American College of Radiology
ACR Appropriateness Criteria®

Back Pain-Child

Variant 1: Child. Back pain. No clinical red flags. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Radiography spine area of interest	Usually not appropriate	Limited	Varies	Varies	2	2	3	6	2	1	4	0	1	0	0
References	Study Quality														
3 (19926701)	4														
16 (28786774)	4														
12 (32603067)	4														
Radiography complete spine	Usually not appropriate	Limited		☢☢☢ 0.3-3 mSv [ped]	2	2	7	6	3	0	0	0	1	0	0
References	Study Quality														
3 (19926701)	4														
16 (28786774)	4														
12 (32603067)	4														
MRI complete spine without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	2	0	1	1	2	0	0	0
MRI complete spine without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	2	0	0	2	0	0	0	0
Bone scan whole body with SPECT or SPECT/CT area of interest	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	13	3	1	0	0	0	0	0	0

Bone scan whole body with SPECT or SPECT/CT complete spine	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	14	2	1	0	0	0	0	0	0
CT spine area of interest without IV contrast	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	10	2	1	2	0	1	1	0	0
CT spine area of interest without and with IV contrast	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	13	3	0	0	0	1	0	0	0
CT spine area of interest with IV contrast	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	12	3	1	0	0	1	0	0	0
MRI spine area of interest without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	3	0	0	1	1	0	0	0
MRI spine area of interest without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	3	1	0	0	0	1	0	0
MRI complete spine with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	2	0	2	0	0	0	0	0
MRI spine area of interest with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	2	0	0	1	1	0	0	0
CT myelography complete spine	Usually not appropriate	Expert Consensus	☢☢☢☢☢ 30-100 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	16	0	1	0	0	0	0	0	0
CT myelography spine area of interest	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	16	0	1	0	0	0	0	0	0
CT complete spine without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	14	3	0	0	0	0	0	0	0
CT complete spine without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	13	2	2	0	0	0	0	0	0
CT complete spine with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	14	1	2	0	0	0	0	0	0
US spine area of interest	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	2	1	0	0	1	1	0	0

Variant 2: Child. Back pain. With at least one clinical red flag. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Radiography spine area of interest	Usually appropriate	Limited	Varies	Varies	8	8	0	0	0	0	3	0	3	4	7

References	Study Quality
17 (24686297)	3
1 (33781487)	4
2 (34995265)	3
16 (28786774)	4
12 (32603067)	4
9 (28135365)	4

MRI complete spine without IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	1	1	0	4	7	2	1	0	1

References	Study Quality
17 (24686297)	3
13 (26275972)	4
2 (34995265)	3
16 (28786774)	4
21 (33220471)	4

MRI complete spine without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	1	1	1	3	8	2	0	1	0

References	Study Quality
17 (24686297)	3
13 (26275972)	4
2 (34995265)	3
16 (28786774)	4
21 (33220471)	4

		20 (35136714)	4													
		22 (32530746)	4													
CT spine area of interest without IV contrast	May be appropriate	Limited	Varies	Varies	5	5	1	0	3	1	6	5	1	0	0
		References	Study Quality													
		19 (32364883)	4													
		18 (23255735)	4													
CT spine area of interest with IV contrast	May be appropriate	Limited	Varies	Varies	5	5	0	2	0	5	9	0	1	0	0
		References	Study Quality													
		19 (32364883)	4													
		12 (32603067)	4													
		18 (23255735)	4													
		20 (35136714)	4													
MRI spine area of interest without and with IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	1	1	0	2	7	4	1	1	0
		References	Study Quality													
		17 (24686297)	3													
		13 (26275972)	4													
		2 (34995265)	3													
		16 (28786774)	4													
		21 (33220471)	4													
		20 (35136714)	4													
		22 (32530746)	4													
MRI spine area of interest without IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	1	1	0	2	5	6	2	0	0
		References	Study Quality													
		17 (24686297)	3													
		13 (26275972)	4													
		2 (34995265)	3													

		16 (28786774)		4											
		21 (33220471)		4											
Radiography complete spine	May be appropriate	Limited		☢☢☢ 0.3-3 mSv [ped]	5	5	0	1	1	0	7	3	4	1	0
		References		Study Quality											
		17 (24686297)		3											
		1 (33781487)		4											
		2 (34995265)		3											
		16 (28786774)		4											
		12 (32603067)		4											
		9 (28135365)		4											
MRI complete spine with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	2	2	8	3	3	0	1	1	1	0	0
		References		Study Quality											
		17 (24686297)		3											
		13 (26275972)		4											
		2 (34995265)		3											
		21 (33220471)		4											
MRI spine area of interest with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	2	2	8	3	3	0	2	0	0	1	0
		References		Study Quality											
		17 (24686297)		3											
		13 (26275972)		4											
		2 (34995265)		3											
		21 (33220471)		4											
CT complete spine without IV contrast	Usually not appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	7	4	4	1	1	0	0	0	0
		References		Study Quality											
		19 (32364883)		4											
		12 (32603067)		4											

