv [ped] | 3 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MRI head and internal auditory canal without IV contrast | Usually not appropriate | | O 0 mSv | O 0 mSv [ped] | 3 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MRI head and internal auditory canal without and with IV contrast | Usually not appropriate | | O 0 mSv | O 0 mSv [ped] | 3 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CTA head with IV contrast | Usually not appropriate | | ☢☢☢ 1-10 mSv | ☢☢☢☢ 3-10 mSv [ped] | 2 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CTA head and neck with IV contrast | Usually not appropriate | | ☢☢☢ 1-10 mSv | ☢☢☢☢ 3-10 mSv [ped] | 2 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CT temporal bone without and with IV contrast | Usually not appropriate | | ☢☢☢ 1-10 mSv | | 2 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CT temporal bone with IV contrast | Usually not appropriate | | ☢☢☢ 1-10 mSv | | 2 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MRA head without IV contrast | Usually not appropriate | | O 0 mSv | O 0 mSv [ped] | 2 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MRA head without and with IV contrast | Usually not appropriate | | O 0 mSv | O 0 mSv [ped] | 2 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MRV head without IV contrast | Usually not appropriate | | O 0 mSv | O 0 mSv [ped] | 2 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MRV head without and with IV contrast | Usually not appropriate | | O 0 mSv | O 0 mSv [ped] | 2 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| US duplex Doppler carotid | Usually not appropriate | | O 0 mSv | O 0 mSv [ped] | 2 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Arteriography cervicocerebral | Usually not appropriate | | ☢☢☢ 1-10 mSv | ☢☢☢☢ 3-10 mSv [ped] | 1 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MEG | Usually not appropriate | | O 0 mSv | | 1 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MRI functional (fMRI) head without IV contrast | Usually not appropriate | | O 0 mSv | O 0 mSv [ped] | 1 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**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.**