

American College of Radiology
ACR Appropriateness Criteria®

Post-Treatment Follow-up of Prostate Cancer

Variant 1: Prostate cancer follow-up. Status post radical prostatectomy. Clinical concern for residual or recurrent disease.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI pelvis without and with IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	1	0	2	3	5	5
		References		Study Quality											
		40 (28216327)		3											
		39 (23313568)		M											
		38 (23521479)		2											
		37 (8501793)		3											
		36 (20205350)		2											
		35 (20106624)		3											
		34 (11418435)		2											
		33 (23377546)		2											
		32 (15064390)		3											
		31 (18226441)		1											
		30 (18430830)		2											
		29 (19921202)		4											
		28 (19948393)		4											
		10 (24978358)		3											
		8 (24434294)		3											
		6 (18825386)		3											

		59 (27091135)			2												
Fluciclovine PET/MRI skull base to mid-thigh	Usually appropriate	Strong	☢☢☢ 1-10 mSv			7	7	0	0	1	0	2	4	5	3	1	
		References			Study Quality												
		78 (17204699)			2												
		77 (27694179)			4												
		76 (27694178)			4												
		75 (29970541)			3												
		74 (17926036)			3												
		73 (16315004)			3												
		72 (16865395)			3												
		71 (12679398)			1												
		70 (16832632)			3												
		84 (27557844)			3												
PSMA PET/CT skull base to mid-thigh	Usually appropriate	Strong	☢☢☢☢ 10-30 mSv			7	7	1	0	0	1	3	1	4	5	1	
		References			Study Quality												
		84 (27557844)			3												
		87 (28408526)			4												
		86 (31283605)			2												
		85 (31375469)			2												
		83 (30920593)			2												
		82 (-3194111)			4												
DCFPyL PET/CT skull base to mid-thigh	Usually appropriate	Moderate	☢☢☢☢ 10-30 mSv			7	7	0	0	0	0	1	1	10	1	1	
		References			Study Quality												
		92 (31676732)			3												
		91 (33981607)			Good												
		90 (31201249)			4												
		89 (27908968)			3												

MRI-targeted biopsy prostatectomy bed	May be appropriate	Limited	0 0 mSv	0 0 mSv [ped]	6	6	1	0	0	2	4	4	3	2	0
		References		Study Quality											
		10 (24978358)		3											
CT abdomen and pelvis with IV contrast	May be appropriate	Moderate	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	5	5	0	0	0	3	9	3	0	1	0
		References		Study Quality											
		26 (22417806)		2											
		27 (14571410)		4											
MRI abdomen and pelvis without and with IV contrast	May be appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	5	5	0	0	0	4	12	0	0	0	0
Bone scan whole body	May be appropriate	Limited	☹☹☹ 1-10 mSv	☹☹☹☹ 3-10 mSv [ped]	5	5	0	0	0	1	12	2	1	0	0
		References		Study Quality											
		25 (23903557)		M											
		24 (20483148)		4											
		23 (23707439)		4											
		22 (-3098847)		4											
		21 (9751361)		3											
		20 (12639656)		3											
Fluoride PET/CT skull base to mid-thigh	May be appropriate (Disagreement)	Expert Opinion	☹☹☹☹ 10-30 mSv		5	5	1	1	7	1	1	0	4	1	0
Choline PET/MRI skull base to mid-thigh	May be appropriate (Disagreement)	Expert Opinion	☹☹☹ 1-10 mSv		5	5	0	1	1	1	2	0	4	7	0
		References		Study Quality											
		58 (28803358)		2											
TRUS-guided biopsy prostatectomy bed	May be appropriate	Limited	0 0 mSv	0 0 mSv [ped]	5	5	0	0	0	3	11	1	1	0	0
		References		Study Quality											

		41 (17440730)		2											
MRI pelvis without IV contrast	May be appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	4	4	0	0	6	6	2	0	1	1	0
		References		Study Quality											
		40 (28216327)		3											
		39 (23313568)		M											
		38 (23521479)		2											
		37 (8501793)		3											
		36 (20205350)		2											
		35 (20106624)		3											
		34 (11418435)		2											
		33 (23377546)		2											
		32 (15064390)		3											
		31 (18226441)		1											
		30 (18430830)		2											
		29 (19921202)		4											
		28 (19948393)		4											
		10 (24978358)		3											
		8 (24434294)		3											
		6 (18825386)		3											
CT abdomen and pelvis without IV contrast	Usually not appropriate	Moderate	⊗⊗⊗ 1-10 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	3	3	5	2	3	0	4	2	0	0	0
		References		Study Quality											
		26 (22417806)		2											
		27 (14571410)		4											
CT chest abdomen pelvis with IV contrast	Usually not appropriate	Expert Consensus	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	3	3	3	3	10	0	0	0	0	0	0
MRI abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	3	3	1	3	6	2	2	2	0	0	0

FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 3-10 mSv [ped]	3	3	2	5	6	1	1	0	1	0	0
		References		Study Quality											
		81 (15950100)		4											
		80 (8638000)		3											
		79 (16000572)		3											
TRUS prostatectomy bed	Usually not appropriate	Strong	O 0 mSv	O 0 mSv [ped]	3	3	4	4	4	0	2	2	0	0	0
		References		Study Quality											
		19 (16602039)		2											
		42 (8819374)		3											
		43 (16546462)		2											
CT abdomen and pelvis without and with IV contrast	Usually not appropriate	Moderate	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	2	2	5	4	5	0	1	0	0	1	0
		References		Study Quality											
		26 (22417806)		2											
		27 (14571410)		4											
CT chest abdomen pelvis without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 3-10 mSv [ped]	2	2	7	2	3	1	2	1	0	0	0
Radiography skeletal survey	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv	☼☼☼ 0.3-3 mSv [ped]	2	2	8	5	3	0	0	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]	1	1	9	2	3	0	1	0	0	1	0

Variant 2: Prostate cancer follow-up. Clinical concern for residual or recurrent disease after nonsurgical local and pelvic treatments.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Choline PET/CT skull base to mid-thigh	Usually appropriate	Limited	☼☼☼ 1-10 mSv		8	8	0	1	0	1	3	0	3	8	0
		References		Study Quality											
		44 (23486334)		M											
		45 (23628493)		M											
		124 (27597240)		3											
		125 (28126302)		3											
MRI pelvis without and with IV contrast	Usually appropriate	Strong	○ ○ mSv	○ ○ mSv [ped]	7	7	0	0	0	1	1	1	6	3	4
		References		Study Quality											
		118 (27663393)		3											
		116 (27527896)		2											
		117 (29317377)		3											
		120 (31361529)		2											
		119 (30730409)		3											
		115 (17707266)		3											
		114 (19161194)		3											
		113 (15134982)		2											
		112 (19130116)		3											
		111 (17881141)		2											
		110 (20551184)		2											
		109 (15972335)		3											
		108 (15375223)		2											
		107 (21785087)		3											
		39 (23313568)		M											
		38 (23521479)		2											
		Fluciclovine PET/CT skull base to mid-thigh	Usually appropriate	Strong	☼☼☼☼ 10-30 mSv										
		References		Study Quality											

MRI abdomen and pelvis without and with IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	5	5	0	0	0	0	11	4	1	0	0
Bone scan whole body	May be appropriate	Limited	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	5	5	0	0	0	0	13	3	0	0	0

References	Study Quality
3 (23806388)	3
5 (-3102557)	4
20 (12639656)	3
23 (23707439)	4

Fluoride PET/CT skull base to mid-thigh	May be appropriate (Disagreement)	Expert Opinion	☼☼☼☼ 10-30 mSv		5	5	0	0	9	1	1	0	3	2	0
Choline PET/MRI skull base to mid-thigh	May be appropriate (Disagreement)	Expert Opinion	☼☼☼ 1-10 mSv		5	5	0	0	3	1	2	1	3	6	0
MRI pelvis without IV contrast	May be appropriate	Strong	O 0 mSv	O 0 mSv [ped]	4	4	0	0	6	5	3	0	1	1	0

References	Study Quality
120 (31361529)	2
119 (30730409)	3
118 (27663393)	3
117 (29317377)	3
116 (27527896)	2
115 (17707266)	3
114 (19161194)	3
113 (15134982)	2
112 (19130116)	3
111 (17881141)	2
110 (20551184)	2
109 (15972335)	3
108 (15375223)	2
107 (21785087)	3

		39 (23313568)		M											
		38 (23521479)		2											
CT abdomen and pelvis without IV contrast	Usually not appropriate	Moderate	☼☼☼ 1-10 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	4	2	4	1	3	2	0	0	0
		References		Study Quality											
		26 (22417806)		2											
		27 (14571410)		4											
CT abdomen and pelvis without and with IV contrast	Usually not appropriate	Moderate	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	3	3	4	3	6	0	1	1	0	1	0
		References		Study Quality											
		26 (22417806)		2											
		27 (14571410)		4											
CT chest abdomen pelvis with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 3-10 mSv [ped]	3	3	2	3	10	0	0	0	1	0	0
MRI abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	3	3	3	2	4	2	4	1	0	0	0
FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Expert Consensus	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	3	3	1	6	4	2	2	0	1	0	0
TRUS prostate	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	3	3	3	4	6	1	0	0	0	0	0
		References		Study Quality											
		93 (10664674)		4											
		121 (7690016)		3											
CT chest abdomen pelvis without IV contrast	Usually not appropriate	Expert Consensus	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	2	2	5	4	2	1	4	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]	2	2	6	4	4	1	1	0	0	0	0

