

**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.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Mammography screening	Usually not appropriate	Limited	☢☢☢ 0.1-1mSv		1	1	10	2	1	0	0	0	1	0	0
		References		Study Quality											
		8 (8273633)		4											
		16 (8327698)		3											
MRI breast without IV contrast	Usually not appropriate	Expert Consensus	○ ○ mSv	○ ○ mSv [ped]	1	1	13	0	0	0	0	0	1	0	0
MRI breast without and with IV contrast	Usually not appropriate	Limited	○ ○ mSv	○ ○ mSv [ped]	1	1	8	1	3	0	0	1	1	0	0
		References		Study Quality											
		17 (29371086)		4											
		18 (17354188)		3											
FDG-PET breast dedicated	Usually not appropriate	Expert Consensus	☢☢☢☢ 1-10 mSv		1	1	13	0	0	0	0	1	0	0	0
US breast	Usually not appropriate	Limited	○ ○ mSv	○ ○ mSv [ped]	1	1	8	1	3	3	0	0	0	0	0
		References		Study Quality											
		20 (23131395)		3											
		19 (20422455)		3											
		18 (17354188)		3											

		16 (8327698)			3										
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	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.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							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

[illegible]

Digital breast tomosynthesis screening	May be appropriate	Strong	☢☢ 0.1-1mSv	4	4	2	2	2	2	6	0	0	1	0
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[illegible]

MRI breast without and with IV contrast	Usually not appropriate	Limited	0.0 mSv	0.0 mSv [ped]	3	3	4	3	7	0	1	0	0	0	0
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References	Study Quality
17 (29371086)	4

		30 (26143679)		4											
		31 (12664117)		4											
MRI breast without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 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	○ 0 mSv	○ 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).**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
MRI breast without and with IV contrast	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	2	2	7	0	4	0	1	1	1	0	0
		References		Study Quality											
		17 (29371086)		4											
		33 (21337876)		4											
		34 (30511241)		3											
Mammography screening	Usually not appropriate	Expert Consensus	☼☼ 0.1-1mSv		1	1	11	1	1	0	0	0	1	0	0
MRI breast without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 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	○ 0 mSv	○ 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.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							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	○ 0 mSv	○ 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	○ 0 mSv	○ 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	⊕⊕⊕ 1-10 mSv		1	1	13	0	0	0	0	1	0	0	0
US breast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 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.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							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	1	3	1	1	0	0	1	0
		References		Study Quality											
		33 (21337876)		4											
		35 (31196476)		3											
Mammography screening	Usually not appropriate	Limited	☢☢ 0.1-1mSv		1	1	10	3	0	0	0	0	0	1	0
		References		Study Quality											
		10 (30129903)		4											
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
FDG-PET breast dedicated	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	12	1	0	1	0	0	0	0	0
US breast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	12	1	1	0	0	0	0	0	0
Digital breast tomosynthesis screening	Usually not appropriate	Expert Consensus	☢☢ 0.1-1mSv		1	1	9	3	0	1	0	0	0	1	0
Sestamibi MBI	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		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.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							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



Digital breast tomosynthesis diagnostic	May be appropriate	Limited	☼☼ 0.1-1mSv		5	5	4	0	2	0	8	1	0	0	0
		References		Study Quality											
		36 (23620367)		2											
		37 (23255766)		3											
		38 (23844366)		3											
MRI breast without and with IV contrast	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	3	3	6	0	4	0	4	0	0	0	0
		References		Study Quality											
		18 (17354188)		3											
Sestamibi MBI	Usually not appropriate	Limited	☼☼☼ 1-10 mSv		2	2	7	4	3	0	0	0	0	0	0
		References		Study Quality											
		40 (20965904)		3											
MRI breast without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	13	0	0	0	1	0	0	0	0
FDG-PET breast dedicated	Usually not appropriate	Expert Consensus	☼☼☼ 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 Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
US breast	Usually appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	9	9	0	0	0	0	0	1	1	5	7
		References		Study Quality											
		42 (12732703)		4											
		39 (31039027)		3											
Mammography diagnostic	May be appropriate	Limited	☼☼ 0.1-1mSv		5	5	0	1	1	1	10	1	0	0	1

		References		Study Quality												
		42 (12732703)		4												
		39 (31039027)		3												
Digital breast tomosynthesis diagnostic	May be appropriate	Limited	☼☼ 0.1-1mSv		5	5	2	0	1	1	9	1	0	0	1	
		References		Study Quality												
		36 (23620367)		2												
		37 (23255766)		3												
		38 (23844366)		3												
MRI breast without and with IV contrast	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	3	3	4	1	8	0	2	0	0	0	0	
		References		Study Quality												
		43 (15371609)		4												
		44 (-3158507)		4												
MRI breast without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 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](http://www.acr.org/ac).