American College of Radiology
ACR Appropriateness Criteria®

Suspected Spine Trauma

Variant 1: Age greater than or equal to 16 years and less than 65 years. Suspected acute blunt cervical spine trauma; imaging not indicated by NEXUS or CCR clinical criteria. Patient meets low-risk criteria. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CT cervical spine without IV contrast	Usually not appropriate	Strong	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	8	4	1	0	3	0	0	0	0

References	Study Quality
44 (25997715)	4
49 (26239776)	3
37 (25769487)	3
38 (24731570)	3
43 (24033302)	3
46 (21619408)	M
41 (20336892)	4
47 (20065765)	M
31 (19509621)	2
42 (18188119)	M
39 (18073599)	4
48 (18469647)	3
45 (18404054)	4
40 (16374279)	2

CTA head and neck with IV contrast	Usually not appropriate	Strong	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	15	0	0	0	1	1	0	0	0

References	Study Quality
44 (25997715)	4
52 (24355656)	3
43 (24033302)	3
54 (22695428)	3
51 (12435934)	1
53 (14608149)	4
50 (24458034)	3

CT myelography cervical spine	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	15	2	0	0	0	0	0	0	0
CT cervical spine with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	15	1	1	0	0	0	0	0	0
CT cervical spine without and with IV contrast	Usually not appropriate	Strong	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	15	1	1	0	0	0	0	0	0

References	Study Quality
44 (25997715)	4
49 (26239776)	3
37 (25769487)	3
38 (24731570)	3
43 (24033302)	3
46 (21619408)	M
41 (20336892)	4
47 (20065765)	M
31 (19509621)	2
42 (18188119)	M
39 (18073599)	4
48 (18469647)	3
45 (18404054)	4
40 (16374279)	2

Arteriography cervicocerebral	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	16	0	0	0	1	0	0	0	0
MRA neck without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	15	1	1	0	0	0	0	0	0
MRA neck without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	15	1	1	0	0	0	0	0	0
MRI cervical spine without IV contrast	Usually not appropriate	Strong	O 0 mSv	O 0 mSv [ped]	1	1	15	1	0	0	0	0	0	0	0

References	Study Quality
44 (25997715)	4
37 (25769487)	3
38 (24731570)	3
43 (24033302)	3
55 (27893647)	2
46 (21619408)	M
41 (20336892)	4
47 (20065765)	M
42 (18188119)	M
39 (18073599)	4
48 (18469647)	3
45 (18404054)	4
40 (16374279)	2
56 (27438681)	2

MRI cervical spine without and with IV contrast	Usually not appropriate	Strong	O 0 mSv	O 0 mSv [ped]	1	1	15	1	1	0	0	0	0	0	0

References	Study Quality
44 (25997715)	4
37 (25769487)	3
38 (24731570)	3
43 (24033302)	3

Radiography cervical spine	Usually not appropriate	Strong	☢☢ 0.1-1mSv	☢☢ 0.03-0.3 mSv [ped]	1	1	9	3	1	0	2	1	0	0	1

References	Study Quality
55 (27893647)	2
46 (21619408)	M
41 (20336892)	4
47 (20065765)	M
42 (18188119)	M
39 (18073599)	4
48 (18469647)	3
45 (18404054)	4
40 (16374279)	2
56 (27438681)	2
35 (24139671)	3
33 (23404352)	3
34 (22663912)	4
32 (21085024)	2
31 (19509621)	2
36 (25352931)	4

Variant 2: Age greater than or equal to 16 years. Suspected acute cervical spine blunt trauma. Imaging indicated by NEXUS or CCR clinical criteria. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CT cervical spine without IV contrast	Usually appropriate	Strong	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	9	9	0	0	0	0	0	0	1	1	15

References	Study Quality
44 (25997715)	4
49 (26239776)	3
37 (25769487)	3

38 (24731570)	3
43 (24033302)	3
46 (21619408)	M
41 (20336892)	4
47 (20065765)	M
31 (19509621)	2
42 (18188119)	M
39 (18073599)	4
48 (18469647)	3
45 (18404054)	4
40 (16374279)	2

