

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

## Screening, Locoregional Assessment, and Surveillance of Pancreatic Ductal Adenocarcinoma

**Variant 1: Adult. High-risk screening for pancreatic ductal adenocarcinoma.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CT abdomen with IV contrast multiphase	Usually appropriate	Strong	⊕⊕⊕⊕ 10-30 mSv		9	9	0	0	0	0	0	1	3	2	8
		References		Study Quality											
		28 (32800574)		3											
		27 (29796845)		2											
		26 (33759561)		2											
		25 (29128993)		4											
		14 (35856454)		4											
		10 (31768594)		4											
CT abdomen with IV contrast	Usually appropriate	Limited	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	7	7	0	0	1	0	2	2	3	3	3
		References		Study Quality											
		23 (34161128)		3											
		22 (32950386)		4											
		21 (31832740)		3											
CT abdomen and pelvis with IV contrast	Usually appropriate	Limited	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	7	7	0	0	0	0	2	2	11	0	0
		References		Study Quality											
		23 (34161128)		3											
		22 (32950386)		4											

		21 (31832740)			3												
MRI abdomen without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	1	2	5	4	2		
		References		Study Quality													
		14 (35856454)		4													
		10 (31768594)		4													
MRI abdomen without and with IV contrast with MRCP	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	1	0	0	0	0	2	5	2	4		
		References		Study Quality													
		10 (31768594)		4													
		13 (34798981)		4													
		14 (35856454)		4													
		30 (31764824)		3													
MRI abdomen without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	0	1	4	9	1	0	0	0		
		References		Study Quality													
		10 (31768594)		4													
		14 (35856454)		4													
		32 (36273992)		4													
		31 (31748823)		4													
MRI abdomen without IV contrast with MRCP	May be appropriate	Strong	O 0 mSv	O 0 mSv [ped]	5	5	0	0	1	1	10	3	0	0	0		
		References		Study Quality													
		38 (27900458)		3													
		37 (28116593)		4													
		36 (33819806)		Good													
		35 (27663591)		4													
		34 (28084815)		4													
		33 (34223962)		3													
		32 (36273992)		4													
		31 (31748823)		4													

		30 (31764824)		3											
		10 (31768594)		4											
CT abdomen without and with IV contrast	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	3	3	0	3	5	2	3	2	0	0	0
		References		Study Quality											
		25 (29128993)		4											
		24 (32703312)		4											
CT abdomen and pelvis without and with IV contrast	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	3	3	0	3	5	2	5	0	0	0	0
		References		Study Quality											
		24 (32703312)		4											
		25 (29128993)		4											
MRI abdomen without and with hepatobiliary contrast	Usually not appropriate	Limited	0 0 mSv	0 0 mSv [ped]	3	3	1	1	7	4	2	0	0	0	0
		References		Study Quality											
		29 (34193282)		4											
CT abdomen without IV contrast	Usually not appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	2	2	6	2	5	0	1	0	0	0	0
		References		Study Quality											
		23 (34161128)		3											
		22 (32950386)		4											
		21 (31832740)		3											
CT abdomen and pelvis without IV contrast	Usually not appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	2	2	6	2	4	1	1	0	0	0	0
		References		Study Quality											
		23 (34161128)		3											
		22 (32950386)		4											
		21 (31832740)		3											

FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢☢ 3-10 mSv [ped]	2	2	6	2	6	0	0	0	0	0	0
		References		Study Quality											
		10 (31768594)		4											
US abdomen transabdominal	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	2	2	7	5	2	0	0	0	0	0	0
		References		Study Quality											
		10 (31768594)		4											

**Variant 2: Adult. Clinically suspected pancreatic ductal adenocarcinoma. Abdominal symptomatology. 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 with IV contrast multiphase	Usually appropriate	Limited	☢☢☢☢ 10-30 mSv		9	9	0	0	0	0	0	0	1	3	10
		References		Study Quality											
		9 (29277858)		4											
		42 (34851713)		4											
MRI abdomen without and with IV contrast with MRCP	Usually appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	8	8	0	0	0	0	1	4	1	4	4
		References		Study Quality											
		51 (29397657)		3											
		50 (29352379)		3											
		30 (31764824)		3											
		14 (35856454)		4											
		10 (31768594)		4											
		9 (29277858)		4											
CT abdomen and pelvis with IV contrast	Usually appropriate	Limited	☢☢☢ 1-10 mSv	☢☢☢☢☢ 3-10 mSv [ped]	7	7	0	0	0	1	1	2	7	1	2