		18 (23255735)		4												
Bone scan whole body with SPECT or SPECT/CT area of interest	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	13	1	2	0	1	0	0	0	0
Bone scan whole body with SPECT or SPECT/CT complete spine	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	12	3	2	0	0	0	0	0	0
CT spine area of interest without and with IV contrast	Usually not appropriate	Limited	Varies	Varies	1	1	9	2	2	2	1	1	0	0	0
		References		Study Quality											
		19 (32364883)		4											
		18 (23255735)		4											
		20 (35136714)		4											
CT myelography complete spine	Usually not appropriate	Expert Consensus	☢☢☢☢☢ 30-100 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	14	0	3	0	0	0	0	0	0
CT myelography spine area of interest	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	14	0	3	0	0	0	0	0	0
CT complete spine without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	12	2	0	1	1	1	0	0	0
CT complete spine with IV contrast	Usually not appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	13	2	0	0	2	0	0	0	0
		References		Study Quality											
		19 (32364883)		4											
		12 (32603067)		4											
		18 (23255735)		4											
		20 (35136714)		4											
US spine area of interest	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	9	2	3	1	1	0	1	0	0

Variant 3: Child. Back pain. With at least one clinical red flag. Negative radiographs. 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 spine area of interest without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	8	8	0	1	0	0	0	1	6	8	1

References	Study Quality
17 (24686297)	3
26 (30302556)	2
24 (28514223)	4
19 (32364883)	4
2 (34995265)	3
16 (28786774)	4
12 (32603067)	4
25 (32058837)	4

MRI spine area of interest without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	1	0	1	0	2	2	6	3	2

References	Study Quality
17 (24686297)	3
26 (30302556)	2
24 (28514223)	4
19 (32364883)	4
2 (34995265)	3
16 (28786774)	4
12 (32603067)	4
25 (32058837)	4

MRI complete spine without IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	0	1	1	1	3	4	4	3	0

References	Study Quality
17 (24686297)	3
26 (30302556)	2

		24 (28514223)	4													
		19 (32364883)	4													
		2 (34995265)	3													
		16 (28786774)	4													
		12 (32603067)	4													
		25 (32058837)	4													
MRI complete spine without and with IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	0	1	1	2	4	2	4	3	0	
		References	Study Quality													
		17 (24686297)	3													
		26 (30302556)	2													
		24 (28514223)	4													
		19 (32364883)	4													
		2 (34995265)	3													
		16 (28786774)	4													
		12 (32603067)	4													
		25 (32058837)	4													
CT spine area of interest without IV contrast	May be appropriate	Limited	Varies	Varies	5	5	0	1	0	2	7	6	1	0	0	
		References	Study Quality													
		2 (34995265)	3													
		23 (25969937)	4													
		18 (23255735)	4													
CT spine area of interest with IV contrast	May be appropriate	Limited	Varies	Varies	5	5	0	1	1	1	8	5	1	0	0	
		References	Study Quality													
		19 (32364883)	4													
		2 (34995265)	3													
		23 (25969937)	4													
		18 (23255735)	4													
		20 (35136714)	4													

MRI complete spine with IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	5	3	6	0	1	0	1	1	0

References	Study Quality
17 (24686297)	3
24 (28514223)	4
19 (32364883)	4
2 (34995265)	3

MRI spine area of interest with IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	4	4	5	0	2	0	1	0	1

References	Study Quality
17 (24686297)	3
24 (28514223)	4
19 (32364883)	4
2 (34995265)	3

CT complete spine without IV contrast	May be appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	0	2	1	5	8	1	0	0	0

References	Study Quality
2 (34995265)	3
23 (25969937)	4
18 (23255735)	4

CT complete spine with IV contrast	May be appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	4	4	1	4	1	3	6	2	0	0	0

References	Study Quality
19 (32364883)	4
2 (34995265)	3
23 (25969937)	4
18 (23255735)	4
20 (35136714)	4

CT spine area of interest without and with IV contrast	Usually not appropriate	Limited	Varies	Varies	3	3	4	3	2	4	2	1	0	0	1

References	Study Quality
2 (34995265)	3
23 (25969937)	4
18 (23255735)	4
20 (35136714)	4

