American College of Radiology ACR Appropriateness Criteria®

Staging and Follow-up of Melanoma

Variant 1: Adult. Newly diagnosed cutaneous or muco-cutaneous melanoma. No signs or symptoms of regional or metastatic disease. No pathologic evidence of regional nodal metastases. Initial staging.

n 1	Appropria	ateness	COE	4 1 14 DD	· -	D I DDI	D (1	3.7.11			F	inal '	Tabu	latio	ns		
Procedure	Catego		SOE	Adults RR	L	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
Lymphoscintigraphy area of interest	Usual appropr		Strong	Varies		Varies	9	9	0	0	1	0	1	0	0	3	8
		,	References			Study	Quality										
			19 (15026857)				4										
			20 (22738926)				4										
MRI head without and with IV contrast	Usually appropr		Limited	O 0 mSv	′	O 0 mSv [ped]	3	3	3	3	6	1	0	0	0	0	0
		•	References			Study	Quality								•		
			25 (15302691)				4		_								
FDG-PET/CT whole body	Usually appropr		Limited	≎≎≎≎ 10- mSv	30	���� 3- 10 mSv [ped]	3	3	1	4	5	3	0	0	0	0	0
			References			Study	Quality										
			34 (16474909)				3										
			30 (24375280)				3										
			32 (26597332)				4										
CT abdomen and pelvis with IV contrast	Usually appropr	not riate	Limited	��� 1-1 mSv	0	���� 3- 10 mSv [ped]	1	1	7	3	3	0	0	0	0	0	0
			References			Study	Quality										
			25 (15302691)				4										

CT abdomen and pelvis without IV contrast	Usuall approp	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	10	2	1	0	0	0	0	0	0
CT abdomen and pelvis without and with IV contrast	Usuall approp	Expert Consensus	���� 10-30 mSv		1	1	10	1	1	0	0	1	0	0	0
CT chest with IV contrast	Usuall approp	Limited	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	8	5	0	0	0	0	0	0	0
		References		Study	Quality										
		25 (15302691)			4				,						
CT chest without IV contrast	Usuall approp	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	10	2	0	0	0	1	0	0	0
CT chest without and with IV contrast	Usuall approp	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	11	2	0	0	0	0	0	0	0
CT head and neck with IV contrast	Usuall approp	Expert Consensus	��� 1-10 mSv		1	1	10	2	1	0	0	0	0	0	0
CT head and neck without IV contrast	Usuall approp	Expert Consensus	��� 1-10 mSv		1	1	11	2	0	0	0	0	0	0	0
CT head and neck without and with IV contrast	Usuall approp	Expert Consensus	≎≎≎ 1-10 mSv		1	1	10	2	0	0	0	1	0	0	0
MRI abdomen and pelvis without IV contrast	Usuall approp	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	2	0	0	0	0	0	0	0
MRI abdomen and pelvis without and with IV contrast	Usuall approp	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	10	3	0	0	0	0	0	0	0
MRI head without IV contrast	Usuall approp	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	10	3	0	0	0	0	0	0	0
Bone scan whole body	Usuall approp	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	11	2	0	0	0	0	0	0	0

Radiography chest	Usuall approp	Limited	≎ <0.1 mS	Sv		1	1	8	4	1	0	0	0	0	0	0
		References			Study	Quality										
		55 (14732662)				3										
		25 (15302691)				4										

Variant 2: Adult. Newly diagnosed cutaneous or muco-cutaneous melanoma. Microscopic satellite in primary lesion biopsy specimen, or positive lymph nodes on wide excision or sentinel lymph node biopsy, or suspected regional lymph node involvement based on signs or symptoms. Initial staging.