Radiography cervical spine	May be appropriate	Strong	☢☢ 0.1-1mSv	☢☢ 0.03-0.3 mSv [ped]	5	5	0	0	2	4	10	0	0	0	0

References	Study Quality
35 (24139671)	3
33 (23404352)	3
34 (22663912)	4
32 (21085024)	2
31 (19509621)	2
36 (25352931)	4

CTA head and neck with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	15	0	0	0	1	0	0	1	0

References	Study Quality
52 (24355656)	3
51 (12435934)	1
53 (14608149)	4
50 (24458034)	3

CT myelography cervical spine	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	16	0	0	0	1	0	0	0	0

CT cervical spine with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	15	0	2	0	0	0	0	0	0
CT cervical spine without and with IV contrast	Usually not appropriate	Strong	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	15	0	2	0	0	0	0	0	0

References	Study Quality
44 (25997715)	4
49 (26239776)	3
37 (25769487)	3
38 (24731570)	3
43 (24033302)	3
46 (21619408)	M
41 (20336892)	4
47 (20065765)	M
31 (19509621)	2
42 (18188119)	M
39 (18073599)	4
48 (18469647)	3
45 (18404054)	4
40 (16374279)	2

Arteriography cervicocerebral	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	15	1	0	0	1	0	0	0	0
MRA neck without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	16	1	0	0	0	0	0	0	0
MRA neck without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	15	1	1	0	0	0	0	0	0
MRI cervical spine without IV contrast	Usually not appropriate	Strong	O 0 mSv	O 0 mSv [ped]	1	1	9	6	1	0	0	0	0	0	0

References	Study Quality
44 (25997715)	4
37 (25769487)	3

MRI cervical spine without and with IV contrast	Usually not appropriate	Strong	O 0 mSv	O 0 mSv [ped]	1	1	15	1	1	0	0	0	0	0	0

References	Study Quality
44 (25997715)	4
37 (25769487)	3
38 (24731570)	3
43 (24033302)	3
55 (27893647)	2
46 (21619408)	M
41 (20336892)	4
47 (20065765)	M
42 (18188119)	M
39 (18073599)	4
48 (18469647)	3
45 (18404054)	4
40 (16374279)	2
56 (27438681)	2

References	Study Quality
44 (25997715)	4
37 (25769487)	3
38 (24731570)	3
43 (24033302)	3
55 (27893647)	2
46 (21619408)	M
41 (20336892)	4
47 (20065765)	M
42 (18188119)	M
39 (18073599)	4
48 (18469647)	3
45 (18404054)	4
40 (16374279)	2
56 (27438681)	2

Variant 3: Age greater than or equal to 16 years. Suspected acute cervical spine blunt trauma. Confirmed or suspected cervical spinal cord or nerve root injury, with or without traumatic injury identified on cervical CT. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI cervical spine without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	0	0	17
References				Study Quality											
43 (24033302)				3											
41 (20336892)				4											
58 (20388006)				4											
CT myelography cervical spine	May be appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢ 0.3-3 mSv [ped]	5	5	0	0	1	3	10	1	1	0	0
References				Study Quality											
43 (24033302)				3											
41 (20336892)				4											
57 (15734929)				4											
40 (16374279)				2											
CTA head and neck with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	14	0	1	1	0	0	1	0	0
Arteriography cervicocerebral	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	17	0	0	0	0	0	0	0	0
MRA neck without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	15	0	1	1	0	0	0	0	0
References				Study Quality											
59 (25632417)				4											
MRA neck without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	14	0	3	0	0	0	0	0	0

	References	Study Quality													
	59 (25632417)	4													
MRI cervical spine without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	12	0	2	0	1	1	1	0	0
	References	Study Quality													
	43 (24033302)	3													
	41 (20336892)	4													
	58 (20388006)	4													
Radiography cervical spine	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv	☢☢ 0.03-0.3 mSv [ped]	1	1	15	0	1	0	1	0	0	0	0

