American College of Radiology
ACR Appropriateness Criteria®

Hearing Loss and/or Vertigo

Variant 1: Acquired conductive hearing loss in absence of clinically evident mass in the middle ear. Initial imaging.

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 appropriate	Strong	☢☢☢ 1-10 mSv		9	9	0	0	0	1	0	0	0	2	12

References	Study Quality
5 (27430449)	4
1 (26491893)	4
10 (24625612)	2
11 (24162764)	2
12 (21739095)	4
8 (12563123)	2
9 (16424241)	2
2 (19733309)	4

CT temporal bone with IV contrast	Usually not appropriate	Strong	☢☢☢ 1-10 mSv		3	3	6	1	4	2	0	1	1	0	0

References	Study Quality
5 (27430449)	4
1 (26491893)	4
10 (24625612)	2
11 (24162764)	2
12 (21739095)	4
8 (12563123)	2

		9 (16424241)		2											
		2 (19733309)		4											
CT temporal bone without and with IV contrast	Usually not appropriate	Strong	☢☢☢ 1-10 mSv		2	2	7	1	3	0	2	2	0	0	0
		References		Study Quality											
		5 (27430449)		4											
		1 (26491893)		4											
		10 (24625612)		2											
		11 (24162764)		2											
		12 (21739095)		4											
		8 (12563123)		2											
		9 (16424241)		2											
		2 (19733309)		4											
CT head without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	2	2	7	2	5	1	0	0	0	0	0
CTA head with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	10	1	3	0	1	0	0	0	0
CT head with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	10	3	1	1	0	0	0	0	0
CT head without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	10	4	0	1	0	0	0	0	0
MRA head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	10	2	3	0	0	0	0	0	0
MRA head without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	1	3	0	0	0	0	0	0
MRI head and internal auditory canal without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	8	2	3	0	1	1	0	0	0
MRI head and internal auditory canal without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	8	2	4	0	0	0	0	1	0

MRV head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	2	2	0	0	0	0	0	0

Variant 2: Acquired conductive hearing loss secondary to cholesteatoma or neoplasm with suspected intracranial or inner ear extension. Surgical planning.

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 appropriate	Limited	☢☢☢ 1-10 mSv		9	9	0	0	0	1	0	0	2	0	12
References	Study Quality														
14 (26351038)	2														
1 (26491893)	4														
13 (23158050)	4														
2 (19733309)	4														
MRI head and internal auditory canal without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	1	0	0	1	0	2	3	8
References	Study Quality														
5 (27430449)	4														
13 (23158050)	4														
15 (22877955)	4														
2 (19733309)	4														
MRI head and internal auditory canal without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	0	1	1	1	10	1	0	1
References	Study Quality														
5 (27430449)	4														
13 (23158050)	4														
15 (22877955)	4														
2 (19733309)	4														
CTA head with IV contrast	May be appropriate (Disagreement)	Expert Opinion	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	2	2	4	3	2	0	2	0	0

CT temporal bone with IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv		5	5	1	0	0	6	6	2	0	0	0

References	Study Quality
14 (26351038)	2
1 (26491893)	4
13 (23158050)	4
2 (19733309)	4

CT temporal bone without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		3	3	6	1	3	1	2	1	1	0	0

References	Study Quality
14 (26351038)	2
1 (26491893)	4
13 (23158050)	4
2 (19733309)	4

MRA head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	3	2	8	1	0	0	1	0	0
MRA head without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	6	1	3	2	2	1	0	0	0
MRV head without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	3	3	5	1	7	1	0	0	1	0	0

References	Study Quality
5 (27430449)	4
13 (23158050)	4
15 (22877955)	4
2 (19733309)	4

CT head with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	2	2	6	2	3	2	0	1	0	0	1
CT head without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	2	2	7	2	4	0	0	1	1	0	0

MRV head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	1	7	3	2	0	0	2	0	0
CT head without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	8	3	1	0	1	2	0	0	0

Variant 3: Acquired sensorineural hearing loss. Initial imaging.

