American College of Radiology
ACR Appropriateness Criteria®

Acute Onset Flank Pain-Suspicion of Stone Disease (Urolithiasis)

Variant 1: Suspicion of stone disease.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CT abdomen and pelvis without IV contrast	Usually appropriate		☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	8	n/a	0	0	0	0	0	0	0	0	0
CT abdomen and pelvis without and with IV contrast	May be appropriate		☢☢☢☢ 10-30 mSv	☢☢☢☢☢ 10-30 mSv [ped]	6	n/a	0	0	0	0	0	0	0	0	0
US color Doppler kidneys and bladder retroperitoneal	May be appropriate		O 0 mSv	O 0 mSv [ped]	6	n/a	0	0	0	0	0	0	0	0	0
Radiography intravenous urography	May be appropriate		☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	4	n/a	0	0	0	0	0	0	0	0	0
MRI abdomen and pelvis without IV contrast	May be appropriate		O 0 mSv	O 0 mSv [ped]	4	n/a	0	0	0	0	0	0	0	0	0
MRI abdomen and pelvis without and with IV contrast	May be appropriate		O 0 mSv	O 0 mSv [ped]	4	n/a	0	0	0	0	0	0	0	0	0
Radiography abdomen and pelvis (KUB)	Usually not appropriate		☢☢ 0.1-1mSv	☢☢ 0.03-0.3 mSv [ped]	3	n/a	0	0	0	0	0	0	0	0	0
CT abdomen and pelvis with IV contrast	Usually not appropriate		☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0

Variant 2: Recurrent symptoms of stone disease.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CT abdomen and pelvis without IV contrast	Usually appropriate		☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	7	n/a	0	0	0	0	0	0	0	0	0
US color Doppler kidneys and bladder retroperitoneal	Usually appropriate		O 0 mSv	O 0 mSv [ped]	7	n/a	0	0	0	0	0	0	0	0	0
CT abdomen and pelvis without and with IV contrast	May be appropriate		☢☢☢☢ 10-30 mSv	☢☢☢☢☢ 10-30 mSv [ped]	6	n/a	0	0	0	0	0	0	0	0	0
Radiography abdomen and pelvis (KUB)	May be appropriate		☢☢ 0.1-1mSv	☢☢ 0.03-0.3 mSv [ped]	5	n/a	0	0	0	0	0	0	0	0	0
MRI abdomen and pelvis without IV contrast	May be appropriate		O 0 mSv	O 0 mSv [ped]	4	n/a	0	0	0	0	0	0	0	0	0
MRI abdomen and pelvis without and with IV contrast	May be appropriate		O 0 mSv	O 0 mSv [ped]	4	n/a	0	0	0	0	0	0	0	0	0
CT abdomen and pelvis with IV contrast	Usually not appropriate		☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0
Radiography intravenous urography	Usually not appropriate		☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0

Variant 3: Pregnant patient.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
US color Doppler kidneys and	Usually		O 0 mSv	O 0 mSv	8	n/a	0	0	0	0	0	0	0	0	0

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
bladder retroperitoneal	appropriate			[ped]											
CT abdomen and pelvis without IV contrast	May be appropriate		☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	6	n/a	0	0	0	0	0	0	0	0	0
MRI abdomen and pelvis without IV contrast	May be appropriate		O 0 mSv	O 0 mSv [ped]	5	n/a	0	0	0	0	0	0	0	0	0
CT abdomen and pelvis without and with IV contrast	Usually not appropriate		☢☢☢☢ 10-30 mSv	☢☢☢☢☢ 10-30 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0
Radiography abdomen and pelvis (KUB)	Usually not appropriate		☢☢ 0.1-1mSv	☢☢ 0.03-0.3 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0
CT abdomen and pelvis with IV contrast	Usually not appropriate		☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0
Radiography intravenous urography	Usually not appropriate		☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
MRI abdomen and pelvis without and with IV contrast	Usually not appropriate		O 0 mSv	O 0 mSv [ped]	1	n/a	0	0	0	0	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.**