Variant 4: Age greater than or equal to 16 years. Acute cervical spine injury detected on radiographs. Treatment planning for mechanically unstable spine.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CT cervical spine without IV contrast	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	9	9	0	0	0	0	1	0	0	0	15
	References	Study Quality													
	31 (19509621)	2													
MRI cervical spine without IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	1	0	0	3	12
	References	Study Quality													
	37 (25769487)	3													
	62 (23075855)	2													
	38 (24731570)	3													
	60 (24090539)	2													
	41 (20336892)	4													
	42 (18188119)	M													
	39 (18073599)	4													
	40 (16374279)	2													

		61 (17906580)		4												
CT myelography cervical spine	Usually not appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	9	1	2	1	2	1	0	0	0	
		References		Study Quality												
		43 (24033302)		3												
		41 (20336892)		4												
		57 (15734929)		4												
		40 (16374279)		2												
CT cervical spine with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	16	0	0	0	0	0	0	0	0	
CT cervical spine without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	16	0	0	0	0	0	0	0	0	
		References		Study Quality												
		31 (19509621)		2												
MRI cervical spine without and with IV contrast	Usually not appropriate	Strong	O 0 mSv	O 0 mSv [ped]	1	1	14	0	1	0	1	0	0	0	0	
		References		Study Quality												
		37 (25769487)		3												
		62 (23075855)		2												
		38 (24731570)		3												
		60 (24090539)		2												
		41 (20336892)		4												
		42 (18188119)		M												
		39 (18073599)		4												
		40 (16374279)		2												
		61 (17906580)		4												

Variant 5: Age greater than or equal to 16 years. Suspected acute cervical spine blunt trauma. Clinical or imaging findings suggest arterial injury with or without positive cervical spine CT. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CTA head and neck with IV contrast	Usually appropriate	Strong	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	9	9	0	0	0	0	1	1	0	2	13

References	Study Quality
52 (24355656)	3
54 (22695428)	3
70 (16612293)	2
50 (24458034)	3

Arteriography cervicocerebral	May be appropriate	Strong	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	6	6	0	0	0	1	5	6	1	2	2

References	Study Quality
52 (24355656)	3
54 (22695428)	3
72 (16688051)	3
50 (24458034)	3
73 (25794340)	2

MRA neck without IV contrast	May be appropriate	Strong	O 0 mSv	O 0 mSv [ped]	5	5	0	0	0	0	13	3	0	0	0

References	Study Quality
54 (22695428)	3
51 (12435934)	1
50 (24458034)	3
71 (18635617)	2

MRA neck without and with IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	7	7	1	0	0	0	2	1	6	5	2

References	Study Quality
54 (22695428)	3
51 (12435934)	1
50 (24458034)	3

71 (18635617)	2

Variant 6: Age greater than or equal to 16 years. Suspected acute cervical spine blunt trauma. Obtunded patient with no traumatic injury identified on cervical spine CT. Next imaging study after CT cervical spine without IV contrast.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CTA head and neck with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	12	0	1	0	2	0	0	1	0

References	Study Quality
65 (22327974)	3

CT myelography cervical spine	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	14	1	1	1	0	0	0	0	0
Arteriography cervicocerebral	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	15	1	0	1	0	0	0	0	0
MRA neck without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	15	1	1	0	0	0	0	0	0
MRA neck without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	14	1	1	0	1	0	0	0	0
MRI cervical spine without IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	4	2	4	2	5

References	Study Quality
44 (25997715)	4
62 (23075855)	2
79 (25076462)	3
38 (24731570)	3
78 (22491556)	3
55 (27893647)	2
46 (21619408)	M

MRI cervical spine without and with IV contrast	Usually not appropriate	Strong	O 0 mSv	O 0 mSv [ped]	1	1	14	0	1	0	1	0	1	0	0