		References	Study Quality														
		41 (27519836)	3														
		22 (32950386)	4														
		21 (31832740)	3														
MRI abdomen without and with IV contrast	Usually appropriate	Limited	0 0 mSv	0 0 mSv [ped]	7	7	0	0	0	1	1	2	5	1	4		
		References	Study Quality														
		10 (31768594)	4														
		14 (35856454)	4														
MRI abdomen without IV contrast	May be appropriate	Moderate	0 0 mSv	0 0 mSv [ped]	5	5	0	0	0	4	11	0	0	0	0		
		References	Study Quality														
		36 (33819806)	Good														
		35 (27663591)	4														
		34 (28084815)	4														
		33 (34223962)	3														
		30 (31764824)	3														
		14 (35856454)	4														
MRI abdomen without IV contrast with MRCP	May be appropriate	Moderate	0 0 mSv	0 0 mSv [ped]	5	5	0	0	0	1	10	4	0	0	0		
		References	Study Quality														
		10 (31768594)	4														
		30 (31764824)	3														
		36 (33819806)	Good														
		35 (27663591)	4														
		34 (28084815)	4														
		33 (34223962)	3														
MRI abdomen without and with hepatobiliary contrast	May be appropriate	Limited	0 0 mSv	0 0 mSv [ped]	5	5	0	1	2	2	9	1	0	0	0		
		References	Study Quality														
		49 (34314825)	4														

		48 (31464937)		3											
		47 (35316674)		3											
CT abdomen and pelvis without IV contrast	Usually not appropriate	Limited	⊕⊕⊕ 1-10 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	3	3	4	1	5	2	2	0	0	0	0
		References		Study Quality											
		23 (34161128)		3											
		22 (32950386)		4											
		21 (31832740)		3											
CT abdomen and pelvis without and with IV contrast	Usually not appropriate	Limited	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕⊕ 10-30 mSv [ped]	3	3	0	2	6	2	3	2	0	0	0
		References		Study Quality											
		24 (32703312)		4											
		25 (29128993)		4											
FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Limited	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	3	3	1	1	6	3	2	1	0	0	0
		References		Study Quality											
		9 (29277858)		4											
		46 (28180987)		3											
		45 (33063453)		3											
		44 (35717098)		4											
		43 (29143875)		4											
US abdomen transabdominal	Usually not appropriate	Limited	○ ○ mSv	○ ○ mSv [ped]	2	2	6	5	3	0	0	0	0	0	0
		References		Study Quality											
		10 (31768594)		4											
		52 (32527594)		3											

**Variant 3: Adult. Pancreatic ductal adenocarcinoma. Locoregional disease staging or pretreatment planning or posttreatment evaluation related to neoadjuvant therapy or surgical planning.**



81 (31993737)	3
80 (30667305)	3
51 (29397657)	3
36 (33819806)	Good
35 (27663591)	4
34 (28084815)	4
33 (34223962)	3
30 (31764824)	3
10 (31768594)	4
9 (29277858)	4

MRI abdomen without and with IV contrast with MRCP	Usually appropriate	Strong	0 0 mSv	0 0 mSv [ped]	7	7	0	0	1	0	1	0	8	4	1
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References	Study Quality
24 (32703312)	4
32 (36273992)	4
87 (34903501)	Good
86 (35486167)	Good
85 (34756699)	3
84 (34654379)	3

CT abdomen and pelvis with IV contrast	May be appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	6	6	0	0	1	0	5	4	3	2	0
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References	Study Quality
41 (27519836)	3

FDG-PET/CT skull base to mid-thigh	May be appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	5	5	0	0	2	4	9	0	0	0	0
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References	Study Quality
79 (29402376)	3
78 (31092213)	4
77 (29017830)	3
76 (24721105)	3



