**American College of Radiology**  
**ACR Appropriateness Criteria**®  

**Suspected Spine Trauma-Child**

**Variant 1:** Child, 3 to 16 years of age, acute cervical spine trauma, meets low risk criteria (based on PECARN or NEXUS). Initial imaging.

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<p>| CT cervical spine without and with IV contrast | Usually not appropriate | Strong | 1-10 mSv | 3-10 mSv [ped] | 1 | 1 | 19 | 4 | 1 | 0 | 0 | 0 | 0 | 0 |
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| 51 (19396479)                                   |                          |        |          |                | 3 |   |     |   |   |   |   |   |   |   |   |
| 12 (24528980)                                   |                          |        |          |                | 3 |   |     |   |   |   |   |   |   |   |   |
| 43 (15920399)                                   |                          |        |          |                | 3 |   |     |   |   |   |   |   |   |   |   |
| 46 (15920398)                                   |                          |        |          |                | 3 |   |     |   |   |   |   |   |   |   |   |
| 48 (23584614)                                   |                          |        |          |                | 3 |   |     |   |   |   |   |   |   |   |   |
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- MRA neck without IV contrast: 80 (24355656), 68 (23232377), 86 (20154559)
- MRA neck without and with IV contrast: 80 (24355656), 68 (23232377), 86 (20154559)
- MRI cervical spine without and with IV contrast: 45 (23075855), 74 (23856632), 61 (26151511), 69 (24119886), 68 (23232377), 60 (22491556), 67 (27334017), 66 (23321374), 73 (21619408), 70 (18188119)
### Variant 3: Child, younger than 3 years of age, acute cervical spine trauma, Pieretti-Vanmarcke weighted score greater than or equal to 2 to 8 points. Initial imaging.

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**Study Quality**

- 87 (26167212)
- 88 (23709440)
- 89 (19927090)

**US cervical spine**

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51 (19396479) | 3

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19 (19741398) | 4
91 (21980025) | 4
54 (20889081) | 4
44 (22290498) | 3

CTA neck with IV contrast
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42 (20192648) | 4
19 (19741398) | 4
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**Variant 4:** Child, younger than 16 years of age, suspected thoracolumbar spine trauma. Initial imaging.

- **Radiography thoracic and lumbar spine**
  - Usually appropriate
  - SOE: Strong
  - Adults RRL: ☢☢☢ 1-10 mSv
  - Peds RRL: ☢☢☢ 0.3-3 mSv [ped]
  - Rating: 8
  - Median: 8
  - Final Tabulations: 0 0 0 0 0 0 9 7 8

- **References**
  - 24 (23276683)
  - 3 (17566397)
  - 29 (14654023)
  - 94 (20699755)
  - 95 (16303994)
  - 96 (15385287)
  - 93 (27886872)
  - Study Quality: 3 4 4 3 2 1
| CT thoracic and lumbar spine without IV contrast | May be appropriate (Disagreement) | Expert Opinion | ☢☢☢ 1-10 mSv | ☢☢☢☢ 3-10 mSv [ped] | 5 | 5 | 5 | 3 | 5 | 4 | 3 | 4 | 0 | 0 | 0 |
|-----------------------------------------------|----------------------------------|---------------|----------------|---------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| References                                    | Study Quality                    |               |                |                     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 97 (26810978)                                 | 2                                |               |                |                     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 29 (14654023)                                 | 4                                |               |                |                     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 94 (20699755)                                 | 3                                |               |                |                     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 95 (16303994)                                 | 2                                |               |                |                     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 96 (15385287)                                 | 1                                |               |                |                     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

| MRI thoracic and lumbar spine without IV contrast | May be appropriate (Disagreement) | Expert Opinion | O 0 mSv | O 0 mSv [ped] | 5 | 5 | 4 | 3 | 6 | 2 | 4 | 5 | 0 | 0 | 0 |
|-----------------------------------------------|----------------------------------|---------------|----------|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| References                                    | Study Quality                    |               |          |              |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 24 (23276683)                                 | 3                                |               |          |              |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 27 (17224805)                                 | 3                                |               |          |              |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 28 (23276357)                                 | 2                                |               |          |              |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 29 (14654023)                                 | 4                                |               |          |              |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 91 (21980025)                                 | 4                                |               |          |              |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 98 (23425746)                                 | 4                                |               |          |              |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 59 (16122000)                                 | 3                                |               |          |              |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 93 (27886872)                                 | 4                                |               |          |              |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

| CT myelography thoracic and lumbar spine | Usually not appropriate | Limited | ☢☢☢ 10-30 mSv | ☢☢☢☢ 3-10 mSv [ped] | 1 | 1 | 21 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
|------------------------------------------|-------------------------|--------|----------------|---------------------|---|---|----|---|---|---|---|---|---|---|---|---|---|---|
| References                                | Study Quality           |        |                |                     |   |   |    |   |   |   |   |   |   |   |   |   |   |   |   |
| 90 (16439090)                             | 4                      |        |                |                     |   |   |    |   |   |   |   |   |   |   |   |   |   |   |   |

| CT thoracic and lumbar spine with IV contrast | Usually not appropriate | Strong | ☢☢☢ 1-10 mSv | ☢☢☢☢ 3-10 mSv [ped] | 1 | 1 | 18 | 3 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
|----------------------------------------------|-------------------------|--------|----------------|---------------------|---|---|----|---|---|---|---|---|---|---|---|---|---|---|
| References                                  | Study Quality           |        |                |                     |   |   |    |   |   |   |   |   |   |   |   |   |   |   |   |
| 97 (26810978)                               | 2                      |        |                |                     |   |   |    |   |   |   |   |   |   |   |   |   |   |   |   |
| 29 (14654023)                               | 4                      |        |                |                     |   |   |    |   |   |   |   |   |   |   |   |   |   |   |   |
| 94 (20699755)                               | 3                      |        |                |                     |   |   |    |   |   |   |   |   |   |   |   |   |   |   |   |
| 95 (16303994)                               | 2                      |        |                |                     |   |   |    |   |   |   |   |   |   |   |   |   |   |   |   |

OSAI CT thoracic and lumbar spine without IV contrast: May be appropriate (Disagreement)

References
97 (26810978)
29 (14654023)
94 (20699755)
95 (16303994)
96 (15385287)

MRI thoracic and lumbar spine without IV contrast: May be appropriate (Disagreement)

References
24 (23276683)
27 (17224805)
28 (23276357)
29 (14654023)
91 (21980025)
98 (23425746)
59 (16122000)
93 (27886872)

CT myelography thoracic and lumbar spine: Usually not appropriate

References
90 (16439090)

CT thoracic and lumbar spine with IV contrast: Usually not appropriate

References
97 (26810978)
29 (14654023)
94 (20699755)
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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).