	Appropriateness	COL	4.1.14 DDI	D I DDY	D (1	3.6.31			F	inal	Tabu	latio	ns		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
FDG-PET/CT whole body	Usually appropriate	Strong	���� 10-30 mSv	���� 3- 10 mSv [ped]	8	8	0	0	0	0	0	0	2	8	3
		References		Study	Quality										
		34 (16474909)			3										
		37 (20422454)			2										
MRI head without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	2	4	3	3	1	0
		References		Study	Quality										
		25 (15302691)			4										
		37 (20422454)			2										
		53 (29596475)			3										
US area of interest	May be appropriate	Strong	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	0	3	5	2	2	1
		References		Study	Quality										
		44 (12673722)			4										
		3 (16319474)			3										
		43 (10861430)			3										

CT abdomen and pelvis with IV contrast	May be appropriate	Limited	��� 1-10 mSv	���� 3- 10 mSv [ped]	5	5	0	0	1	3	7	0	2	0	0
		References		Study	Quality										
		54 (17453294)			4										
		25 (15302691)			4										
CT chest with IV contrast	May be appropriate	Limited	��� 1-10 mSv	���� 3- 10 mSv [ped]	5	5	0	0	1	4	6	0	2	0	0
		References		Study	Quality										
		54 (17453294)			4										
		25 (15302691)			4										
MRI abdomen and pelvis without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	0	1	3	8	0	1	0	0
MRI abdomen and pelvis without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	4	4	1	0	2	5	3	1	1	0	0
		References		Study	Quality		•								
		52 (15837408)			2										
CT chest without IV contrast	Usually not appropriate	Limited	��� 1-10 mSv	���� 3- 10 mSv [ped]	3	3	2	2	7	2	0	0	0	0	0
		References		Study	Quality										
		54 (17453294)			4					_					
Radiography chest	Usually not appropriate	Limited	♦ < 0.1 mSv		3	3	3	3	2	3	1	1	0	0	0
		References		Study	Quality										
		25 (15302691)			4										
CT abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	9	3	1	0	0	0	0	0	0
		References		Study	Quality										
		54 (17453294)			4										

CT abdomen and pelvis without and with IV contrast	Usually appropr	Expert Consensus	���� 10-3 mSv	\$\$\$\$\$\$\$ 30 10-30 mSv [ped]	1	1	8	3	1	0	0	0	1	0	0
		References		Stud	ly Quality										
		54 (17453294)			4										
CT chest without and with IV contrast	Usually appropr	Expert Consensus	≎≎≎ 1-10 mSv	99993- 10 mSv [ped]	1	1	9	4	0	0	0	0	0	0	0
		References		Stud	ly Quality										
		54 (17453294)			4										
CT head with IV contrast	Usually appropr	Expert Consensus	≎≎≎ 1-10 mSv	9	1	1	7	4	1	0	0	1	0	0	0
CT head without IV contrast	Usually appropr	Expert Consensus	≎≎≎ 1-10 mSv	9	1	1	9	3	1	0	0	0	0	0	0
CT head without and with IV contrast	Usually appropr	Expert Consensus	≎≎≎ 1-10 mSv	0	1	1	8	4	1	0	0	0	0	0	0
MRI head without IV contrast	Usually appropr	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	8	3	1	0	0	1	0	0	0
Bone scan whole body	Usually appropr	Expert Consensus	≎≎≎ 1-10 mSv	99993- 10 mSv [ped]	1	1	9	2	2	0	0	0	0	0	0
Lymphoscintigraphy area of interest	Usually appropr	Expert Consensus	Varies	Varies	1	1	9	2	1	0	0	0	0	1	0

Variant 3: Adult. Cutaneous or muco-cutaneous melanoma. Negative clinical or surgical regional lymph nodes or metastatic disease at initial diagnosis. Surveillance.

D 1	Appropriateness	COF	A L L DDY	n i nni	D (1	3.6.11			F	inal [[abu]	latior	ıs		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI head without and with IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	1	4	2	5	1	0

FDG-PET/CT whole body	May be appropriate	Limited	���� 10-30 mSv	���� 3- 10 mSv [ped]	6	6	1	0	0	3	1	4	3	1	0
CT chest with IV contrast	May be appropriate	Limited	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	5	5	0	0	1	2	8	0	2	0	0
CT chest without IV contrast	May be appropriate	Limited	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	4	4	0	0	1	6	5	0	1	0	0
CT abdomen and pelvis with IV contrast	Usually not appropriate	Limited	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	2	2	4	4	3	1	0	0	0	1	0
US area of interest	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	2	2	5	4	3	0	0	0	0	1	0
CT abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	9	3	1	0	0	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	9	4	0	0	0	0	0	0	0
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	9	4	0	0	0	0	0	0	0
CT head with IV contrast	Usually not appropriate	Expert Consensus	��� 1-10 mSv	��� 0.3- 3 mSv [ped]	1	1	10	2	1	0	0	0	0	0	0
CT head without IV contrast	Usually not appropriate	Expert Consensus	��� 1-10 mSv	��� 0.3- 3 mSv [ped]	1	1	10	3	0	0	0	0	0	0	0
CT head without and with IV contrast	Usually not appropriate	Expert Consensus	��� 1-10 mSv	≎≎≎≎ 3- 10 mSv [ped]	1	1	10	3	0	0	0	0	0	0	0
MRI abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	10	2	1	0	0	0	0	0	0
MRI abdomen and pelvis without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	9	3	1	0	0	0	0	0	0

