## American College of Radiology ACR Appropriateness Criteria®

## **Imaging after Mastectomy and Breast Reconstruction**

Variant 1: Female. Breast cancer screening. History of cancer, mastectomy side(s), no reconstruction.

	Appropria	ateness								F	inal	Tabu	latio	ns		
Procedure	Catego	ory	SOE	Adults RR	L Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
Mammography screening	Usually appropr		Limited	�� 0.1-1m	Sv	1	1	10	2	1	0	0	0	1	0	0
			References		Stuc	ly Quality		•								
			8 (8273633)			4										
			16 (8327698)			3										
MRI breast without IV contrast	Usually appropr		Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	0	0	0	0	0	1	0	0
MRI breast without and with IV contrast	Usually appropr		Limited	O 0 mSv	O 0 mSv [ped]	1	1	8	1	3	0	0	1	1	0	0
		References			Stuc	ly Quality										
			17 (29371086)			4										
			18 (17354188)			3										
FDG-PET breast dedicated	Usually appropr		Expert Consensus	��� 1-10 mSv	)	1	1	13	0	0	0	0	1	0	0	0
US breast	Usually appropr		Limited	O 0 mSv	O 0 mSv [ped]	1	1	8	1	3	3	0	0	0	0	0
			References		Stuc	ly Quality			•		•					
			20 (23131395)			3										
		19 (20422455)			3											
		18 (17354188)				3										

			16 (8327698)		3										
Digital breast tomosynthesis screening	Usually appropi	_	Expert Consensus	�� 0.1-1mSv	1	1	11	1	1	0	0	0	1	0	0
Sestamibi MBI	Usually appropi	_	Expert Consensus	��� 1-10 mSv	1	1	13	0	0	0	0	1	0	0	0

Variant 2: Female. Breast cancer screening. History of cancer, autologous reconstruction side(s) with or without implant.

	Appropriateness	207		D 1 DD1					I	inal	Tabu	latio	ns		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
Mammography screening	May be appropriate	Limited	�� 0.1-1mSv	′	5	5	2	1	1	3	7	0	0	1	0
		References		Study	y Quality		<u> </u>				•				
		28 (25059787)			3										
		10 (30129903)	ı		4										
		29 (18539887)	ı		3										
		27 (12091685)			3										
Digital breast tomosynthesis screening	May be appropriate	Strong	�� 0.1-1mSv	,	4	4	2	2	2	2	6	0	0	1	0
		References		Study	y Quality										
		23 (24316152)	ı		1										
		26 (23623721)			1										
		22 (25058084)			3										
		21 (24918774)	1		3										
		25 (24582915)			1										
		24 (23175484)			2		_								
MRI breast without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	3	3	4	3	7	0	1	0	0	0	0
		References		Study	y Quality										
		References 17 (29371086)			4										

		30 (26143679)				4							
		31 (12664117)				4							
MRI breast without IV contrast	Usually appropi	Expert Consensus	O 0 mSv	,	O 0 mSv [ped]	1	1	12	0	0	1	0	
													Г

MRI breast without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	0	0	1	0	0	1	0	0
FDG-PET breast dedicated	Usually not appropriate	Expert Consensus	��� 1-10 mSv		1	1	12	0	1	0	0	1	0	0	0
US breast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	1	0	1	0	0	1	0	0
Sestamibi MBI	Usually not appropriate	Expert Consensus	��� 1-10 mSv		1	1	11	2	0	0	0	1	0	0	0

Variant 3: Female. Breast cancer screening. History of cancer, nonautologous (implant) reconstruction sides(s).

