

**American College of Radiology
ACR Appropriateness Criteria®**

Staging and Disease Monitoring of Rectal Cancer

Variant 1: Adult. Rectal cancer. Locoregional staging.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI pelvis without IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	0	1	2	10	3

References	Study Quality
72 (36069323)	2
71 (28497665)	3
67 (21926843)	3
68 (21327602)	3
70 (28900855)	4
69 (36800203)	3
59 (17504336)	M
60 (17504337)	3
62 (22426259)	2
63 (21913017)	4
65 (32488420)	3
66 (32020526)	3
61 (34491607)	4
64 (35218137)	4
51 (21802588)	1
43 (21674192)	2
44 (22271205)	M
50 (23049209)	2

52 (22156868)	2
53 (20464422)	3
54 (22434494)	3
55 (23571146)	1
56 (17329685)	1
57 (19388124)	2
58 (17463134)	3
49 (32113887)	2
45 (33170102)	2
47 (33369829)	4
48 (34842978)	3
46 (35026621)	3
40 (21225363)	3
41 (21135417)	2
42 (21671218)	3

MRI pelvis without and with IV contrast	Usually appropriate	Strong	0 0 mSv	0 0 mSv [ped]	8	8	0	0	0	2	0	2	1	4	4
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References	Study Quality
86 (30354269)	3
85 (25652254)	3
81 (31062058)	4
82 (30993392)	4
83 (24127411)	2
84 (25497874)	4
77 (29785540)	4
78 (29337774)	3
76 (29043428)	4
75 (25615776)	2
79 (27125200)	3
73 (8724412)	2
80 (34584334)	3

			74 (15550372)		3											
			45 (33170102)		2											
FDG-PET/CT skull base to mid-thigh	May be appropriate	Limited	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	4	4	0	4	2	3	2	2	0	0	0	
		References	Study Quality													
		35 (30899056)	3													
		34 (26828149)	3													
		33 (29378659)	4													
FDG-PET/MRI skull base to mid-thigh	May be appropriate	Moderate	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	4	4	0	3	4	2	6	0	0	0	0	
		References	Study Quality													
		39 (35086111)	3													
		38 (35705874)	Good													
		36 (36063201)	3													
		37 (33034673)	4													
CT abdomen and pelvis with IV contrast	Usually not appropriate	Strong	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	3	3	0	0	8	0	5	2	0	0	0	
		References	Study Quality													
		32 (22271004)	3													
		31 (22281979)	2													
		28 (20103950)	3													
		27 (18697365)	4													
		30 (22100372)	3													
		29 (33686499)	4													
		15 (19571705)	2													
		23 (9568652)	1													
		22 (15376205)	3													
		24 (19949791)	3													
		25 (21110194)	2													
		26 (31305437)	4													

US pelvis transrectal	Usually not appropriate	Strong	O 0 mSv	O 0 mSv [ped]	3	3	0	1	7	2	4	1	0	0	0
		References		Study Quality											
		95 (9276704)		4											
		94 (17674104)		3											
		90 (21920011)		3											
		92 (21795480)		3											
		93 (21550864)		3											
		91 (30736712)		3											
		87 (23280021)		3											
		28 (20103950)		3											
		88 (21176897)		3											
		89 (17294198)		3											
		51 (21802588)		1											
		27 (18697365)		4											
CT abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	2	2	4	6	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	7	3	1	0	1	0	0	0	1

Variant 2: Adult. Rectal cancer. Staging for distant metastases.

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]	9	9	0	0	0	0	0	0	2	3	8
		References		Study Quality											
		104 (23150701)		2											
		103 (21263087)		2											

141 (32239338)	3
142 (33902498)	1
143 (34563410)	2
140 (30616608)	2
133 (17515386)	4
132 (19789256)	2
134 (20143461)	4
135 (31340755)	2
139 (30353920)	1
136 (28803449)	3
137 (25286324)	1
138 (29951340)	3
98 (20392584)	2
129 (22487067)	4
131 (22976920)	2
127 (18058107)	1
126 (22652037)	2
99 (21293130)	3
128 (22556405)	2
130 (22167501)	2

FDG-PET/CT skull base to mid-thigh	May be appropriate	Strong	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	6	6	0	0	1	1	4	4	3	0	0
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References	Study Quality
122 (32213686)	3
121 (34775402)	4
117 (17195075)	2
118 (28687025)	3
120 (32034769)	3
119 (30928334)	Good
115 (21867996)	3
112 (21431987)	2

[illegible]

Variant 3: Adult. Rectal cancer. Locoregional staging. Post neoadjuvant therapy and during watch and wait.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI pelvis without IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	1	0	1	11	3

References	Study Quality
193 (30280248)	3
192 (27959622)	3
188 (31490825)	3
190 (30403572)	3
189 (29668301)	3
191 (32813028)	3
186 (27055660)	3
181 (31386575)	3
180 (30844347)	4
184 (25243543)	3
185 (19403848)	4
187 (19830503)	4
183 (33573925)	3
182 (30483843)	3
165 (21876084)	2
166 (21590453)	3
167 (21509631)	2
168 (21475011)	4
170 (31939890)	Good
178 (30327166)	3
179 (28786006)	3
176 (28237642)	3
171 (27331883)	4
164 (26953983)	3
172 (27489868)	3
173 (21343320)	2

174 (36971272)	2
177 (34803147)	3
175 (33319450)	3
169 (35550803)	4
15 (19571705)	2
57 (19388124)	2
78 (29337774)	3
76 (29043428)	4
162 (28177989)	4
163 (26747329)	4
20 (36073323)	4

MRI pelvis without and with IV contrast	Usually appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	8	8	0	1	0	0	2	1	2	4	3
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References	Study Quality
194 (22101743)	3
85 (25652254)	3
81 (31062058)	4
82 (30993392)	4

CT abdomen and pelvis with IV contrast	May be appropriate	Strong	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	5	5	0	2	4	1	6	2	0	0	0
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References	Study Quality
151 (26855391)	3
150 (25448648)	4
146 (20452636)	3
147 (22497951)	4
148 (18589355)	3
149 (26130666)	4
15 (19571705)	2
28 (20103950)	3
24 (19949791)	3
25 (21110194)	2

		107 (20151212)		4													
		110 (20607759)		4													
		108 (34119380)		4													
FDG-PET/CT skull base to mid-thigh	May be appropriate	Strong	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	5	5	0	1	0	1	13	1	0	0	0		
		References		Study Quality													
		117 (17195075)		2													
		116 (19486092)		2													
		115 (21867996)		3													
		92 (21795480)		3													
		112 (21431987)		2													
		113 (17610107)		4													
		89 (17294198)		3													
		90 (21920011)		3													
		91 (30736712)		3													
		36 (36063201)		3													
FDG-PET/MRI skull base to mid-thigh	May be appropriate	Limited	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	5	5	0	1	2	3	5	1	1	0	0		
		References		Study Quality													
		93 (21550864)		3													
CT abdomen and pelvis without IV contrast	Usually not appropriate	Strong	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	3	3	2	3	6	0	2	0	0	0	0		
		References		Study Quality													
		25 (21110194)		2													
		26 (31305437)		4													
		101 (15841734)		3													
		102 (16484347)		2													
CT abdomen and pelvis without and with IV contrast	Usually not appropriate	Strong	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕⊕ 10-30 mSv [ped]	3	3	3	4	9	0	0	0	0	0	0		

References	Study Quality
25 (21110194)	2
26 (31305437)	4
101 (15841734)	3
102 (16484347)	2

MRI abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	3	3	2	2	4	1	3	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	4	3	3	1	1	0	0	0	1

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.