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	Strong	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	2	2	11

References	Study Quality
5 (27430449)	4
27 (24370138)	4
18 (23681028)	3
19 (22980677)	4
24 (306012)	4
20 (15454755)	1
25 (1636533)	4
26 (8279324)	3
22 (14967854)	3
30 (10817038)	2
21 (10512225)	3
2 (19733309)	4
28 (10733180)	4
23 (10782723)	4
29 (9227246)	3

MRI head and internal auditory canal without IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	0	2	4	4	5

References	Study Quality

5 (27430449)	4
27 (24370138)	4
18 (23681028)	3
19 (22980677)	4
24 (306012)	4
20 (15454755)	1
25 (1636533)	4
26 (8279324)	3
22 (14967854)	3
30 (10817038)	2
21 (10512225)	3
2 (19733309)	4
28 (10733180)	4
23 (10782723)	4
29 (9227246)	3

CT temporal bone without IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv		5	5	0	0	1	1	7	3	3	0	0

References	Study Quality
16 (23713470)	3
13 (23158050)	4
2 (19733309)	4

CT temporal bone with IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv		4	4	3	3	1	1	5	2	0	0	0

References	Study Quality
16 (23713470)	3
13 (23158050)	4
2 (19733309)	4

CT head with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	3	3	3	4	3	2	2	1	0	0	0

References	Study Quality
17 (28461783)	3

CT head without IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	3	3	3	1	7	2	0	1	1	0	0
	References	Study Quality													
	17 (28461783)	3													
CT temporal bone without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		2	2	6	2	3	0	2	2	0	0	0
	References	Study Quality													
	16 (23713470)	3													
	13 (23158050)	4													
	2 (19733309)	4													
CT head without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	5	3	4	1	1	1	0	0	0
	References	Study Quality													
	17 (28461783)	3													
CTA head with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	10	1	3	0	0	1	0	0	0
MRA head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	10	2	2	1	0	0	0	0	0
MRA head without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	1	2	1	0	0	0	0	0
MRV head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	1	2	1	0	0	0	0	0
MRV head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	1	1	0	0	0	0	0	0

Variant 4: Mixed conductive and sensorineural hearing loss. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9

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 appropriate	Limited	☢☢☢ 1-10 mSv		9	9	0	0	1	0	1	0	0	1	12
	References		Study Quality												
	31 (27364152)		3												
	32 (23235550)		4												
MRI head and internal auditory canal without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	1	1	2	7	4
	References		Study Quality												
	2 (19733309)		4												
MRI head and internal auditory canal without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	1	0	0	0	2	4	6	1	1
	References		Study Quality												
	2 (19733309)		4												
CT temporal bone with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		3	3	4	1	4	2	3	1	0	0	0
	References		Study Quality												
	31 (27364152)		3												
	32 (23235550)		4												
CT temporal bone without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		3	3	6	1	4	1	2	1	0	0	0
	References		Study Quality												
	31 (27364152)		3												
	32 (23235550)		4												
CT head with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	3	3	4	3	2	2	3	1	0	0	0
	References		Study Quality												
	17 (28461783)		3												

CT head without IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	3	3	3	2	6	2	0	1	1	0	0

References	Study Quality
17 (28461783)	3

CT head without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	6	3	3	2	1	0	0	0	0
CTA head with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	9	1	3	1	1	0	0	0	0
MRA head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	1	3	0	0	0	0	0	0
MRA head without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	1	3	0	0	0	0	0	0
MRV head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	1	3	0	0	0	0	0	0
MRV head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	2	0	0	0	0	0	0	0

Variant 5: Congenital hearing loss or total deafness or cochlear implant candidate. Surgical planning.

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 appropriate	Limited	☢☢☢ 1-10 mSv		9	9	0	0	0	0	0	0	0	2	13

References	Study Quality
35 (26810296)	3
33 (25573134)	3
34 (25208295)	4
36 (24232063)	3
24 (306012)	4

MRI head and internal auditory canal without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	1	2	4	5	3

References	Study Quality
39 (24892366)	4
38 (16151346)	3
37 (11950658)	4

MRI head and internal auditory canal without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	1	0	0	0	4	0	5	2	3

References	Study Quality
39 (24892366)	4
38 (16151346)	3
37 (11950658)	4

CT temporal bone with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		3	3	5	2	4	0	2	2	0	0	0

References	Study Quality
35 (26810296)	3
33 (25573134)	3
34 (25208295)	4
36 (24232063)	3
24 (306012)	4

CT temporal bone without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		2	2	7	1	3	1	2	1	0	0	0

References	Study Quality
35 (26810296)	3
33 (25573134)	3
34 (25208295)	4
36 (24232063)	3
24 (306012)	4

CTA head with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	10	1	2	1	1	0	0	0	0

CT head with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	8	2	5	0	0	0	0	0	0
CT head without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	9	0	5	0	0	0	0	1	0
CT head without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	9	1	5	0	0	0	0	0	0
MRA head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	2	2	0	0	0	0	0	0
MRA head without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	2	2	0	0	0	0	0	0
MRV head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	2	2	0	0	0	0	0	0
MRV head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	1	0	1	0	0	0	0	0

Variant 6: Episodic vertigo with or without associated hearing loss or aural fullness (peripheral vertigo). Initial imaging.

