## American College of Radiology ACR Appropriateness Criteria®

## Staging and Follow-up of Gastric Cancer

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

ъ .	Appropriate	eness	COF	4 1 14 DD		D I DDI	D (1	3.6.11			F	inal [	<b>Fabu</b>	latior	ns		
Procedure	Categor	<b>y</b>	SOE	Adults RR	(L	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
CT abdomen and pelvis with IV contrast	Usually appropria		Limited	��� 1-1 mSv	0	���� 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 appropria		Strong	���� 10- mSv	30	���� 3- 10 mSv [ped]	7	7	1	0	0	0	1	1	9	2	0
			References			Study	Quality										
			19 (36653862)			C	Good										
			18 (24562822)				4										
			17 (26287421)				2										
			16 (26350283)				4										
			15 (23434453)				3						•				
CT abdomen and pelvis without and with IV contrast	May be appropria		Expert Consensus	<b>���</b> � 10- mSv	30	<b>≎≎≎≎≎</b> 10-30 mSv [ped]	5	5	0	1	4	2	7	0	0	0	0
US abdomen endoscopic	May be appropria (Disagreem	ate	Expert Opinion	O 0 mSv	/	O 0 mSv [ped]	5	5	1	1	3	1	2	1	4	1	0

		References		Study	/ Quality										
		23 (35811661)			3										
		24 (30526671)			3			1	1			1			
MRI abdomen without and with IV contrast	May approp	Limited	O 0 mSv	O 0 mSv [ped]	4	4	1	3	2	3	4	1	0	0	0
		References		Study	Quality										
		21 (39012251)			1										
		20 (24837701)			3										
CT abdomen and pelvis without IV contrast	Usuall approp	Expert Consensus	<b>≎≎≎</b> 1-10 mSv	���� 3- 10 mSv [ped]	3	3	4	1	8	1	0	0	0	0	0
Fluoroscopy upper GI series	Usuall approp	Expert Consensus	<b>≎≎≎</b> 1-10 mSv	��� 0.3- 3 mSv [ped]	3	3	4	3	3	1	3	0	0	0	0
MRI abdomen without IV contrast	Usuall approp	Limited	O 0 mSv	O 0 mSv [ped]	3	3	3	3	6	1	1	0	0	0	0
		References		Study	Quality										
		22 (34817333)			2										
MRI abdomen and pelvis without and with IV contrast	Usuall approp	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	3	3	6	2	0	0	0	0	0
US abdomen	Usuall approp	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	3	4	6	1	0	0	0	0	0
CT chest with IV contrast	Usuall approp	Expert Consensus	<b>≎≎≎</b> 1-10 mSv	���� 3- 10 mSv [ped]	2	2	3	6	3	1	1	0	0	0	0
CT chest without IV contrast	Usuall approp	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	2	2	3	6	4	0	1	0	0	0	0
MRI abdomen and pelvis without IV contrast	Usuall approp	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	5	3	6	0	0	0	0	0	0
CT chest without and with IV contrast	Usuall approp	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	10	2	2	0	0	0	0	0	0

US abdomen and pelvis	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	2	1	0	0	0	0	0	0
Radiography abdomen	Usually not appropriate	Expert Consensus	�� 0.1-1mSv	�� 0.03- 0.3 mSv [ped]	1	1	12	2	0	0	0	0	0	0	0

## Variant 2: Adult. Gastric adenocarcinoma. Staging for locoregional or distant metastases.

D 1	Appropriateness	COE	A L L DDI	D I DDI	D 4	34.11			F	inal '	Гabu	latio	ns		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
FDG-PET/CT skull base to mid-thigh	Usually appropriate	Strong	���� 10-30 mSv	≎≎≎≎ 3- 10 mSv [ped]	8	8	0	0	1	0	0	1	4	6	3

References	Study Quality
62 (30603905)	3
61 (29948387)	3
60 (23831128)	3
58 (31377821)	3
59 (34705049)	3
57 (37567986)	2
51 (27692533)	3
49 (25997066)	2
54 (30643947)	4
56 (35790785)	2
50 (24852866)	3
53 (37119707)	4
55 (26131811)	4
52 (28643145)	2
47 (30789792)	4
26 (30501533)	3
48 (33866341)	3
46 (20598823)	3

