

MRI abdomen without and with IV contrast	Usually not appropriate	Limited	0 0 mSv	0 0 mSv [ped]	2	2	8	4	4	0	0	1	0	0	0
		References	Study Quality												
		4 (8495301)	4												
		5 (1745970)	4												
		6 (18430826)	4												
CT abdomen with IV contrast	Usually not appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	11	3	2	0	1	0	0	0	0
		References	Study Quality												
		4 (8495301)	4												
		5 (1745970)	4												
		6 (18430826)	4												
Image-guided biopsy adrenal gland	Usually not appropriate	Limited	Varies	Varies	1	1	15	0	1	0	0	0	1	0	0
		References	Study Quality												
		27 (9167965)	4												
		28 (10732267)	4												
		29 (10690869)	4												
		30 (9267279)	3												
FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	13	2	1	0	1	0	0	0	0
		References	Study Quality												
		4 (8495301)	4												
		5 (1745970)	4												
		6 (18430826)	4												
		26 (15585482)	3												
		25 (21330566)	Good												

Variant 2: Indeterminate adrenal mass, 1 to 2 cm on initial imaging. No diagnostic benign imaging features. No history of malignancy. Follow-up imaging in 12 months.

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

References	Study Quality
43 (24647823)	2
34 (9648789)	4
36 (14975968)	4
35 (2014283)	2
37 (9490968)	3
40 (9275981)	4
38 (11044054)	4
39 (14628882)	3
41 (9577483)	2
42 (17517932)	2

CT abdomen without and with IV contrast	Usually appropriate	Strong	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	7	7	0	0	0	0	0	4	6	8	1
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References	Study Quality
43 (24647823)	2
34 (9648789)	4
36 (14975968)	4
35 (2014283)	2
37 (9490968)	3
40 (9275981)	4
38 (11044054)	4
39 (14628882)	3
41 (9577483)	2
42 (17517932)	2

MRI abdomen without IV contrast	Usually appropriate	Strong	0 0 mSv	0 0 mSv [ped]	7	7	0	1	0	0	2	5	3	6	0
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References	Study Quality
57 (11441561)	4
50 (2773732)	4
59 (15118113)	3
60 (14994299)	4
51 (1410337)	4
52 (8430178)	3
53 (7785642)	3
56 (12760936)	3
54 (7484585)	4
58 (17056891)	4
61 (20093571)	3
62 (19097108)	3
20 (26233268)	2
18 (24951201)	3
19 (17466481)	3

MRI abdomen without and with IV contrast	May be appropriate	Strong	0 0 mSv	0 0 mSv [ped]	6	6	0	1	0	2	3	10	2	1	0
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References	Study Quality
57 (11441561)	4
50 (2773732)	4
59 (15118113)	3
60 (14994299)	4
51 (1410337)	4
52 (8430178)	3
53 (7785642)	3
56 (12760936)	3
54 (7484585)	4
55 (7645474)	2

58 (17056891)	4
61 (20093571)	3
62 (19097108)	3
20 (26233268)	2
18 (24951201)	3
19 (17466481)	3

CT abdomen with IV contrast	Usually not appropriate	Strong	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	5	2	6	1	1	1	1	0	0
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References	Study Quality
43 (24647823)	2
34 (9648789)	4
36 (14975968)	4
35 (2014283)	2
37 (9490968)	3
40 (9275981)	4
38 (11044054)	4
39 (14628882)	3
41 (9577483)	2
42 (17517932)	2

Image-guided biopsy adrenal gland	Usually not appropriate	Limited	Varies	Varies	1	1	12	1	2	1	1	0	0	0	0
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References	Study Quality
46 (8497619)	3
7 (3871150)	4
47 (1910990)	4
27 (9167965)	4
45 (1643776)	4
28 (10732267)	4
29 (10690869)	4
30 (9267279)	3
48 (19451490)	4

		42 (17517932)			2													
MRI abdomen without IV contrast	Usually appropriate	Strong	0 0 mSv	0 0 mSv [ped]	7	7	0	1	0	1	1	5	5	4	0			

References	Study Quality
57 (11441561)	4
50 (2773732)	4
59 (15118113)	3
60 (14994299)	4
51 (1410337)	4
52 (8430178)	3
53 (7785642)	3
56 (12760936)	3
54 (7484585)	4
55 (7645474)	2
58 (17056891)	4
61 (20093571)	3
62 (19097108)	3

MRI abdomen without and with IV contrast	Usually appropriate	Strong	0 0 mSv	0 0 mSv [ped]	7	7	0	1	1	0	1	1	6	5	2			
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References	Study Quality
57 (11441561)	4
50 (2773732)	4
59 (15118113)	3
60 (14994299)	4
51 (1410337)	4
52 (8430178)	3
53 (7785642)	3
56 (12760936)	3
54 (7484585)	4
55 (7645474)	2
58 (17056891)	4

			61 (20093571)		3													
			62 (19097108)		3													
CT abdomen without IV contrast	May be appropriate	Strong	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	6	6	0	1	0	0	2	7	2	7	0			
			References		Study Quality													
			43 (24647823)		2													
			34 (9648789)		4													
			36 (14975968)		4													
			35 (2014283)		2													
			37 (9490968)		3													
			40 (9275981)		4													
			38 (11044054)		4													
			39 (14628882)		3													
			41 (9577483)		2													
			42 (17517932)		2													
CT abdomen with IV contrast	Usually not appropriate	Strong	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	4	3	6	2	1	0	1	0	0			
			References		Study Quality													
			43 (24647823)		2													
			34 (9648789)		4													
			36 (14975968)		4													
			35 (2014283)		2													
			37 (9490968)		3													
			40 (9275981)		4													
			38 (11044054)		4													
			39 (14628882)		3													
			41 (9577483)		2													
			42 (17517932)		2													
FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Moderate	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	2	2	8	6	2	0	0	1	0	0	0			

