American College of Radiology
ACR Appropriateness Criteria®

Nonvariceal Upper Gastrointestinal Bleeding

Variant 1: Adult. Suspected nonvariceal upper gastrointestinal bleeding; no endoscopy performed. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CTA abdomen and pelvis without and with IV contrast	Usually appropriate	Moderate	☢☢☢☢ 10-30 mSv		9	9	0	0	0	0	0	1	3	2	7

References	Study Quality
22 (25023179)	3
19 (23192375)	M
18 (28754326)	3
24 (31987743)	4
21 (25650332)	1
7 (29883267)	4
20 (31346741)	4
25 (31363814)	3
23 (33449577)	3

Arteriography visceral	May be appropriate	Limited	☢☢☢ 1-10 mSv		6	6	0	0	0	0	5	5	1	4	0

References	Study Quality
2 (26303132)	4
16 (33893060)	Inadequate
17 (32650690)	3
14 (30115434)	4
15 (33317472)	3

CT abdomen and pelvis without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢☢ 10-30 mSv [ped]	3	3	1	5	8	1	0	0	0	0	0
CTA abdomen with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		3	3	2	4	9	0	0	0	0	0	0
CTA abdomen and pelvis with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		3	3	0	4	7	1	2	1	0	0	0
CT enterography	Usually not appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	3	3	2	2	2	0	1	0	0
		References		Study Quality											
		5 (34597220)		4											
CTA chest without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		3	3	2	3	4	0	4	0	0	0	0
RBC scan abdomen and pelvis	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		3	3	2	3	4	2	1	1	0	0	0
CTA abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		3	3	2	4	4	1	3	1	0	0	0
CT abdomen with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	3	4	1	3	1	0	1	0	0
CT abdomen without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	4	4	4	1	0	0	0	0	0
CT abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢☢ 10-30 mSv [ped]	2	2	3	4	1	2	2	0	1	0	0
CT abdomen and pelvis with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	2	5	1	2	2	0	1	0	0
CT abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	4	4	3	1	1	0	0	0	0

CTA chest with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	3	4	4	1	1	0	0	0	0
MR enterography	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	5	4	2	1	1	0	0	0	0
Fluoroscopy upper GI series	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	7	4	2	0	0	0	0	0	0

Variant 2: Adult. Endoscopy confirms nonvariceal upper gastrointestinal bleeding with a clear source, but treatment not possible or continued bleeding after endoscopic treatment. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Arteriography visceral	Usually appropriate	Limited	☢☢☢ 1-10 mSv		8	8	0	0	0	0	0	0	4	3	6

References	Study Quality
27 (26912065)	4
31 (26190186)	4
4 (26987672)	4
34 (27178757)	4
38 (32274535)	4
30 (32282712)	2
29 (34022402)	4
26 (34313237)	4
28 (27812392)	4
35 (28270041)	3
40 (30033142)	4
39 (26766321)	4
33 (31877509)	4
37 (25319738)	4
36 (25581622)	3

		32 (25712846)		4											
CTA abdomen and pelvis without and with IV contrast	Usually appropriate	Limited	☢☢☢☢ 10-30 mSv		8	8	1	0	0	0	1	0	5	8	0
		References		Study Quality											
		43 (28248993)		4											
		42 (27469919)		4											
		7 (29883267)		4											
CTA abdomen without and with IV contrast	May be appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		6	6	0	0	0	1	5	8	1	0	0
CTA chest without and with IV contrast	May be appropriate	Expert Consensus	☢☢☢ 1-10 mSv		4	4	2	0	3	3	5	0	0	0	0
CT abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢☢ 10-30 mSv [ped]	3	3	2	4	2	3	1	0	0	0	1
CT abdomen and pelvis with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	2	4	4	1	1	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]	3	3	2	4	2	3	1	0	0	0	1
CTA abdomen with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		3	3	3	3	5	4	0	0	0	0	0
CTA abdomen and pelvis with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		3	3	2	2	6	5	0	0	0	0	0
CTA chest with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	2	2	6	3	0	0	0	0	0
CT enterography	Usually not appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	3	2	4	1	3	0	0	0	0
		References		Study Quality											
		41 (23789659)		4											

		5 (34597220)		4											
CT abdomen with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	2	5	3	2	0	0	1	0	0
CT abdomen without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	3	7	2	0	1	0	0	0	0
CT abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	3	6	2	1	1	0	0	0	0
MR enterography	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	3	7	3	0	0	0	0	0	0
RBC scan abdomen and pelvis	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		2	2	5	5	1	1	1	0	0	0	0
Fluoroscopy upper GI series	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	7	4	2	0	0	0	0	0	0

Variant 3: Adult. Endoscopy confirms nonvariceal upper gastrointestinal bleeding without a clear source. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CTA abdomen and pelvis without and with IV contrast	Usually appropriate	Limited	☢☢☢☢ 10-30 mSv		8	8	0	0	0	0	0	0	6	3	4
		References		Study Quality											
		43 (28248993)		4											
		46 (28189213)		4											
		48 (25782338)		4											
		47 (31786734)		4											
Arteriography visceral	May be appropriate	Limited	☢☢☢ 1-10 mSv		6	6	0	0	0	0	5	3	1	1	3
		References		Study Quality											