References	Study Quality
44 (25997715)	4
62 (23075855)	2
79 (25076462)	3
38 (24731570)	3
78 (22491556)	3
55 (27893647)	2
46 (21619408)	M
41 (20336892)	4
47 (20065765)	M
80 (18073612)	2
39 (18073599)	4
48 (18469647)	3
45 (18404054)	4
40 (16374279)	2
77 (28993912)	4
56 (27438681)	2

Radiography cervical spine	Usually not appropriate	Limited	☢☢ 0.1-1mSv	☢☢ 0.03-0.3 mSv [ped]	1	1	14	0	1	1	0	1	0	0	0

References	Study Quality

35 (24139671)	3
74 (21265348)	3
75 (20583514)	3
76 (16508493)	3

Variant 7: Age greater than or equal to 16 years. Suspected acute cervical spine blunt trauma. Clinical or imaging findings suggest ligamentous injury. Next imaging study after CT cervical spine without IV contrast.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI cervical spine without IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	2	1	1	13

References	Study Quality
44 (25997715)	4
62 (23075855)	2
79 (25076462)	3
38 (24731570)	3
78 (22491556)	3
46 (21619408)	M
41 (20336892)	4
47 (20065765)	M
42 (18188119)	M
80 (18073612)	2
39 (18073599)	4
48 (18469647)	3
45 (18404054)	4
40 (16374279)	2
83 (27448661)	4

CTA head and neck with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	15	1	1	0	0	0	0	0	0

CT myelography cervical spine	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	16	1	0	0	0	0	0	0	0
Arteriography cervicocerebral	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	15	1	1	0	0	0	0	0	0
MRA neck without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	15	1	1	0	0	0	0	0	0
MRA neck without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	15	1	1	0	0	0	0	0	0
MRI cervical spine without and with IV contrast	Usually not appropriate	Strong	O 0 mSv	O 0 mSv [ped]	1	1	14	0	1	0	1	0	1	0	0

References	Study Quality
44 (25997715)	4
62 (23075855)	2
79 (25076462)	3
38 (24731570)	3
78 (22491556)	3
46 (21619408)	M
41 (20336892)	4
47 (20065765)	M
42 (18188119)	M
80 (18073612)	2
39 (18073599)	4
48 (18469647)	3
45 (18404054)	4
40 (16374279)	2
83 (27448661)	4

Radiography cervical spine	Usually not appropriate	Strong	☢☢ 0.1-1mSv	☢☢ 0.03-0.3 mSv [ped]	1	1	10	0	1	3	3	0	0	0	0

References	Study Quality
62 (23075855)	2

35 (24139671)	3
81 (23809183)	2
33 (23404352)	3
34 (22663912)	4
32 (21085024)	2
74 (21265348)	3
75 (20583514)	3
42 (18188119)	M
82 (11791052)	4
76 (16508493)	3

Variant 8: Age greater than or equal to 16 years. Suspected acute cervical spine blunt trauma. Follow-up imaging on patient with no unstable injury demonstrated initially, but kept in collar for neck pain. No new neurologic symptoms. Includes whiplash associated disorders.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CT cervical spine without IV contrast	May be appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	5	0	1	0	9	0	1	0	0
MRI cervical spine without IV contrast	May be appropriate	Strong	O 0 mSv	O 0 mSv [ped]	5	5	0	0	1	1	8	5	0	1	0

References	Study Quality
62 (23075855)	2
85 (22187629)	1
96 (23273320)	3
95 (23143091)	Good
88 (22310029)	3
42 (18188119)	M
92 (19912072)	4
93 (19802673)	3
97 (18708935)	3

103 (21920865)	4
91 (19083212)	4
102 (21289550)	2
89 (20531071)	3
86 (19672633)	3
87 (15853463)	2
94 (18512085)	4

Radiography cervical spine	May be appropriate	Strong	☢☢ 0.1-1mSv	☢☢ 0.03-0.3 mSv [ped]	5	5	0	0	0	2	7	3	1	0	3