			75 (23922481)	M												
			74 (35410786)	3												
			46 (28180987)	3												
			45 (33063453)	3												
			44 (35717098)	4												
			43 (29143875)	4												
			42 (34851713)	4												
			9 (29277858)	4												
MRI abdomen without and with hepatobiliary contrast	May be appropriate	Limited	O O mSv	O O mSv [ped]	5	5	0	0	1	0	10	3	1	0	0	
		References	Study Quality													
		9 (29277858)	4													
		42 (34851713)	4													
		50 (29352379)	3													
		51 (29397657)	3													
CT abdomen and pelvis without and with IV contrast	May be appropriate	Expert Consensus	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	4	4	0	2	5	2	5	0	1	0	0	
MRI abdomen without IV contrast	Usually not appropriate	Expert Consensus	O O mSv	O O mSv [ped]	3	3	1	2	10	2	0	0	0	0	0	
MRI abdomen without IV contrast with MRCP	Usually not appropriate	Expert Consensus	O O mSv	O O mSv [ped]	3	3	1	1	12	1	0	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	4	7	3	0	1	0	0	0	0	
US abdomen transabdominal	Usually not appropriate	Expert Consensus	O O mSv	O O mSv [ped]	1	1	12	2	1	0	0	0	0	0	0	

**Variant 4: Adult. Pancreatic ductal adenocarcinoma. Distant metastatic evaluation. Initial staging or postprocedure surveillance for metastatic 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 with IV contrast	Usually appropriate	Strong	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	8	8	0	0	0	0	0	0	3	10	2
		References		Study Quality											
		94 (36057929)		3											
		93 (36241752)		4											
		92 (30241869)		3											
		56 (29063133)		2											
		54 (24152957)		2											
		41 (27519836)		3											
		9 (29277858)		4											
CT abdomen with IV contrast	Usually appropriate	Strong	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	0	0	0	0	1	1	12	1	0
		References		Study Quality											
		54 (24152957)		2											
		56 (29063133)		2											
		92 (30241869)		3											
		94 (36057929)		3											
CT chest abdomen pelvis with IV contrast	Usually appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	7	7	0	0	0	0	0	2	6	6	1
		References		Study Quality											
		89 (32378193)		3											
		88 (32132508)		3											
		41 (27519836)		3											
MRI abdomen without and with IV contrast	Usually appropriate	Limited	0 0 mSv	0 0 mSv [ped]	7	7	0	0	0	0	0	2	9	3	1
		References		Study Quality											
		9 (29277858)		4											
		42 (34851713)		4											

MRI abdomen without and with hepatobiliary contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	1	1	8	4	1
		References		Study Quality											
		9 (29277858)		4											
		42 (34851713)		4											
FDG-PET/CT skull base to mid-thigh	May be appropriate	Limited	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	5	5	0	0	0	2	11	1	1	0	0
		References		Study Quality											
		43 (29143875)		4											
		44 (35717098)		4											
		95 (29782393)		4											
		96 (31806148)		4											
CT abdomen with IV contrast multiphase	May be appropriate (Disagreement)	Expert Opinion	⊕⊕⊕⊕ 10-30 mSv		5	5	0	0	2	0	1	0	7	3	2
		References		Study Quality											
		9 (29277858)		4											
		54 (24152957)		2											
		56 (29063133)		2											
		92 (30241869)		3											
		94 (36057929)		3											
MRI abdomen without IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	4	4	2	2	2	7	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	0	7	7	0	0	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	0	3	7	4	1	0	0	0	0

CT chest abdomen pelvis without and with IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢☢ 10-30 mSv [ped]	3	3	4	2	7	2	0	0	0	0	0
CT abdomen without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	6	6	3	0	0	0	0	0	0
CT chest abdomen pelvis without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	2	2	6	5	2	2	0	0	0	0	0
CT abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	8	3	3	1	0	0	0	0	0
US abdomen transabdominal	Usually not appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	1	1	12	3	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](http://www.acr.org/ac).