

American College of Radiology
ACR Appropriateness Criteria®

Abdominal Pain-Child

Variant 1: Child. Acute abdominal pain. Suspected constipation. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Radiography abdomen and pelvis	May be appropriate	Strong	☻☻☻ 1-10 mSv	☻☻☻ 0.3-3 mSv [ped]	5	5	0	0	2	5	5	2	0	0	0
		References		Study Quality											
		21 (37079657)		4											
		20 (32300503)		3											
		16 (22341242)		Inadequate											
		17 (12230285)		3											
		18 (16283286)		2											
		19 (10199902)		1											
		10 (30045349)		4											
		12 (28632576)		3											
		9 (27299294)		3											
		11 (15997002)		4											
		13 (498690)		4											
		14 (11315444)		3											
		15 (7607277)		4											
		US abdomen	Usually not appropriate	Limited	○ ○ mSv										○ ○ mSv [ped]
		References		Study Quality											
		9 (27299294)		3											

		References	Study Quality													
		41 (36919137)	Good													
		40 (32936473)	Inadequate													
		39 (31182360)	Good													
Radiography abdomen and pelvis	May be appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	5	5	0	0	1	5	5	1	1	2	0	
		References	Study Quality													
		38 (35049201)	3													
		37 (26546340)	4													
		33 (23364378)	3													
		34 (31857641)	3													
		36 (32519054)	3													
		35 (33067505)	3													
CT abdomen and pelvis with IV contrast	Usually not appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	5	0	6	3	1	0	0	0	0	
		References	Study Quality													
		31 (12695864)	4													
Fluoroscopy contrast enema	Usually not appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	2	2	4	5	5	0	0	0	0	0	0	
		References	Study Quality													
		32 (24759487)	3													
CT abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	11	1	2	0	1	0	0	0	0	
CT abdomen and pelvis without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	1	1	11	1	3	0	0	0	0	0	0	
Fluoroscopy barium enema single-contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	10	1	1	1	0	1	1	0	0	

		1 (33153561)		4											
		52 (33879472)		Good											
		51 (25023580)		4											
Fluoroscopy contrast enema	Usually not appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	4	2	2	5	2	0	0	0	0
		References		Study Quality											
		48 (32572600)		2											
CT abdomen with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	13	0	1	0	0	0	0	0	0
CT abdomen without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	11	0	2	1	1	0	0	0	0
CT abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	1	1	11	0	1	0	1	2	0	0	0
CT abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	10	2	1	1	0	1	0	0	0
CT abdomen and pelvis without and with IV contrast	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	1	1	9	2	1	0	1	2	0	0	0
		References		Study Quality											
		47 (26866378)		2											
Fluoroscopy small bowel follow-through	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	9	0	4	0	1	1	0	0	0
Fluoroscopy upper GI series	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	8	2	2	3	0	0	0	0	0
Fluoroscopy upper GI series with small bowel follow-through	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	9	1	2	2	0	1	0	0	0

		45 (28318600)			4											
Fluoroscopy small bowel follow-through	Usually not appropriate	Limited	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	3	3	3	3	4	3	1	0	1	0	0	
		References		Study Quality												
		55 (33876300)		4												
		56 (30414689)		2												
Fluoroscopy upper GI series	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv	☹☹☹ 0.3-3 mSv [ped]	2	2	4	4	1	3	1	2	0	0	0	
Fluoroscopy upper GI series with small bowel follow-through	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	2	2	7	3	3	1	0	0	1	0	0	
CT abdomen with IV contrast	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	1	1	12	1	1	0	0	0	0	0	0	
CT abdomen without IV contrast	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	1	1	11	0	1	2	0	1	0	0	0	
CT abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	☹☹☹☹ 10-30 mSv	☹☹☹☹☹ 10-30 mSv [ped]	1	1	10	1	1	1	1	1	0	0	0	
CT abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	1	1	10	1	1	2	0	0	1	0	0	
CT abdomen and pelvis without and with IV contrast	Usually not appropriate	Expert Consensus	☹☹☹☹ 10-30 mSv	☹☹☹☹☹ 10-30 mSv [ped]	1	1	9	1	1	3	0	0	0	1	0	
Fluoroscopy contrast enema	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	1	1	10	2	0	2	0	0	1	0	0	
MRI abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	11	2	0	0	1	0	1	0	0	
MRI abdomen and pelvis without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	10	3	0	0	1	0	1	0	0	

US duplex Doppler abdomen	Usually not appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	1	1	9	4	1	0	0	0	0	1	0
MRI abdomen and pelvis with IV contrast	Usually not appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	1	1	11	2	0	0	0	0	1	1	0

Variant 5: Infant. Suspected necrotizing enterocolitis. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Radiography abdomen and pelvis	Usually appropriate	Limited	⊗⊗⊗ 1-10 mSv	⊗⊗⊗ 0.3-3 mSv [ped]	9	9	0	0	0	0	2	0	1	2	10

References	Study Quality
66 (27844167)	4
65 (18798378)	4
60 (21247316)	4
64 (12483631)	3

US abdomen	Usually appropriate	Limited	0 0 mSv	0 0 mSv [ped]	7	7	0	0	1	0	0	1	7	2	4
------------	---------------------	---------	---------	---------------	---	---	---	---	---	---	---	---	---	---	---

References	Study Quality
71 (36959616)	3
70 (37079037)	3
67 (29602968)	4
69 (29260286)	Inadequate
68 (29721677)	Good

CT abdomen and pelvis with IV contrast	Usually not appropriate	Limited	⊗⊗⊗ 1-10 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	2	2	7	5	2	0	0	0	0	0	0
--	-------------------------	---------	--------------	---------------------	---	---	---	---	---	---	---	---	---	---	---

References	Study Quality
5 (34333905)	3

US duplex Doppler abdomen	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	2	2	3	5	5	0	1	0	0	0	0
		References		Study Quality											
		74 (31705672)		4											
		73 (26419386)		3											
CT abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	⊗⊗⊗ 1-10 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	1	1	11	1	1	2	0	0	0	0	0
CT abdomen and pelvis without and with IV contrast	Usually not appropriate	Limited	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗⊗ 10-30 mSv [ped]	1	1	8	3	2	1	0	0	1	0	0
		References		Study Quality											
		5 (34333905)		3											
Fluoroscopy contrast enema	Usually not appropriate	Limited	⊗⊗⊗ 1-10 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	1	1	9	4	1	1	0	0	0	0	0
		References		Study Quality											
		63 (26831533)		3											
		62 (26915085)		4											
		61 (25023581)		3											
MRI abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	12	1	0	2	0	0	0	0	0
MRI abdomen and pelvis without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	11	2	0	2	0	0	0	0	0
MRI abdomen and pelvis with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	11	2	0	2	0	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.