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 appropriate	Strong	☢☢☢ 1-10 mSv		8	8	0	0	1	0	0	0	1	6	7

References	Study Quality
14 (26351038)	2
5 (27430449)	4
8 (12563123)	2
9 (16424241)	2

MRI head and internal auditory canal without and with IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	2	0	1	5	7

References	Study Quality

46 (27300452)	3
5 (27430449)	4
53 (26333096)	3
45 (25985318)	2
54 (25956665)	3
49 (25742875)	2
52 (25457542)	2
44 (25251300)	2
51 (24769636)	3
47 (23995329)	4
50 (23474961)	3
48 (22201445)	3
42 (22201289)	3
43 (21330087)	2
4 (18646412)	4
3 (24314796)	4

MRI head and internal auditory canal without IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	7	7	1	0	0	0	2	1	5	5	1

References	Study Quality
46 (27300452)	3
5 (27430449)	4
53 (26333096)	3
45 (25985318)	2
54 (25956665)	3
49 (25742875)	2
52 (25457542)	2
44 (25251300)	2
51 (24769636)	3
47 (23995329)	4
50 (23474961)	3
48 (22201445)	3

		42 (22201289)		3											
		43 (21330087)		2											
		4 (18646412)		4											
		3 (24314796)		4											
CTA head and neck with IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	4	4	1	1	4	5	2	2	0	0	0
		References		Study Quality											
		41 (28328808)		3											
MRA head and neck without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	4	4	1	2	3	5	2	2	0	0	0
		References		Study Quality											
		55 (10459295)		3											
CT temporal bone with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		3	3	5	2	3	1	2	2	0	0	0
CT head with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	3	3	4	2	5	1	3	0	0	0	0
		References		Study Quality											
		40 (22940762)		4											
CT head without IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	3	3	2	4	3	3	2	0	1	0	0
		References		Study Quality											
		40 (22940762)		4											
CT head without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	4	3	5	3	0	0	0	0	0
		References		Study Quality											
		40 (22940762)		4											
MRA head and neck without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	3	3	1	3	5	4	1	1	0	0	0
		References		Study Quality											

		55 (10459295)		3											
CT temporal bone without and with IV contrast	Usually not appropriate	Strong	☢☢☢ 1-10 mSv		2	2	7	1	3	1	1	2	0	0	0
		References		Study Quality											
		14 (26351038)		2											
		5 (27430449)		4											
		8 (12563123)		2											
		9 (16424241)		2											
MRV head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	7	1	3	0	2	1	0	1	0
MRV head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	10	2	3	0	0	0	0	0	0

Variant 7: Persistent vertigo with or without neurological symptoms (central vertigo). Initial imaging.

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	Strong	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	1	2	12
		References		Study Quality											
		56 (27495834)		3											
		54 (25956665)		3											
		59 (24920847)		2											
		57 (23336972)		3											
		40 (22940762)		4											
		58 (11698800)		4											
		3 (24314796)		4											
MRI head and internal auditory canal without IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	1	1	5	5	3
		References		Study Quality											

		56 (27495834)		3											
		54 (25956665)		3											
		59 (24920847)		2											
		57 (23336972)		3											
		40 (22940762)		4											
		58 (11698800)		4											
		3 (24314796)		4											
CT head without IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	6	6	0	0	1	1	3	7	2	0	1
		References		Study Quality											
		56 (27495834)		3											
		54 (25956665)		3											
		40 (22940762)		4											
CTA head and neck with IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	6	6	0	0	1	0	1	8	5	0	0
		References		Study Quality											
		41 (28328808)		3											
MRA head and neck without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	0	1	0	3	8	3	0	0
		References		Study Quality											
		55 (10459295)		3											
MRA head and neck without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	0	1	0	1	7	6	0	0
		References		Study Quality											
		55 (10459295)		3											
CT head with IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	5	5	0	1	5	0	7	1	1	0	0
		References		Study Quality											
		56 (27495834)		3											
		54 (25956665)		3											

		40 (22940762)		4												
CT head without and with IV contrast	Usually not appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	2	3	5	0	3	2	0	0	0	
		References		Study Quality												
		56 (27495834)		3												
		54 (25956665)		3												
		40 (22940762)		4												
CT temporal bone without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		2	2	7	1	3	2	1	1	0	0	0	
CT temporal bone with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	10	1	2	2	0	0	0	0	0	
CT temporal bone without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	9	2	2	2	0	0	0	0	0	
MRV head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	8	3	2	1	1	0	0	0	0	
MRV head with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	10	3	1	0	1	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.**