MRI head without IV contrast	Usually appropri		Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	10	3	0	0	0	0	0	0	0
Bone scan whole body	Usually appropri	_	Expert Consensus	≎⊕⊕ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	10	3	0	0	0	0	0	0	0
Radiography chest	Usually appropri		Limited	≎ <0.1 mS		1	1	7	3	1	1	0	1	0	0	0
			References		Study	Ouality		•	•	•		•		•	•	

Variant 4: Adult. Cutaneous or muco-cutaneous melanoma. Positive clinical or surgical regional lymph nodes or metastatic disease at initial diagnosis. Surveillance.

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Durandana	Appropriateness	SOE	A J14- DDI	D. J. DDI	D-45	Madian			F	inal '	Гаbu	latio	ns		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
CT chest with IV contrast	Usually appropriate	Limited	��� 1-10 mSv	���� 3- 10 mSv [ped]	7	7	1	0	0	0	2	3	4	3	0
MRI head without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	1	0	0	1	0	0	5	5	1
		References		Study	Quality										
		65 (34741440)			4										
FDG-PET/CT whole body	Usually appropriate	Limited	���� 10-30 mSv	���� 3- 10 mSv [ped]	7	7	1	0	0	0	2	2	3	4	1
CT abdomen and pelvis with IV contrast	May be appropriate	Limited	��� 1-10 mSv	���� 3- 10 mSv [ped]	6	6	0	0	0	1	5	4	3	0	0
US area of interest	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	0	0	3	5	3	1	1	0
CT chest without IV contrast	May be appropriate	Limited	��� 1-10 mSv	���� 3- 10 mSv [ped]	4	4	1	2	3	4	2	1	0	0	0

CT head with IV contrast	Usually not appropriate	Limited	��� 1-10 mSv	��� 0.3- 3 mSv [ped]	3	3	4	2	6	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]	1	1	9	4	0	0	0	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	8	2	2	0	0	1	0	0	0
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	9	4	0	0	0	0	0	0	0
CT head without IV contrast	Usually not appropriate	Expert Consensus	��� 1-10 mSv	��� 0.3- 3 mSv [ped]	1	1	11	2	0	0	0	0	0	0	0
CT head without and with IV contrast	Usually not appropriate	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	10	3	0	0	0	0	0	0	0
MRI abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	9	3	0	1	0	0	0	0	0
MRI abdomen and pelvis without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	7	3	1	2	0	0	0	0	0
MRI head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	8	4	0	1	0	0	0	0	0
Bone scan whole body	Usually not appropriate	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	10	3	0	0	0	0	0	0	0
Radiography chest	Usually not appropriate	Limited	⊕ <0.1 mSv		1	1	7	3	2	0	0	1	0	0	0

Variant 5: Adult. Recurrent cutaneous, muco-cutaneous, or ocular melanoma. Suspected regional recurrence or metastatic disease. Staging.