References	Study Quality
4 (8495301)	4
64 (15181132)	4
5 (1745970)	4
6 (18430826)	4
26 (15585482)	3
21 (16391184)	3
44 (18566816)	2
65 (15197504)	3
25 (21330566)	Good

Image-guided biopsy adrenal gland	Usually not appropriate	Limited	Varies	Varies	1	1	9	5	2	0	0	0	1	0	0
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References	Study Quality
46 (8497619)	3
7 (3871150)	4
47 (1910990)	4
27 (9167965)	4
45 (1643776)	4
28 (10732267)	4
29 (10690869)	4
30 (9267279)	3
48 (19451490)	4
49 (24836548)	3

Variant 4: Indeterminate adrenal mass, greater than or equal to 4 cm on initial imaging. No diagnostic benign imaging features. No history of malignancy. Adrenal specific imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CT abdomen without and with IV contrast	Usually not appropriate	Limited	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗⊗ 10-30	3	3	1	3	13	1	0	0	1	0	0

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations												
							1	2	3	4	5	6	7	8	9				
				mSv [ped]															
		References		Study Quality															
		27 (9167965)		4															
		28 (10732267)		4															
		29 (10690869)		4															
		30 (9267279)		3															
Image-guided biopsy adrenal gland	Usually not appropriate	Limited	Varies	Varies	3	3	6	2	6	2	0	0	0	0	1	0			
		References		Study Quality															
		46 (8497619)		3															
		7 (3871150)		4															
		47 (1910990)		4															
		27 (9167965)		4															
		45 (1643776)		4															
		28 (10732267)		4															
		29 (10690869)		4															
		30 (9267279)		3															
		48 (19451490)		4															
		49 (24836548)		3															
MRI abdomen without IV contrast	Usually not appropriate	Limited	0 0 mSv	0 0 mSv [ped]	3	3	6	2	3	4	0	0	1	1	0				
		References		Study Quality															
		27 (9167965)		4															
		28 (10732267)		4															
		29 (10690869)		4															
		30 (9267279)		3															
MRI abdomen without and with IV contrast	Usually not appropriate	Limited	0 0 mSv	0 0 mSv [ped]	3	3	4	3	3	4	1	2	0	0	0				

		References	Study Quality												
		27 (9167965)	4												
		28 (10732267)	4												
		29 (10690869)	4												
		30 (9267279)	3												
CT abdomen with IV contrast	Usually not appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	2	2	7	2	5	1	0	1	1	0	0
		References	Study Quality												
		27 (9167965)	4												
		28 (10732267)	4												
		29 (10690869)	4												
		30 (9267279)	3												
CT abdomen without IV contrast	Usually not appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	2	2	7	2	3	3	1	0	0	1	0
		References	Study Quality												
		27 (9167965)	4												
		28 (10732267)	4												
		29 (10690869)	4												
		30 (9267279)	3												
FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	2	2	6	3	4	2	2	0	0	0	0
		References	Study Quality												
		64 (15181132)	4												
		21 (16391184)	3												
		44 (18566816)	2												
		65 (15197504)	3												

Variant 5: Adrenal mass, less than 4 cm on initial imaging. No diagnostic benign imaging features. History of malignancy. Adrenal specific imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CT abdomen without and with IV contrast	Usually appropriate	Strong	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗⊗ 10-30 mSv [ped]	8	8	0	0	0	1	0	1	0	8	7

References	Study Quality
43 (24647823)	2
34 (9648789)	4
36 (14975968)	4
35 (2014283)	2
37 (9490968)	3
40 (9275981)	4
38 (11044054)	4
39 (14628882)	3
41 (9577483)	2
42 (17517932)	2

MRI abdomen without and with IV contrast	Usually appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	7	7	0	1	0	0	3	2	6	5	2
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References	Study Quality
57 (11441561)	4
50 (2773732)	4
59 (15118113)	3
60 (14994299)	4
51 (1410337)	4
52 (8430178)	3
53 (7785642)	3
56 (12760936)	3
58 (17056891)	4
61 (20093571)	3
62 (19097108)	3
83 (10652932)	4

7 (3871150)	4
47 (1910990)	4
81 (15039183)	4
45 (1643776)	4
48 (19451490)	4
49 (24836548)	3

MRI abdomen without IV contrast	May be appropriate	Limited	0 0 mSv	0 0 mSv [ped]	6	6	0	0	1	1	3	13	1	0	0
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References	Study Quality
57 (11441561)	4
50 (2773732)	4
59 (15118113)	3
60 (14994299)	4
51 (1410337)	4
52 (8430178)	3
53 (7785642)	3
56 (12760936)	3
58 (17056891)	4
61 (20093571)	3
62 (19097108)	3
83 (10652932)	4
82 (9314970)	3

CT abdomen with IV contrast	Usually not appropriate	Strong	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	4	3	6	1	1	1	1	0	0
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References	Study Quality
43 (24647823)	2
34 (9648789)	4
36 (14975968)	4
35 (2014283)	2
37 (9490968)	3
40 (9275981)	4

48 (19451490)	4
49 (24836548)	3

CT abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	3	3	3	4	9	1	0	0	1	1	0
MRI abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	3	3	3	6	8	1	0	0	0	1	0
CT abdomen with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	2	2	8	4	3	0	1	1	0	0	0
CT abdomen without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	2	2	6	3	3	3	0	1	1	0	0
MRI abdomen without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	2	2	3	8	7	0	0	0	1	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.