## Seizures and Epilepsy

### Variant 1: New-onset seizure. Unrelated to trauma. Initial imaging.

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Note: The table above shows the radiation doses and study quality for various imaging procedures. The numbers in the table represent the count of references supporting each level of appropriateness and study quality.
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Variant 4: Known seizure disorder. Unchanged seizure semiology.
# FDG-PET/CT brain

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## CT head with IV contrast

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Variant 6: Known seizure disorder. History of tumor.
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Variant 7: Known seizure disorder. Surgical candidate or surgical planning.
<p>| MRI head without and with IV contrast | Usually appropriate | Limited | O 0 mSv | O 0 mSv [ped] | 8 | 8 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 4 | 8 |
|--------------------------------------|---------------------|--------|---------|-------------|----|----|----|----|----|----|----|----|----|----|
| References                           | Study Quality       |         |         |             |    |    |    |    |    |    |    |    |    |    |    |    |
| 43 (23719051)                        | 4                   |         |         |             |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 17 (27430454)                        | 4                   |         |         |             |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 31 (25341150)                        | 4                   |         |         |             |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 57 (21145290)                        | 4                   |         |         |             |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 16 (23676306)                        | 4                   |         |         |             |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 8 (26550535)                         | 4                   |         |         |             |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 58 (20227852)                        | 4                   |         |         |             |    |    |    |    |    |    |    |    |    |    |    |    |    |
| FDG-PET/CT brain                     | Usually appropriate | Strong | ☢☢☢ 1-10 mSv | ☢☢☢☢ 3-10 mSv [ped] | 7 | 7 | 0 | 0 | 1 | 0 | 1 | 5 | 6 | 4 | 0 |
| References                           | Study Quality       |         |         |             |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 44 (17532231)                        | M                   |         |         |             |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 28 (26118354)                        | 2                   |         |         |             |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 16 (23676306)                        | 4                   |         |         |             |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 8 (26550535)                         | 4                   |         |         |             |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 45 (11337340)                        | 2                   |         |         |             |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 46 (28171851)                        | 2                   |         |         |             |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MRI functional (fMRI) head without IV contrast | May be appropriate | Strong | O 0 mSv | O 0 mSv [ped] | 6 | 6 | 1 | 0 | 0 | 0 | 5 | 3 | 3 | 5 | 0 |
| References                           | Study Quality       |         |         |             |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 54 (22429073)                        | 2                   |         |         |             |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 44 (17532231)                        | M                   |         |         |             |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 52 (28077494)                        | Inadequate          |         |         |             |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 18 (27740984)                        | 4                   |         |         |             |    |    |    |    |    |    |    |    |    |    |    |    |    |</p>
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- **HMPAO SPECT or SPECT/CT brain ictal and interictal**: May be appropriate. Limited exposure range: 1-10 mSv. Limited exposure range with pediatric adjustment: 3-10 mSv [ped].

- **CT head with IV contrast**: May be appropriate. Limited exposure range: 1-10 mSv. Limited exposure range with pediatric adjustment: 3-10 mSv [ped].

- **CT head without IV contrast**: May be appropriate. Limited exposure range: 1-10 mSv. Limited exposure range with pediatric adjustment: 3-10 mSv [ped].

- **MEG**: May be appropriate. Limited exposure: 0 mSv.
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| CT head without and with IV contrast | Usually not appropriate | Limited | 1-10 mSv | 3-10 mSv [ped] | 1 | 1 | 9 | 5 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
|------------------------------------|-------------------------|---------|-----------|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|
| 47 (18265877) | 4 |
| 48 (25921215) | 2 |
| 49 (18759617) | 4 |
| 50 (12876149) | 4 |
| 51 (24791076) | 4 |
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).