Bone scan whole body with SPECT or SPECT/CT area of interest	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	6	3	1	0	6	1	0	0	0

References	Study Quality
15 (27387155)	4
23 (25969937)	4
18 (23255735)	4

Bone scan whole body with SPECT or SPECT/CT complete spine	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	6	3	5	1	2	0	0	0	0

References	Study Quality
15 (27387155)	4
23 (25969937)	4
12 (32603067)	4
18 (23255735)	4

US spine area of interest	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	2	2	8	3	4	0	0	2	0	0	0

References	Study Quality
24 (28514223)	4

CT myelography complete spine	Usually not appropriate	Expert Consensus	☢☢☢☢☢ 30-100 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	13	2	2	0	0	0	0	0	0
CT myelography spine area of interest	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	13	2	2	0	0	0	0	0	0

CT complete spine without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	9	3	1	2	2	0	0	0	0

Variant 4: Child. Back pain. Known or suspected inflammation, infection, or neoplasm. Initial imaging.

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

References	Study Quality
16 (28786774)	4
12 (32603067)	4
25 (32058837)	4
20 (35136714)	4
22 (32530746)	4

MRI complete spine without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	1	0	0	7	6	3	0	0

References	Study Quality
16 (28786774)	4
12 (32603067)	4
25 (32058837)	4
20 (35136714)	4
22 (32530746)	4

Radiography spine area of interest	May be appropriate (Disagreement)	Expert Opinion	Varies	Varies	5	5	1	2	1	1	3	2	6	1	0

References	Study Quality
13 (26275972)	4
12 (32603067)	4
9 (28135365)	4
18 (23255735)	4

		25 (32058837)		4												
CT spine area of interest without IV contrast	May be appropriate	Limited	Varies	Varies	5	5	0	1	0	4	7	4	1	0	0
		References		Study Quality												
		3 (19926701)		4												
CT spine area of interest without and with IV contrast	May be appropriate (Disagreement)	Expert Opinion	Varies	Varies	5	5	2	5	3	3	1	2	1	0	0
		References		Study Quality												
		3 (19926701)		4												
CT spine area of interest with IV contrast	May be appropriate (Disagreement)	Expert Opinion	Varies	Varies	5	5	0	1	1	1	8	4	1	0	1
		References		Study Quality												
		3 (19926701)		4												
		19 (32364883)		4												
		20 (35136714)		4												
Radiography complete spine	May be appropriate (Disagreement)	Expert Opinion		☢☢☢ 0.3-3 mSv [ped]	5	5	2	1	1	5	4	2	2	0	0
		References		Study Quality												
		13 (26275972)		4												
		12 (32603067)		4												
		9 (28135365)		4												
		18 (23255735)		4												
		25 (32058837)		4												
MRI complete spine with IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	2	7	1	4	0	1	2	0	0
		References		Study Quality												
		16 (28786774)		4												
		12 (32603067)		4												
		25 (32058837)		4												

		20 (35136714)		4											
		22 (32530746)		4											
CT complete spine without and with IV contrast	May be appropriate (Disagreement)	Expert Opinion	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	3	10	1	0	0	2	1	0	0
		References		Study Quality											
		20 (35136714)		4											
CT complete spine without IV contrast	May be appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	0	2	3	3	7	0	2	0	0
		References		Study Quality											
		3 (19926701)		4											
CT complete spine with IV contrast	May be appropriate (Disagreement)	Expert Opinion	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	0	3	0	2	9	1	2	0	0
		References		Study Quality											
		3 (19926701)		4											
		19 (32364883)		4											
		20 (35136714)		4											
Bone scan whole body with SPECT or SPECT/CT complete spine	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	9	3	4	1	0	0	0	0	0
Bone scan whole body with SPECT or SPECT/CT area of interest	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	10	2	2	1	2	0	0	0	0
CT myelography complete spine	Usually not appropriate	Expert Consensus	☢☢☢☢☢ 30-100 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	12	3	2	0	0	0	0	0	0
CT myelography spine area of interest	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	12	3	2	0	0	0	0	0	0
US spine area of interest	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	2	0	1	1	1	0	0	0

Variant 5: Child. Back pain. With at least one clinical red flag. Suspected infection, inflammation, or malignancy on radiography. 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 spine area of interest without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	8	8	1	0	1	0	0	2	3	5	5
	References		Study Quality												
	16 (28786774)		4												
	12 (32603067)		4												
	25 (32058837)		4												
	20 (35136714)		4												
	22 (32530746)		4												
MRI complete spine without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	1	0	1	0	1	2	4	5	3
	References		Study Quality												
	16 (28786774)		4												
	12 (32603067)		4												
	25 (32058837)		4												
	20 (35136714)		4												
	22 (32530746)		4												
MRI complete spine without IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	0	1	2	1	3	7	2	1	0
	References		Study Quality												
	16 (28786774)		4												
	12 (32603067)		4												
	25 (32058837)		4												
	20 (35136714)		4												
	22 (32530746)		4												
Bone scan whole body with SPECT or SPECT/CT area of interest	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	2	1	2	1	9	1	1	0	0
	References		Study Quality												

