









Mammography with IV contrast	Usually not appropriate	Expert Consensus	☹☹ 0.1-1mSv		1	1	11	2	2	0	0	0	0	0	0
		References					Study Quality								
		29 (32755376)					4								
		12 (38424810)					4								
MRI breast without IV contrast abbreviated	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	12	2	1	0	0	0	0	0	0
		References					Study Quality								
		29 (32755376)					4								
		12 (38424810)					4								

**Variant 3: Lactating female. Age 25 years or older. Breast cancer screening. Higher-than-average risk.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Mammography screening	Usually appropriate	Limited	☹☹ 0.1-1mSv		8	8	0	0	1	0	1	1	3	6	3
		References					Study Quality								
		36 (38416921)					4								
		48 (37708073)					4								
		29 (32755376)					4								
		12 (38424810)					4								
MRI breast without and with IV contrast	Usually appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	8	8	0	0	0	0	0	0	4	5	6
		References					Study Quality								
		36 (38416921)					4								
		48 (37708073)					4								
		29 (32755376)					4								
		69 (36348090)					3								
		82 (37278853)					4								

		12 (38424810)			4														
Digital breast tomosynthesis screening	Usually appropriate	Limited	☼☼ 0.1-1mSv		8	8	0	0	1	0	1	0	2	8	3				
		References			Study Quality														
		36 (38416921)			4														
		48 (37708073)			4														
		29 (32755376)			4														
		12 (38424810)			4														
MRI breast without and with IV contrast abbreviated	Usually appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	7	7	1	0	0	0	1	1	5	5	2				
		References			Study Quality														
		36 (38416921)			4														
		48 (37708073)			4														
		29 (32755376)			4														
		69 (36348090)			3														
		82 (37278853)			4														
		12 (38424810)			4														
Mammography with IV contrast	Usually not appropriate	Limited	☼☼ 0.1-1mSv		3	3	3	2	4	4	0	0	1	0	1				
		References			Study Quality														
		48 (37708073)			4														
		29 (32755376)			4														
		12 (38424810)			4														
US breast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	2	2	6	5	2	1	1	0	0	0	0				
		References			Study Quality														
		48 (37708073)			4														
		29 (32755376)			4														
		12 (38424810)			4														
MRI breast without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	14	1	0	0	0	0	0	0	0				



49 (38141239)	4
48 (37708073)	4
29 (32755376)	4
12 (38424810)	4

Digital breast tomosynthesis diagnostic	Usually not appropriate	Limited	☼☼ 0.1-1mSv		3	3	4	2	7	1	1	0	0	0	0
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References	Study Quality
48 (37708073)	4
29 (32755376)	4
12 (38424810)	4

MRI breast without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	13	2	0	0	0	0	0	0	0
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References	Study Quality
48 (37708073)	4
29 (32755376)	4
12 (38424810)	4

MRI breast without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	11	3	1	0	0	0	0	0	0
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References	Study Quality
49 (38141239)	4
48 (37708073)	4
29 (32755376)	4
69 (36348090)	3
12 (38424810)	4

Sestamibi MBI	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv		1	1	13	2	0	0	0	0	0	0	0
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References	Study Quality
48 (37708073)	4
29 (32755376)	4
12 (38424810)	4

Mammography with IV contrast	Usually not appropriate	Limited	⊕⊕ 0.1-1mSv		1	1	9	5	1	0	0	0	0	0	0
		References					Study Quality								
		29 (32755376)					4								
		12 (38424810)					4								

**Variant 5: Lactating female. Age 30 years or older. Focal pain or palpable breast mass. Initial imaging.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
Mammography diagnostic	Usually appropriate	Limited	⊕⊕ 0.1-1mSv		9	9	0	0	0	0	1	0	1	5	8
		References					Study Quality								
		48 (37708073)					4								
		29 (32755376)					4								
		12 (38424810)					4								
Digital breast tomosynthesis diagnostic	Usually appropriate	Limited	⊕⊕ 0.1-1mSv		9	9	0	0	0	0	0	0	2	5	8
		References					Study Quality								
		49 (38141239)					4								
		48 (37708073)					4								
		29 (32755376)					4								
		12 (38424810)					4								
US breast	Usually appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	7	7	0	0	0	0	7	1	1	3	4
		References					Study Quality								
		49 (38141239)					4								
		48 (37708073)					4								
		13 (31539269)					4								
		29 (32755376)					4								