D 1	Appropriateness	COF	A L L DDI	D I DDI	D 4	34.11			F	inal '	Гаbu	latio	ns		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI breast without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	2	2	7	0	4	0	1	1	1	0	0
		References		Study	Quality										
		17 (29371086)	ı		4										
		33 (21337876)			4										
		34 (30511241)			3					_					
Mammography screening	Usually not appropriate	Expert Consensus	�� 0.1-1mS\	′	1	1	11	1	1	0	0	0	1	0	0
MRI breast without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	1	0	0	0	0	1	0	0
FDG-PET breast dedicated	Usually not appropriate	Expert Consensus	��� 1-10 mSv		1	1	12	1	0	0	0	1	0	0	0
US breast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	11	1	1	0	0	0	1	0	0

Digital breast tomosynthesis screening	Usually not appropriate	Expert Consensus	�� 0.1-1mSv	1	1	11	1	1	0	0	0	1	0	0
Sestamibi MBI	Usually not appropriate	Expert Consensus	��� 1-10 mSv	1	1	12	1	0	0	0	1	0	0	0

Variant 4: Female. Breast cancer screening. High-risk, bilateral prophylactic mastectomy, no reconstruction.

Duran James	Appropriateness	SOE	A Justen DDI	D. J. DDI	D - 42	M - 12			F	inal [	Гаbu	lation	ıs		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
Mammography screening	Usually not appropriate	Expert Consensus	�� 0.1-1mSv		1	1	12	1	0	1	0	0	0	0	0
MRI breast without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	0	0	0	0	0	1	0	0
MRI breast without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	11	4	0	0	0	0	0	0	0
		References		Study	Quality		-								
		35 (31196476)			3		_								
FDG-PET breast dedicated	Usually not appropriate	Expert Consensus	<b>≎</b> ≎≎ 1-10 mSv		1	1	13	0	0	0	0	1	0	0	0
US breast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	0	1	1	0	0	0	0	0
Digital breast tomosynthesis screening	Usually not appropriate	Expert Consensus	�� 0.1-1mSv		1	1	12	1	0	1	0	0	0	0	0
Sestamibi MBI	Usually not appropriate	Expert Consensus	��� 1-10 mSv		1	1	13	0	0	0	0	1	0	0	0

Variant 5: Female. Breast cancer screening. High-risk, bilateral prophylactic mastectomy with autologous reconstructions.

Day of James	Appropri	opriateness ategory SOE Adults RE			n n l nn	D - 45	M - 1!			F	inal	Tabu	latio	ns		
Procedure			SOE	Adults KR	L Peds RR	L Rating	Median	1	2	3	4	5	6	7	8	9
MRI breast without and with IV contrast	Usuall approp		Limited	O 0 mSv	O 0 mSv [ped]	2	2	7	1	3	1	1	0	0	1	0
			References		St	udy Quality										
			33 (21337876)			4										
			35 (31196476)		<u> </u>	3										
Mammography screening	Usuall approp		Limited	�� 0.1-1m	ıSv	1	1	10	3	0	0	0	0	0	1	0
			References		St	udy Quality										
			10 (30129903)			4										
MRI breast without IV contrast	Usuall approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	0	0	1	0	0	0	0	0
FDG-PET breast dedicated	Usuall approp		Expert Consensus	��� 1-1 mSv	0	1	1	12	1	0	1	0	0	0	0	0
US breast	Usuall approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	1	1	0	0	0	0	0	0
Digital breast tomosynthesis screening	Usuall approp		Expert Consensus	�� 0.1-1m	ıSv	1	1	9	3	0	1	0	0	0	1	0
Sestamibi MBI	Usuall approp		Expert Consensus	��� 1-1 mSv	0	1	1	12	1	0	1	0	0	0	0	0

Variant 6: Female. Breast cancer screening. High-risk, bilateral prophylactic mastectomy with nonautologous (implant) reconstructions.