		18 (23255735)		4											
		25 (32058837)		4											
		20 (35136714)		4											
Bone scan whole body with SPECT or SPECT/CT complete spine	May be appropriate (Disagreement)	Expert Opinion	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	4	3	3	2	1	2	1	1	0
		References		Study Quality											
		24 (28514223)		4											
		18 (23255735)		4											
		20 (35136714)		4											
FDG-PET/CT whole body	May be appropriate (Disagreement)	Expert Opinion	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	1	1	0	0	6	7	1	1	0
		References		Study Quality											
		29 (30420225)		4											
CT spine area of interest without IV contrast	May be appropriate	Limited	Varies	Varies	5	5	0	1	1	3	11	0	0	1	0
		References		Study Quality											
		3 (19926701)		4											
		18 (23255735)		4											
CT spine area of interest with IV contrast	May be appropriate	Limited	Varies	Varies	5	5	0	1	1	1	10	3	1	0	0
		References		Study Quality											
		3 (19926701)		4											
		19 (32364883)		4											
		18 (23255735)		4											
		20 (35136714)		4											
MRI spine area of interest without IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	1	1	1	1	3	7	2	1	0
		References		Study Quality											
		16 (28786774)		4											
		12 (32603067)		4											

		25 (32058837)		4												
		20 (35136714)		4												
		22 (32530746)		4												
MRI spine area of interest with IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	3	6	1	3	1	1	0	2	0
		References		Study Quality												
		20 (35136714)		4												
CT complete spine with IV contrast	May be appropriate (Disagreement)	Expert Opinion	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	0	2	0	4	8	1	0	2	0
		References		Study Quality												
		3 (19926701)		4												
		19 (32364883)		4												
		18 (23255735)		4												
		20 (35136714)		4												
CT complete spine without IV contrast	May be appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	4	4	0	2	2	5	6	1	0	1	0
		References		Study Quality												
		3 (19926701)		4												
		18 (23255735)		4												
CT spine area of interest without and with IV contrast	Usually not appropriate	Limited	Varies	Varies	3	3	4	4	5	2	1	0	0	0	1
		References		Study Quality												
		3 (19926701)		4												
		18 (23255735)		4												
		20 (35136714)		4												
MRI complete spine with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	2	2	3	6	2	3	1	1	1	0	0
		References		Study Quality												
		20 (35136714)		4												

CT myelography complete spine	Usually not appropriate	Limited	☢☢☢☢☢ 30-100 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	8	5	3	1	0	0	0	0	0
	References		Study Quality												
	23 (25969937)		4												
CT complete spine without and with IV contrast	Usually not appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	2	9	4	0	1	0	0	0	1
	References		Study Quality												
	3 (19926701)		4												
	20 (35136714)		4												
CT myelography spine area of interest	Usually not appropriate	Limited	Varies	Varies	1	1	9	5	2	1	0	0	0	0	0
	References		Study Quality												
	23 (25969937)		4												
US spine area of interest	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	4	1	0	0	1	0	0	0

Variant 6: Child. Chronic mechanical back pain associated with overuse or repetitive activity. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Radiography spine area of interest	Usually appropriate	Limited	Varies	Varies	8	8	0	0	1	1	0	0	4	3	8
	References		Study Quality												
	17 (24686297)		3												
	35 (23334124)		3												
	1 (33781487)		4												
	2 (34995265)		3												
	32 (35767547)		3												
	16 (28786774)		4												

		12 (32603067)		4											
		9 (28135365)		4											
MRI spine area of interest without IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	0	1	1	2	3	7	1	1	1
		References		Study Quality											
		3 (19926701)		4											
		14 (20495823)		4											
		16 (28786774)		4											
Radiography complete spine	May be appropriate (Disagreement)	Expert Opinion		☢☢☢ 0.3-3 mSv [ped]	5	5	4	5	2	0	2	3	1	0	0
		References		Study Quality											
		17 (24686297)		3											
		35 (23334124)		3											
		1 (33781487)		4											
		2 (34995265)		3											
		32 (35767547)		3											
		16 (28786774)		4											
		12 (32603067)		4											
		9 (28135365)		4											
Bone scan whole body with SPECT or SPECT/CT area of interest	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	4	4	3	3	2	4	3	1	1	0	0
		References		Study Quality											
		3 (19926701)		4											
		14 (20495823)		4											
		34 (16557139)		3											
		33 (29989259)		4											
		30 (28349205)		4											
CT spine area of interest without IV contrast	May be appropriate	Limited	Varies	Varies	4	4	0	1	0	8	5	2	0	1	0
		References		Study Quality											