				46 (28189213)	4											
				44 (32405731)	3											
				45 (24143308)	4											
RBC scan abdomen and pelvis	May be appropriate	Expert Consensus	☢☢☢ 1-10 mSv		5	5	0	0	0	2	10	3	0	0	0
CT enterography	May be appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	4	4	1	1	4	1	5	1	0	0	0
				References	Study Quality											
				41 (23789659)	4											
CTA chest without and with IV contrast	May be appropriate	Expert Consensus	☢☢☢ 1-10 mSv		4	4	2	3	1	3	3	1	0	0	0
CT abdomen and pelvis with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	3	3	4	1	0	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	2	4	1	3	2	0	0	1	0
CTA abdomen and pelvis with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		3	3	1	3	7	4	0	0	0	0	0
CTA chest with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	2	4	3	2	2	0	0	0	0
CTA abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		3	3	3	3	4	1	3	1	0	0	0
CT abdomen with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	3	4	4	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	3	4	5	1	0	0	0	0	0

CT abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢☢ 10-30 mSv [ped]	2	2	2	5	1	3	1	0	1	0	0
CT abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	3	4	5	1	0	0	0	0	0
CTA abdomen with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		2	2	3	6	5	1	0	0	0	0	0
MR enterography	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	2	6	4	0	1	0	0	0	0
Fluoroscopy upper GI series	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	8	4	1	0	0	0	0	0	0

Variant 4: Adult. Nonvariceal upper gastrointestinal bleeding; negative endoscopy. Initial imaging.

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

References	Study Quality
57 (20621429)	2
19 (23192375)	M
55 (25141313)	3
56 (25248830)	2
58 (22363142)	3

CT enterography	Usually appropriate	Moderate	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	0	0	0	2	0	3	7	3	0

References	Study Quality
54 (21642417)	2
52 (22098076)	2

		5 (34597220)		4												
		53 (26858753)		4												
MR enterography	May be appropriate	Strong	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	2	4	2	4	3	0
		References		Study Quality												
		60 (20132082)		3												
		61 (22528671)		2												
		59 (28668417)		2												
RBC scan abdomen and pelvis	May be appropriate	Limited	☢☢☢ 1-10 mSv		6	6	0	0	0	3	3	2	4	0	1
		References		Study Quality												
		62 (23407907)		3												
		63 (21757912)		4												
		64 (30526506)		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	2	3	7	1	1	0	0
CTA abdomen without and with IV contrast	May be appropriate (Disagreement)	Expert Opinion	☢☢☢☢ 10-30 mSv		5	5	2	4	6	0	1	0	2	0	0
CT abdomen with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	2	4	4	1	2	0	0	0	0
CT abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢☢ 10-30 mSv [ped]	3	3	2	4	2	3	0	2	0	0	0
CT abdomen and pelvis with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	2	1	6	1	2	0	1	0	0
CT abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	4	2	5	1	1	0	0	0	0

CTA abdomen with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		3	3	3	4	8	0	0	0	0	0	0
CTA abdomen and pelvis with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		3	3	1	3	10	0	0	0	1	0	0
Arteriography visceral	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		3	3	1	4	4	2	3	1	0	0	0

References	Study Quality
51 (23754065)	4
49 (22302119)	4
50 (28278445)	4

CTA chest without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		3	3	2	3	5	0	2	1	0	0	0
CT abdomen without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	4	3	4	2	0	0	0	0	0
CTA chest with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	3	4	4	1	1	0	0	0	0
Fluoroscopy upper GI series	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	1	1	7	5	1	0	0	0	0	0	0

Variant 5: Adult. Postsurgical or traumatic causes of nonvariceal upper gastrointestinal bleeding. Endoscopy is contraindicated. Initial imaging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Arteriography visceral	Usually appropriate	Limited	☢☢☢ 1-10 mSv		7	7	0	1	0	0	4	0	4	2	2

References	Study Quality
27 (26912065)	4
4 (26987672)	4
39 (26766321)	4

		65 (33861138)		3												
CTA abdomen and pelvis without and with IV contrast	Usually appropriate	Limited	☢☢☢☢ 10-30 mSv		7	7	0	0	0	0	2	0	5	2	4
		References		Study Quality												
		69 (21336192)		2												
		71 (27423720)		4												
		70 (33530944)		4												
CT abdomen and pelvis with IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	5	5	1	0	0	1	8	4	1	0	0
		References		Study Quality												
		66 (34945741)		Inadequate												
CT abdomen and pelvis without and with IV contrast	May be appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢☢ 10-30 mSv [ped]	5	5	1	1	0	4	6	2	1	0	0
CTA chest without and with IV contrast	May be appropriate	Expert Consensus	☢☢☢ 1-10 mSv		5	5	0	2	0	5	8	0	0	0	0
CT enterography	May be appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	4	4	1	2	2	3	3	2	0	0	0
		References		Study Quality												
		5 (34597220)		4												
CT abdomen with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	4	2	9	0	0	0	0	0	0
CT abdomen without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	2	4	5	1	1	0	0	0	0
CT abdomen without and with IV contrast	Usually not appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢☢ 10-30 mSv [ped]	3	3	3	3	5	3	1	0	0	0	0
		References		Study Quality												
		67 (24381048)		4												

		68 (23392987)			4											
CT abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	3	3	1	5	5	1	1	0	0	0	0
CTA abdomen with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		3	3	3	3	8	1	0	0	0	0	0
CTA abdomen and pelvis with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		3	3	1	2	10	0	1	1	0	0	0
CTA abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv		3	3	4	1	7	0	1	1	1	0	0
CTA chest with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	2	5	3	1	1	0	1	0	0
Fluoroscopy upper GI series	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	2	2	5	6	1	0	1	0	0	0	0
RBC scan abdomen and pelvis	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		2	2	2	6	2	1	1	1	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.**