, n	Appropriateness	COE	A L L DDI	D I DDI	D 41	37.11			F	inal '	Гаbu	latio	ns		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
Mammography screening	Usually not appropriate	Expert Consensus	�� 0.1-1mSv		1	1	12	2	0	0	0	0	0	0	0

MRI breast without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	13	0	0	1	0	0	0	0	0
MRI breast without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	8	1	3	0	2	0	0	0	0
		References		Study	Quality										
		33 (21337876)			4										
		34 (30511241)			3										
FDG-PET breast dedicated	Usually not appropriate	Expert Consensus	<b>≎≎≎</b> 1-10 mSv		1	1	13	1	0	0	0	0	0	0	0
US breast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	0	1	1	0	0	0	0	0
Digital breast tomosynthesis screening	Usually not appropriate	Expert Consensus	�� 0.1-1mSv	,	1	1	12	2	0	0	0	0	0	0	0
Sestamibi MBI	Usually not appropriate	Expert Consensus	<b>≎≎≎</b> 1-10 mSv		1	1	13	0	1	0	0	0	0	0	0

Variant 7: Female. Palpable lump or clinically significant pain on the side of the mastectomy without reconstruction. Initial imaging.

<b>D</b> 1	Appropriateness	iateness SOE Adults RRL Peds RRL Rating M								F	inal '	Tabu	latio	ns		
Procedure	Category	SOE	Adults RR	KL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
US breast	Usually appropriate	Limited	O 0 mSv	/	O 0 mSv [ped]	9	9	1	0	0	0	0	0	0	2	11
		References			Study	Quality										
		41 (22302210)	l			3										
		39 (31039027)				3										
Mammography diagnostic	May be appropriate	Limited	�� 0.1-1m	nSv		5	5	3	1	2	0	8	1	0	0	0
		References			Study	Quality										
		39 (31039027)			3											

Digital breast tomosynthesis diagnostic	May be appropria	e ate	Limited	�� 0.1-1m§	Sv		5	5	4	0	2	0	8	1	0	0	0
		References			;												
		36 (23620367)															
		37 (23255766)															
		38 (23844366)			3												
MRI breast without and with IV contrast	Usually r appropria		Limited	O 0 mSv	O 0 m		3	3	6	0	4	0	4	0	0	0	0
		References															
		18 (17354188)			3												
Sestamibi MBI	Usually r appropria		Limited	��� 1-10 mSv			2	2	7	4	3	0	0	0	0	0	0
			References	References Study Quality													
		40 (20965904)			3												
MRI breast without IV contrast	Usually r appropria		Expert Consensus	O 0 mSv	O 0 m		1	1	13	0	0	0	1	0	0	0	0
FDG-PET breast dedicated		Usually not Ex appropriate Cons		&& 1-10 mSv			1	1	11	2	1	0	0	0	0	0	0

Variant 8: Female. Palpable lump or clinically significant pain on the side of the mastectomy with reconstruction (autologous or nonautologous). Initial imaging.

Procedure	Appropriateness	COF	4 1 14 DDI	n l ppr	D 4	3.6.11	Final Tabulations										
	Category	SOE	Adults RRI	L Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9		
US breast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	1	1	5	7		
		References	References Study Quality														
		42 (12732703)	42 (12732703)		4												
		39 (31039027)			3												
Mammography diagnostic	May be appropriate	Limited	�� 0.1-1m\$	Sv	5	5	0	1	1	1	10	1	0	0	1		

		References			Study Quality												
		42 (12732703)			4												
		39 (31039027)															
Digital breast tomosynthesis diagnostic	May approp		Limited	�� 0.1-1m	Sv		5	5	2	0	1	1	9	1	0	0	1
		References															
		36 (23620367)															
		37 (23255766)															
		38 (23844366)			3												
MRI breast without and with IV contrast	Usuall approp		Limited	O 0 mSv		O 0 mSv [ped]	3	3	4	1	8	0	2	0	0	0	0
		References			Study Quality												
		43 (15371609)		4													
		44 (-3158507)															
MRI breast without IV contrast	Usuall approp		Expert Consensus	O 0 mSv		O 0 mSv [ped]	1	1	13	0	0	0	0	1	0	0	0
FDG-PET breast dedicated	Usually not appropriate		Expert Consensus	��� 1-10 mSv	)		1	1	11	3	0	0	0	0	0	0	0
Sestamibi MBI	Usually not appropriate		Expert Consensus	��� 1-10 mSv	)		1	1	10	3	0	1	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.