

MRA abdomen without and with IV contrast	Usually appropriate	Strong	0 0 mSv	0 0 mSv [ped]	7	7	0	1	0	1	1	0	5	3	3
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References	Study Quality
33 (18372471)	1
35 (21542417)	2
36 (21833688)	4
38 (25204811)	4
70 (11956117)	2
71 (12773688)	2
6 (24245566)	1
37 (23917027)	4
34 (12096862)	M

MRA abdomen without IV contrast	May be appropriate (Disagreement)	Expert Opinion	0 0 mSv	0 0 mSv [ped]	5	5	1	1	7	1	1	3	0	0	0
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References	Study Quality
42 (23096208)	3
41 (21098205)	2
36 (21833688)	4
72 (12704782)	2
40 (18728334)	3
39 (33136181)	4

Arteriography kidney	Usually not appropriate	Strong	☼☼☼ 1-10 mSv		3	3	3	2	4	3	0	1	0	1	0
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References	Study Quality
24 (2648471)	2
23 (3526406)	3
21 (6385671)	4
22 (3923557)	4
19 (21078879)	4
20 (7089265)	3
18 (17084261)	4

44 (10742425)	3
45 (10957652)	3
46 (22595689)	2
47 (17764871)	4
48 (17384038)	4
50 (24172238)	4
51 (16301720)	2
43 (25539255)	1
49 (12515376)	4
4 (20864945)	4

MRA abdomen without and with IV contrast	Usually appropriate	Strong	0 0 mSv	0 0 mSv [ped]	7	7	0	0	0	0	2	0	9	2	1
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References	Study Quality
33 (18372471)	1
71 (12773688)	2
36 (21833688)	4
38 (25204811)	4
70 (11956117)	2
37 (23917027)	4
35 (21542417)	2
58 (24475854)	4
34 (12096862)	M

MRA abdomen without IV contrast	May be appropriate (Disagreement)	Expert Opinion	0 0 mSv	0 0 mSv [ped]	5	5	1	0	2	4	1	2	4	0	0
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References	Study Quality
42 (23096208)	3
41 (21098205)	2
36 (21833688)	4
72 (12704782)	2
40 (18728334)	3
39 (33136181)	4

10 (1837991)	4
11 (15728620)	3
16 (12411867)	4
13 (1831342)	3
12 (12230421)	2
14 (14500224)	3
15 (10816399)	2

Variant 3: Adult. Suspected renovascular hypertension. Known renal artery stenosis. Normal renal function. Follow-up imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CTA abdomen with IV contrast	Usually appropriate	Strong	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	8	8	0	0	0	0	0	1	4	6	3
			References	Study Quality											
			30 (23885929)	4											
			29 (11849401)	3											
			31 (18270376)	1											
			32 (17499952)	1											
			28 (9676442)	2											
US duplex Doppler kidneys retroperitoneal	Usually appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	8	8	0	0	0	0	0	1	4	5	4
			References	Study Quality											
			62 (2522152)	4											
			51 (16301720)	2											
			47 (17764871)	4											
			48 (17384038)	4											
			50 (24172238)	4											
			49 (12515376)	4											
			44 (10742425)	3											

		42 (23096208)			3													
		41 (21098205)			2													
		38 (25204811)			4													
		70 (11956117)			2													
		71 (12773688)			2													
		40 (18728334)			3													
ACE inhibitor renography	Usually not appropriate	Strong	☼☼☼ 1-10 mSv		3	3	4	0	7	0	3	0	0	0	0	0	0	0
		References																
		48 (17384038)			4													
		47 (17764871)			4													
		13 (1831342)			3													
		12 (12230421)			2													
		11 (15728620)			3													
		14 (14500224)			3													
		6 (24245566)			1													
		9 (11560453)			M													
		10 (1837991)			4													
		15 (10816399)			2													
Venography with renal vein sampling	Usually not appropriate	Limited	Varies	Varies	2	2	5	4	4	0	0	0	1	0	0			
		References																
		14 (14500224)			3													
		52 (17192278)			4													
		73 (19233590)			3													
		74 (24155154)			3													

Variant 4: Adult. Suspected renovascular hypertension. Known renal artery stenosis. Decreased renal function. eGFR less than 30 mL/min/1.73 m². Follow-up imaging.

42 (23096208)	3
41 (21098205)	2
38 (25204811)	4
70 (11956117)	2
71 (12773688)	2
40 (18728334)	3

CTA abdomen with IV contrast	Usually not appropriate	Strong	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	2	2	6	1	3	0	0	0	0
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References	Study Quality
30 (23885929)	4
29 (11849401)	3
58 (24475854)	4
31 (18270376)	1
32 (17499952)	1
28 (9676442)	2

Arteriography kidney	Usually not appropriate	Limited	☼☼☼ 1-10 mSv		3	3	4	3	5	2	0	0	0	0	0
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References	Study Quality
64 (10584800)	4
24 (2648471)	2
21 (6385671)	4
22 (3923557)	4
23 (3526406)	3
20 (7089265)	3
18 (17084261)	4
19 (21078879)	4
61 (-3188535)	4

ACE inhibitor renography	Usually not appropriate	Strong	☼☼☼ 1-10 mSv		2	2	6	3	3	1	0	0	1	0	0
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References	Study Quality
47 (17764871)	4

14 (14500224)	3
13 (1831342)	3
12 (12230421)	2
10 (1837991)	4
11 (15728620)	3
6 (24245566)	1
9 (11560453)	M
15 (10816399)	2

Venography with renal vein sampling	Usually not appropriate	Limited	Varies	Varies	1	1	9	2	3	0	0	0	0	0	0
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References	Study Quality
74 (24155154)	3
52 (17192278)	4
73 (19233590)	3
14 (14500224)	3

Variant 5: Adult. Known renovascular hypertension. Posttreatment evaluation of renal artery stenosis.

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

References	Study Quality
69 (19561264)	2
68 (12490511)	2
30 (23885929)	4
28 (9676442)	2
29 (11849401)	3
67 (12148095)	3
58 (24475854)	4

21 (6385671)	4
22 (3923557)	4
23 (3526406)	3
20 (7089265)	3
18 (17084261)	4
19 (21078879)	4

MRA abdomen without IV contrast	Usually not appropriate	Strong	0 0 mSv	0 0 mSv [ped]	3	3	1	1	6	3	3	0	0	0	0
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References	Study Quality
43 (25539255)	1
42 (23096208)	3
70 (11956117)	2
71 (12773688)	2
72 (12704782)	2
41 (21098205)	2
36 (21833688)	4
38 (25204811)	4
37 (23917027)	4

Venography with renal vein sampling	Usually not appropriate	Limited	Varies	Varies	2	2	5	5	4	0	0	0	0	0	0
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References	Study Quality
14 (14500224)	3
52 (17192278)	4
73 (19233590)	3
74 (24155154)	3

ACE inhibitor renography	Usually not appropriate	Strong	☼☼☼ 1-10 mSv		2	2	6	6	2	0	0	0	0	0	0
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References	Study Quality
48 (17384038)	4
47 (17764871)	4
13 (1831342)	3

12 (12230421)	2
15 (10816399)	2
16 (12411867)	4
46 (22595689)	2
17 (10658939)	3
10 (1837991)	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.