		2 (34995265)		3											
		23 (25969937)		4											
		18 (23255735)		4											
MRI complete spine without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	2	2	6	6	4	0	0	1	0	0	0
		References		Study Quality											
		3 (19926701)		4											
		14 (20495823)		4											
		16 (28786774)		4											
Bone scan whole body with SPECT or SPECT/CT complete spine	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	7	7	2	0	1	0	0	0	0
		References		Study Quality											
		3 (19926701)		4											
		14 (20495823)		4											
		34 (16557139)		3											
		33 (29989259)		4											
		30 (28349205)		4											
CT complete spine without IV contrast	Usually not appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	7	8	1	0	1	0	0	0	0
		References		Study Quality											
		2 (34995265)		3											
		23 (25969937)		4											
		18 (23255735)		4											
MRI complete spine without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	3	0	1	0	1	0	1	0
CT spine area of interest without and with IV contrast	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	11	2	0	1	2	1	0	0	0
CT spine area of interest with IV contrast	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	11	2	0	2	2	0	0	0	0

MRI spine area of interest without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	2	1	0	1	0	0	0	0
MRI complete spine with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	3	0	1	0	1	1	0	0
MRI spine area of interest with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	2	1	0	1	0	0	0	0
CT myelography complete spine	Usually not appropriate	Expert Consensus	☢☢☢☢☢ 30-100 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	13	3	1	0	0	0	0	0	0
CT myelography spine area of interest	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	13	2	0	2	0	0	0	0	0
CT complete spine without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	12	3	0	0	2	0	0	0	0
CT complete spine with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	11	4	1	0	1	0	0	0	0
US spine area of interest	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	3	1	0	1	0	0	0	0

Variant 7: Child. Back pain with palpable lump or skin discoloration or hairy patch or draining sinus. Initial imaging.

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

References	Study Quality
27 (16224110)	4
16 (28786774)	4
12 (32603067)	4

MRI spine area of interest without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	1	0	4	1	6	4	1

References	Study Quality
27 (16224110)	4
16 (28786774)	4
12 (32603067)	4

US spine area of interest	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	1	1	2	4	2	1	6

References	Study Quality
27 (16224110)	4
36 (23601014)	4

MRI complete spine without IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	0	1	1	1	3	8	1	1	1

References	Study Quality
27 (16224110)	4
16 (28786774)	4
12 (32603067)	4

MRI complete spine without and with IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	1	1	1	3	6	1	1	2	1

References	Study Quality
27 (16224110)	4
16 (28786774)	4
12 (32603067)	4

MRI spine area of interest with IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	7	4	3	0	1	0	1	1	0

References	Study Quality
27 (16224110)	4
16 (28786774)	4
12 (32603067)	4

Radiography spine area of interest	Usually not appropriate	Expert Consensus	Varies	Varies	2	2	7	8	1	0	0	1	0	0	0
MRI complete spine with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	2	2	7	7	0	0	1	1	0	1	0

References	Study Quality
27 (16224110)	4
16 (28786774)	4
12 (32603067)	4

Bone scan whole body with SPECT or SPECT/CT area of interest	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	15	2	0	0	0	0	0	0	0
Bone scan whole body with SPECT or SPECT/CT complete spine	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	15	2	0	0	0	0	0	0	0
CT spine area of interest without IV contrast	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	9	2	2	2	1	1	0	0	0
CT spine area of interest without and with IV contrast	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	9	2	3	0	1	2	0	0	0
CT spine area of interest with IV contrast	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	10	3	2	0	0	2	0	0	0
Radiography complete spine	Usually not appropriate	Expert Consensus		☢☢☢ 0.3-3 mSv [ped]	1	1	9	7	0	1	0	0	0	0	0
CT myelography complete spine	Usually not appropriate	Expert Consensus	☢☢☢☢☢ 30-100 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	13	3	1	0	0	0	0	0	0
CT myelography spine area of interest	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	12	2	2	1	0	0	0	0	0
CT complete spine without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	10	2	3	1	0	1	0	0	0
CT complete spine without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	11	1	1	2	1	1	0	0	0

CT complete spine with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	12	2	1	1	0	1	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.**