Procedure	Appropriateness	SOE	Adults RRL	Peds RRL	Rating	Median			F	inal '	Fabu	latio	ns		
Procedure	Category	SUE	Adults KKL	Peus KKL	Kaung	Median	1	2	3	4	5	6	7	8	9
FDG-PET/CT whole body	Usually appropriate	Strong	���≎ 10-30 mSv	���� 3- 10 mSv [ped]	8	8	0	0	0	0	0	1	2	6	4
CT abdomen and pelvis with IV contrast	Usually appropriate	Limited	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	7	7	0	0	1	0	1	4	3	3	1
CT chest with IV contrast	Usually appropriate	Limited	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	7	7	0	0	1	0	3	2	5	2	0
MRI abdomen and pelvis without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	1	0	0	0	1	2	3	4	2
MRI head without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	0	1	8	2	2
US area of interest	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	1	2	1	4	3	2
CT chest without IV contrast	May be appropriate (Disagreement)	Expert Opinion	ଡ େଡ 1-10 mSv	���� 3- 10 mSv [ped]	5	5	2	1	4	3	1	2	0	0	0
Radiography chest	Usually not appropriate	Limited	⊕ <0.1 mSv		2	2	6	3	3	0	0	1	0	0	0
CT abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	ଡ େଡ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	8	2	3	0	0	0	0	0	0
CT abdomen and pelvis without and with IV contrast	Usually not appropriate	Expert Consensus	୫୫୫୫ 10-30 mSv		1	1	8	2	2	0	0	0	1	0	0
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	��� 1-10 mSv		1	1	8	3	2	0	0	0	0	0	0
CT head with IV contrast	Usually not appropriate	Expert Consensus	��� 1-10 mSv	��� 0.3- 3 mSv [ped]	1	1	7	4	1	1	0	0	0	0	0

CT head without IV contrast	Usually not appropriate	Expert Consensus	��� 1-10 mSv	��� 0.3- 3 mSv [ped]	1	1	10	3	0	0	0	0	0	0	0
CT head without and with IV contrast	Usually not appropriate	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	8	4	0	0	1	0	0	0	0
MRI abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	8	2	2	1	0	0	0	0	0
MRI head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	8	2	2	0	0	1	0	0	0
Bone scan whole body	Usually not appropriate	Expert Consensus	��� 1-10 mSv	���� 3- 10 mSv [ped]	1	1	9	2	2	0	0	0	0	0	0

Variant 6: Adult. Ocular melanoma. Initial staging.

Procedure	Appropriateness	COF	A L L DDI	Peds RRL	Rating	Median	Final Tabulations										
	Category	SOE	Adults RRL				1	2	3	4	5	6	7	8	9		
MRI abdomen and pelvis without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	0	1	3	5	4		
MRI head without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	0	4	4	3	2		
FDG-PET/CT whole body	Usually appropriate	Limited	���� 10-30 mSv	���� 3- 10 mSv [ped]	7	7	0	0	1	0	2	1	5	2	2		
CT abdomen and pelvis with IV contrast	May be appropriate	Limited	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	5	5	0	0	0	3	5	3	2	0	0		
US abdomen	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	4	4	0	0	2	7	3	0	1	0	0		
CT chest with IV contrast	Usually not appropriate	Expert Consensus	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	2	2	6	3	1	2	0	0	0	1	0		

CT abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	��� 1-10 mSv	≎≎≎≎ 3- 10 mSv [ped]	1	1	8	2	3	0	0	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	8	2	2	0	0	1	0	0	0
CT chest without IV contrast	Usually not appropriate	Expert Consensus	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	7	4	0	1	0	1	0	0	0
CT chest without and with IV contrast	Usually not appropriate	Expert Consensus	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	8	4	1	0	0	0	0	0	0
CT head with IV contrast	Usually not appropriate	Expert Consensus	≎≎≎ 1-10 mSv	��� 0.3- 3 mSv [ped]	1	1	7	4	1	0	0	0	0	1	0
CT head without IV contrast	Usually not appropriate	Expert Consensus	≎≎≎ 1-10 mSv	��� 0.3- 3 mSv [ped]	1	1	9	3	1	0	0	0	0	0	0
CT head without and with IV contrast	Usually not appropriate	Expert Consensus	ଡ େଫ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	8	4	1	0	0	0	0	0	0
MRI abdomen and pelvis without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	7	2	3	0	0	1	0	0	0
MRI head without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	8	3	1	1	0	0	0	0	0
Bone scan whole body	Usually not appropriate	Expert Consensus	≎≎≎ 1-10 mSv	���� 3- 10 mSv [ped]	1	1	9	3	1	0	0	0	0	0	0
Radiography chest	Usually not appropriate	Expert Consensus	⊕ <0.1 mSv		1	1	8	4	0	0	0	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.