

American College of Radiology ACR Appropriateness Criteria®

Staging and Follow-up of Gastric Cancer

Variant 1: Adult. Suspected gastric adenocarcinoma. Initial imaging.

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 with IV contrast	Usually appropriate	Limited	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	9	9	0	0	2	0	0	0	0	5	7
		References	Study Quality												
		14 (32410543)	1												
		13 (25598676)	4												
		12 (28668437)	3												
FDG-PET/CT skull base to mid-thigh	Usually appropriate	Strong	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	7	7	1	0	0	0	1	1	9	2	0
		References	Study Quality												
		19 (36653862)	Good												
		18 (24562822)	4												
		17 (26287421)	2												
		16 (26350283)	4												
		15 (23434453)	3												
CT abdomen and pelvis without and with IV contrast	May be appropriate	Expert Consensus	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕⊕ 10-30 mSv [ped]	5	5	0	1	4	2	7	0	0	0	0
US abdomen endoscopic	May be appropriate (Disagreement)	Expert Opinion	○ 0 mSv	○ 0 mSv [ped]	5	5	1	1	3	1	2	1	4	1	0

		References	Study Quality													
		23 (35811661)	3													
		24 (30526671)	3													
MRI abdomen without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	4	4	1	3	2	3	4	1	0	0	0	0
		References	Study Quality													
		21 (39012251)	1													
		20 (24837701)	3													
CT abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	3	3	4	1	8	1	0	0	0	0	0	0
Fluoroscopy upper GI series	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv	☹☹☹ 0.3-3 mSv [ped]	3	3	4	3	3	1	3	0	0	0	0	0
MRI abdomen without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	3	3	3	3	6	1	1	0	0	0	0	0
		References	Study Quality													
		22 (34817333)	2													
MRI abdomen and pelvis without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	3	3	6	2	0	0	0	0	0	0
US abdomen	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	3	4	6	1	0	0	0	0	0	0
CT chest with IV contrast	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	2	2	3	6	3	1	1	0	0	0	0	0
CT chest without IV contrast	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	2	2	3	6	4	0	1	0	0	0	0	0
MRI abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	5	3	6	0	0	0	0	0	0	0
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	1	1	10	2	2	0	0	0	0	0	0	0

CT abdomen and pelvis with IV contrast	Usually appropriate	Strong	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	8	8	0	1	0	0	0	0	1	8	5
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References	Study Quality
41 (28787380)	3
40 (31965376)	2
39 (25345263)	3
36 (32130519)	3
38 (23722535)	4
37 (17513817)	4
33 (30270701)	4
35 (25974404)	2
34 (31378300)	3
32 (24687153)	3
29 (28816957)	Good
31 (32487637)	4
30 (36369213)	2
28 (36971273)	3
26 (30501533)	3
27 (34400037)	3
25 (31115090)	2

MRI abdomen and pelvis without and with IV contrast	May be appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	5	5	0	1	1	0	6	5	1	0	0
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References	Study Quality
76 (19620444)	2
75 (25348732)	3
73 (32108000)	2
72 (24677322)	1
74 (28734955)	3
71 (19705493)	2
68 (32209504)	4
67 (24654696)	2

		84 (24783909)		4												
US abdomen	Usually not appropriate	Strong	O 0 mSv	O 0 mSv [ped]	3	3	3	4	3	2	2	1	0	0	0	0
		References		Study Quality												
		63 (33830443)		4												
		82 (36690895)		3												
		80 (34397938)		Good												
		81 (28646603)		2												
CT chest without and with IV contrast	Usually not appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	1	5	8	0	0	0	0	0	0	0
		References		Study Quality												
		44 (31210362)		4												
		45 (32031765)		4												
CT chest without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	3	4	1	2	4	0	0	0	0	0
CT abdomen and pelvis without IV contrast	Usually not appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	1	2	6	2	2	2	0	0	0	0
		References		Study Quality												
		42 (25824790)		4												
US abdomen and pelvis	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	5	4	4	1	0	1	0	0	0	0
Radiography abdomen	Usually not appropriate	Expert Consensus	☼☼ 0.1-1mSv	☼☼ 0.03-0.3 mSv [ped]	1	1	11	3	0	0	1	0	0	0	0	0
Fluoroscopy upper GI series	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	10	2	3	0	0	0	0	0	0	0

Variant 3: Adult. Gastric adenocarcinoma. Posttreatment evaluation.

MRI abdomen and pelvis without and with IV contrast	May be appropriate	Limited	0 0 mSv	0 0 mSv [ped]	4	4	0	1	3	4	1	5	0	0	0
		References		Study Quality											
		68 (32209504)		4											
		95 (24214734)		2											
CT abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	2	4	7	1	0	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]	3	3	0	2	10	0	2	0	0	0	0
CT chest with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	1	4	4	4	0	0	0	1	0
CT chest without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	0	4	10	0	0	0	0	0	0
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	3	4	4	1	1	1	0	1	0
MRI abdomen without IV contrast	Usually not appropriate	Strong	0 0 mSv	0 0 mSv [ped]	3	3	2	2	4	4	2	0	1	0	0
		References		Study Quality											
		95 (24214734)		2											
		96 (35604537)		2											
		68 (32209504)		4											
MRI abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	3	3	3	1	4	4	2	0	1	0	0
US abdomen endoscopic	Usually not appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	2	2	6	5	2	1	0	1	0	0	0
Fluoroscopy upper GI series	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	9	3	2	0	0	0	1	0	0

US abdomen	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	8	3	3	0	0	1	0	0	0
US abdomen and pelvis	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	8	4	2	0	0	1	0	0	0
Radiography abdomen	Usually not appropriate	Expert Consensus	☼☼ 0.1-1mSv	☼☼ 0.03-0.3 mSv [ped]	1	1	11	2	1	0	0	1	0	0	0

Variant 4: Adult. Surveillance of gastric adenocarcinoma.

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 with IV contrast	Usually appropriate	Strong	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	8	8	0	0	0	1	1	1	2	5	5

References	Study Quality
103 (29085194)	3
102 (36123838)	3
98 (30092078)	2
99 (34565007)	3
100 (24337190)	2
101 (27243549)	4
97 (32675545)	3

FDG-PET/CT skull base to mid-thigh	May be appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	6	6	0	0	1	0	5	5	3	0	0
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References	Study Quality
112 (28428718)	4
111 (25328761)	4
107 (26099669)	4
109 (21738339)	4
110 (30902116)	4

108 (25541930)	3
106 (23747134)	Not Assessed
105 (26611426)	4
104 (22673973)	4

CT abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	4	3	3	1	2	2	0	0	0
CT abdomen and pelvis without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	3	3	0	4	5	1	4	0	0	0	0
CT chest with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	0	4	5	3	1	0	0	1	0
CT chest without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	1	6	5	2	0	0	0	0	0
MRI abdomen without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	3	3	5	2	4	2	1	0	1	0	0
MRI abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	3	3	0	2	6	4	2	0	0	0	0
MRI abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	3	3	5	1	5	0	2	1	1	0	0
MRI abdomen and pelvis without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	3	3	0	2	6	4	1	1	0	0	0
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	2	2	5	5	0	3	0	1	0	1	0
US abdomen endoscopic	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	2	2	3	7	4	0	0	0	0	0	0
Fluoroscopy upper GI series	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	1	1	9	2	2	0	0	2	0	0	0

US abdomen	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	9	3	2	0	0	0	1	0	0
US abdomen and pelvis	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	9	4	1	0	0	0	1	0	0
Radiography abdomen	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv	☢☢ 0.03-0.3 mSv [ped]	1	1	11	3	0	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.