			43 (32870133)			3												
			12 (38424810)			4												
MRI breast without IV contrast	Usually not appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	1	1	13	1	1	0	0	0	0	0	0	0	0	
		References	Study Quality															
			48 (37708073)			4												
			29 (32755376)			4												
			12 (38424810)			4												
MRI breast without and with IV contrast	Usually not appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	1	1	12	2	1	0	0	0	0	0	0	0	0	
		References	Study Quality															
			48 (37708073)			4												
			69 (36348090)			3												
			29 (32755376)			4												
			12 (38424810)			4												
Sestamibi MBI	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv		1	1	12	2	1	0	0	0	0	0	0	0	0	
		References	Study Quality															
			48 (37708073)			4												
			29 (32755376)			4												
			12 (38424810)			4												
Mammography with IV contrast	Usually not appropriate	Expert Consensus	☼☼ 0.1-1mSv		1	1	8	2	3	1	0	0	1	0	0	0	0	
		References	Study Quality															
			29 (32755376)			4												
			12 (38424810)			4												

**Variant 6: Lactating female. Age less than 30 years. Clinically suspicious nipple discharge. Initial imaging.**



		12 (38424810)			4													
Sestamibi MBI	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv		1	1	12	3	0	0	0	0	0	0	0	0	0	0
		References			Study Quality													
		29 (32755376)			4													
		12 (38424810)			4													
Mammography with IV contrast	Usually not appropriate	Expert Consensus	☼☼ 0.1-1mSv		1	1	10	4	1	0	0	0	0	0	0	0	0	0
		References			Study Quality													
		29 (32755376)			4													
		12 (38424810)			4													

**Variant 7: Lactating female. Age 30 years or older. Clinically suspicious nipple discharge. Initial imaging.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations											
							1	2	3	4	5	6	7	8	9			
Mammography diagnostic	Usually appropriate	Limited	☼☼ 0.1-1mSv		9	9	0	0	0	0	0	0	3	4	8			
		References			Study Quality													
		49 (38141239)			4													
		29 (32755376)			4													
		12 (38424810)			4													
Digital breast tomosynthesis diagnostic	Usually appropriate	Limited	☼☼ 0.1-1mSv		9	9	0	0	0	0	0	0	2	4	9			
		References			Study Quality													
		49 (38141239)			4													
		29 (32755376)			4													
		12 (38424810)			4													
US breast	Usually appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	7	7	0	0	0	0	6	2	1	1	6			







3 (31529255)	0
12 (38424810)	4

**Variant 9: Lactating female. Suspected breast infection or abscess. 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	Moderate	0 0 mSv	0 0 mSv [ped]	9	9	0	0	0	0	0	0	1	2	12	
		References	Study Quality													
		48 (37708073)	4													
		89 (31154537)	4													
Mammography diagnostic	May be appropriate	Expert Consensus	☼☼ 0.1-1mSv		6	6	0	1	0	0	6	2	2	2	3	
		References	Study Quality													
		48 (37708073)	4													
Digital breast tomosynthesis diagnostic	May be appropriate	Expert Consensus	☼☼ 0.1-1mSv		6	6	0	1	0	0	6	2	2	2	3	
		References	Study Quality													
		48 (37708073)	4													
MRI breast without IV contrast	Usually not appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	1	1	13	2	0	0	0	0	0	0	0	
MRI breast without and with IV contrast	Usually not appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	1	1	11	4	0	0	0	0	0	0	0	
		References	Study Quality													
		48 (37708073)	4													
Sestamibi MBI	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv		1	1	13	2	0	0	0	0	0	0	0	
Mammography with IV contrast	Usually not appropriate	Expert Consensus	☼☼ 0.1-1mSv		1	1	10	5	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).