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
		References			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			ı							
MRI abdomen and pelvis without and with IV contrast	May be appropriate	Strong	O 0 mSv	O 0 mSv [ped]	5	5	0	1	1	0	6	5	1	0	0
		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										

	-															
			64 (24782607)			4										
			70 (25581898)			1										
			69 (25816106)			2										
			65 (29260366)			2										
			63 (33830443)			4										
			66 (33047226)			3										
			47 (30789792)			4										
			26 (30501533)			3										
			21 (39012251)			1										
MRI abdomen and pelvis without IV contrast	May l appropi		Limited	O 0 mSv	O 0 mSv [ped]	5	5	1	0	4	2	3	4	1	0	0
			References		Study	Quality										
			79 (37085731)			3										
			78 (25442484)			4										
			77 (24733002)		2											
CT chest with IV contrast	May l appropi (Disagree	riate	Expert Opinion	<b>≎≎≎</b> 1-10 mSv	���� 3- 10 mSv [ped]	5	5	1	0	2	0	6	3	1	1	0
			References		Study	Quality		•								
			43 (25681056)			4										
CT abdomen and pelvis without and with IV contrast	May l appropi		Limited	≎≎≎≎ 10-30 mSv	����� 10-30 mSv [ped]	4	4	0	3	4	1	6	0	0	0	0
			References		Study	Quality										
			39 (25345263)			3										
US abdomen endoscopic	Usually appropr		Limited	O 0 mSv	O 0 mSv [ped]	3	3	4	1	3	1	4	1	1	0	0
			References		Study	Quality										
			86 (38692516)			4										
			85 (34116629)			4										
			83 (25986541)			3										

		84 (24783909)				4										
110 -1-1		84 (24/83909)				4										
US abdomen	Usuall approp	Strong	O 0 mSv	v	O 0 mSv [ped]	3	3	3	4	3	2	2	1	0	0	0
		References			Study	y Quality										
		63 (33830443)				4										
		82 (36690895)				3										
		80 (34397938)			(	Good										
		81 (28646603)				2										
CT chest without and with IV contrast	Usuall approp	Limited	��� 1-1 mSv	0	���� 3- 10 mSv [ped]	3	3	1	5	8	0	0	0	0	0	0
		References			Study	y Quality										
		44 (31210362)				4										
		45 (32031765)				4										
CT chest without IV contrast	Usuall approp	Expert Consensus	��� 1-1 mSv	0	���� 3- 10 mSv [ped]	3	3	3	4	1	2	4	0	0	0	0
CT abdomen and pelvis without IV contrast	Usuall approp	Limited	��� 1-1 mSv	0	���� 3- 10 mSv [ped]	3	3	1	2	6	2	2	2	0	0	0
		References			Stud	y Quality										
		42 (25824790)				4										
US abdomen and pelvis	Usuall approp	Expert Consensus	O 0 mS\	v	O 0 mSv [ped]	2	2	5	4	4	1	0	1	0	0	0
Radiography abdomen	Usuall approp	Expert Consensus	�� 0.1-1n	nSv	�� 0.03- 0.3 mSv [ped]	1	1	11	3	0	0	1	0	0	0	0
Fluoroscopy upper GI series	Usuall approp	Expert Consensus	��� 1-1 mSv	0	��� 0.3- 3 mSv [ped]	1	1	10	2	3	0	0	0	0	0	0

Variant 3: Adult. Gastric adenocarcinoma. Posttreatment evaluation.