References	Study Quality
35 (24139671)	3
74 (21265348)	3
75 (20583514)	3
100 (17108836)	4
101 (27984030)	Good

CTA head and neck with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	15	0	1	1	0	0	0	0	0
CT myelography cervical spine	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	17	0	0	0	0	0	0	0	0
CT cervical spine with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	17	0	0	0	0	0	0	0	0
CT cervical spine without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	17	0	0	0	0	0	0	0	0
Arteriography cervicocerebral	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	17	0	0	0	0	0	0	0	0
MRA neck without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	15	0	1	1	0	0	0	0	0

MRA neck without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	15	0	1	1	0	0	0	0	0
MRI cervical spine without and with IV contrast	Usually not appropriate	Strong	O 0 mSv	O 0 mSv [ped]	1	1	16	0	1	0	0	0	0	0	0

References	Study Quality
62 (23075855)	2
85 (22187629)	1
96 (23273320)	3
95 (23143091)	Good
88 (22310029)	3
42 (18188119)	M
92 (19912072)	4
93 (19802673)	3
97 (18708935)	3
103 (21920865)	4
91 (19083212)	4
102 (21289550)	2
89 (20531071)	3
86 (19672633)	3
87 (15853463)	2
94 (18512085)	4

Variant 9: Age greater than or equal to 16 years. Blunt trauma meeting criteria for thoracic and lumbar imaging. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CT thoracic and lumbar spine without IV contrast	Usually appropriate	Strong	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	9	9	0	0	0	0	1	0	1	0	15

References	Study Quality
104 (23422283)	2

110 (27663571)	2															
109 (20699755)	3															
108 (14566120)	2															
107 (-3131250)	3															
Radiography thoracic and lumbar spine	May be appropriate	Strong	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	5	5	0	0	0	1	12	3	0	0	0	
References	Study Quality															
104 (23422283)	2															
108 (14566120)	2															
105 (12913630)	3															
106 (16612322)	4															
107 (-3131250)	3															
CT myelography thoracic and lumbar spine	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	15	0	1	0	0	1	0	0	0	
CT thoracic and lumbar spine with IV contrast	Usually not appropriate	Strong	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	14	0	2	0	0	0	1	0	0	
References	Study Quality															
104 (23422283)	2															
110 (27663571)	2															
109 (20699755)	3															
108 (14566120)	2															
107 (-3131250)	3															
CT thoracic and lumbar spine without and with IV contrast	Usually not appropriate	Strong	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	15	0	2	0	0	0	0	0	0	
References	Study Quality															
104 (23422283)	2															
110 (27663571)	2															
109 (20699755)	3															
108 (14566120)	2															
107 (-3131250)	3															

MRI thoracic and lumbar spine without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	9	0	2	3	2	0	0	0	0
MRI thoracic and lumbar spine without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	15	0	2	0	0	0	0	0	0

Variant 10: Age greater than or equal to 16 years. Acute thoracic or lumbar spine injury detected on radiographs or noncontrast CT. Neurologic abnormalities. Next imaging study.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI thoracic and lumbar spine without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	0	0	16

References	Study Quality
43 (24033302)	3
41 (20336892)	4
111 (14769351)	4

CT myelography thoracic and lumbar spine	May be appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	0	0	1	5	8	1	1	0	0

References	Study Quality
43 (24033302)	3
41 (20336892)	4
57 (15734929)	4
40 (16374279)	2

CT thoracic and lumbar spine with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	15	1	0	0	0	0	0	0	0

References	Study Quality
43 (24033302)	3
41 (20336892)	4
57 (15734929)	4
40 (16374279)	2

CT thoracic and lumbar spine without and with IV contrast	Usually not appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	16	0	0	0	0	0	0	0	0

References	Study Quality
43 (24033302)	3
41 (20336892)	4
57 (15734929)	4
40 (16374279)	2

MRI thoracic and lumbar spine without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	13	0	2	0	1	0	0	0	0

References	Study Quality
43 (24033302)	3
41 (20336892)	4
111 (14769351)	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.**