		45 (23628493)			M												
Fluciclovine PET/CT skull base to mid-thigh	Usually appropriate	Limited	☼☼☼☼ 10-30 mSv			7	7	0	0	0	0	1	4	7	4	0	
		References			Study Quality												
		145 (31343613)			3												
		144 (33237350)			4												
		143 (26278491)			4												
		142 (24943499)			4												
Choline PET/MRI skull base to mid-thigh	Usually appropriate	Expert Consensus	☼☼☼ 1-10 mSv			7	7	0	0	1	1	2	3	4	5	0	
Fluciclovine PET/MRI skull base to mid-thigh	Usually appropriate	Strong	☼☼☼ 1-10 mSv			7	7	0	0	0	0	4	2	5	5	0	
		References			Study Quality												
		146 (33052718)			2												
		140 (31127357)			Good												
		78 (17204699)			2												
		77 (27694179)			4												
		76 (27694178)			4												
		74 (17926036)			3												
		73 (16315004)			3												
		72 (16865395)			3												
		71 (12679398)			1												
		70 (16832632)			3												
PSMA PET/CT skull base to mid-thigh	Usually appropriate	Limited	☼☼☼☼ 10-30 mSv			7	7	1	0	0	0	1	3	5	6	0	
		References			Study Quality												
		153 (28758969)			3												
		154 (32481743)			3												
DCFPyL PET/CT skull base to mid-thigh	Usually appropriate	Limited	☼☼☼☼ 10-30 mSv			7	7	1	0	0	1	4	1	3	6	0	
		References			Study Quality												

		156 (33452039)	4													
		155 (31451492)	3													
MRI abdomen and pelvis without and with IV contrast	May be appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	6	6	0	0	1	1	3	6	4	1	0	
FDG-PET/CT skull base to mid-thigh	May be appropriate	Limited	10-30 mSv	3-10 mSv [ped]	6	6	0	0	1	1	5	6	1	1	1	
		References		Study Quality												
		79 (16000572)		3												
		80 (8638000)		3												
		152 (12031380)		3												
		151 (15867215)		3												
		150 (20975102)		3												
		149 (10492189)		3												
		148 (27383216)		M												
		147 (27694167)		4												
MRI abdomen and pelvis without IV contrast	May be appropriate (Disagreement)	Expert Opinion	0 0 mSv	0 0 mSv [ped]	5	5	0	1	1	5	5	2	1	0	1	
Fluoride PET/CT whole body	May be appropriate (Disagreement)	Expert Opinion	10-30 mSv	3-10 mSv [ped]	5	5	0	0	3	2	3	2	2	4	0	
		References		Study Quality												
		140 (31127357)		Good												
		141 (30877561)		Good												
CT abdomen and pelvis without IV contrast	May be appropriate	Limited	1-10 mSv	3-10 mSv [ped]	4	4	1	1	6	1	5	2	0	0	0	
		References		Study Quality												
		27 (14571410)		4												
		135 (28473088)		4												
CT chest abdomen pelvis without IV contrast	May be appropriate	Limited	10-30 mSv	3-10 mSv [ped]	4	4	0	3	5	3	3	2	0	0	0	

		References	Study Quality													
		27 (14571410)	4													
		135 (28473088)	4													
MRI pelvis without and with IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	4	4	0	2	3	4	5	2	0	0	0	
CT abdomen and pelvis without and with IV contrast	Usually not appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢☢ 10-30 mSv [ped]	3	3	3	3	9	0	0	1	0	0	0	
		References	Study Quality													
		27 (14571410)	4													
		135 (28473088)	4													
CT chest abdomen pelvis without and with IV contrast	Usually not appropriate	Limited	☢☢☢☢ 10-30 mSv	☢☢☢☢☢ 10-30 mSv [ped]	3	3	3	2	10	0	0	1	0	0	0	
		References	Study Quality													
		27 (14571410)	4													
		135 (28473088)	4													
MRI pelvis without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	2	3	5	1	4	1	0	0	0	
TRUS-guided biopsy prostatectomy bed	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	3	4	7	0	2	0	0	0	0	
MRI-targeted biopsy prostatectomy bed	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	3	3	6	2	2	0	0	0	0	
Radiography skeletal survey	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv	☢☢☢ 0.3-3 mSv [ped]	2	2	5	5	5	1	0	0	0	0	0	
TRUS prostatectomy bed	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	6	4	5	0	1	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.