ъ .	Appropriateness	propriateness SOE Adults RRL Peds RRL Rating Medi							F	inal	Tabu	latio	ns		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	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]	8	8	0	1	0	0	0	0	2	6	6
		References		Study	Quality										
		89 (24595801)			3										
		88 (30887741)			3										
		5 (24722800)			4										
		4 (34256790)			3										
		87 (32349895)			4										
		38 (23722535)			4						1				
FDG-PET/CT skull base to midthigh	Usually appropriate	Strong	୫୫୫୫ 10-30 mSv	9	7	7	0	1	0	1	1	0	5	7	0
		References		Study	Quality										
		94 (26615555)			2										
		93 (26830546)			4										
		54 (30643947)			4										
		91 (20838995)			3										
		92 (21916986)			4										
		90 (14673049)			2										
		29 (28816957)			Good										
		31 (32487637)			4										
		30 (36369213)			2										
		53 (37119707)			4			1			1				
MRI abdomen without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	4	4	0	1	3	5	4	1	0	0	0
		References		Study	Quality										
		68 (32209504)			4										
		95 (24214734)			2										

MRI abdomen and pelvis without and with IV contrast	May be appropri	Limited	O 0 mSv	,	O 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 appropri	Expert Consensus	��� 1-10 mSv	0	���� 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 appropri	Expert Consensus	ଡେଡେଡେ 10∹ mSv	30	����� 10-30 mSv [ped]	3	3	0	2	10	0	2	0	0	0	0
CT chest with IV contrast	Usually appropri	Expert Consensus	��� 1-10 mSv	0	���� 3- 10 mSv [ped]	3	3	1	4	4	4	0	0	0	1	0
CT chest without IV contrast	Usually appropri	t Expert ��� 1-10		0	���� 3- 10 mSv [ped]	3	3	0	4	10	0	0	0	0	0	0
CT chest without and with IV contrast	Usually appropri	Expert Consensus	��� 1-10 mSv	0	���� 3- 10 mSv [ped]	3	3	3	4	4	1	1	1	0	1	0
MRI abdomen without IV contrast	Usually appropri	Strong	O 0 mSv	,	O 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			1	1	1	1	1			
MRI abdomen and pelvis without IV contrast	Usually appropri	Expert Consensus	O 0 mSv	<i>,</i>	O 0 mSv [ped]	3	3	3	1	4	4	2	0	1	0	0
US abdomen endoscopic	Usually appropri	Expert Consensus	O 0 mSv	,	O 0 mSv [ped]	2	2	6	5	2	1	0	1	0	0	0
Fluoroscopy upper GI series	Usually appropri	Expert Consensus	��� 1-10 mSv	0	��� 0.3- 3 mSv [ped]	1	1	9	3	2	0	0	0	1	0	0

US abdomen	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	8	3	3	0	0	1	0	0	0
US abdomen and pelvis	Usually not appropriate	Expert Consensus	O 0 mSv	O 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.

D 1	Appropri	ateness	SOE Adults RR			n i nni	D (1	3.6.11			F	inal	Tabu	latio	ns		
Procedure	Categ	gory	SOE	Adults RR	L	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
CT abdomen and pelvis with IV contrast	Usua approp		Strong	��� 1-10 mSv	0	���� 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										
		100 (24337190) 101 (27243549)					4										
			97 (32675545)				3										
FDG-PET/CT skull base to mid-thigh	May approp	be oriate	Limited	���� 10- mSv	30	���� 3- 10 mSv [ped]	6	6	0	0	1	0	5	5	3	0	0
			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	<del>ଡ</del> େଡ 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	୫୫୫୫ 10-30 mSv	99999 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	<b>≎≎≎</b> 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	<b>≎≎≎</b> 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	O 0 mSv	O 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	O 0 mSv	O 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	O 0 mSv	O 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	O 0 mSv	O 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	<b>≎≎≎</b> 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	O 0 mSv	O 0 mSv [ped]	2	2	3	7	4	0	0	0	0	0	0
Fluoroscopy upper GI series	Usually not appropriate	Expert Consensus	<b>≎≎≎</b> 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	O 0 mSv	O 0 mSv [ped]	1	1	9	3	2	0	0	0	1	0	0
US abdomen and pelvis	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	9	4	1	0	0	0	1	0	0
Radiography abdomen	Usually not appropriate	Expert Consensus	<b>⊕⊕</b> 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.