

**American College of Radiology  
ACR Appropriateness Criteria®**

**Breast Cancer Screening**

**Variant 1: Breast cancer screening. Female. Average-risk, with less than 15% lifetime risk of breast cancer.**

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	Strong	⊕⊕ 0.1-1mSv		9	9	0	0	0	0	0	0	0	0	0

References	Study Quality
15 (24316152)	1
12 (23623721)	1
28 (25188431)	3
16 (25058084)	3
17 (24918774)	3
31 (23901124)	3
18 (24746887)	1
33 (24896197)	3
19 (24121712)	M
29 (25247407)	3
20 (25313245)	3
32 (23969151)	2
21 (23169790)	1
22 (24450665)	3
30 (23701081)	3
23 (25107868)	3
24 (23553585)	1
25 (23297332)	1

26 (22674710)	2
27 (23803075)	3
13 (24582915)	1
10 (20129267)	4
4 (21712474)	3
5 (22358016)	4
6 (26757170)	4
7 (21727289)	4
8 (24660726)	3
9 (26204111)	4
11 (28648873)	4
36 (24475859)	3
34 (24354377)	2
35 (24484063)	1
14 (23175484)	2

Digital breast tomosynthesis screening	Usually appropriate	Strong	☼☼ 0.1-1mSv		9	9	0	0	0	0	0	0	0	0	0
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References	Study Quality
15 (24316152)	1
12 (23623721)	1
28 (25188431)	3
16 (25058084)	3
17 (24918774)	3
31 (23901124)	3
18 (24746887)	1
33 (24896197)	3
19 (24121712)	M
29 (25247407)	3
20 (25313245)	3
32 (23969151)	2
21 (23169790)	1

22 (24450665)	3
30 (23701081)	3
23 (25107868)	3
24 (23553585)	1
25 (23297332)	1
26 (22674710)	2
27 (23803075)	3
13 (24582915)	1
10 (20129267)	4
4 (21712474)	3
5 (22358016)	4
6 (26757170)	4
7 (21727289)	4
8 (24660726)	3
9 (26204111)	4
11 (28648873)	4
36 (24475859)	3
34 (24354377)	2
35 (24484063)	1
14 (23175484)	2

US breast	May be appropriate	Strong	0 0 mSv	0 0 mSv [ped]	5	5	1	1	0	5	9	1	0	0	0
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References	Study Quality
10 (20129267)	4
37 (25763719)	4
38 (25329763)	3
39 (23980217)	3
40 (23116728)	2
41 (22723501)	2
42 (23240937)	2
43 (23750571)	4

MRI breast without and with IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	3	3	0	0	0	0	0	0	0	0	0
MRI breast without IV contrast	Usually not appropriate	Expert Consensus	○ 0 mSv	○ 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
FDG-PET breast dedicated	Usually not appropriate	Strong	⊕⊕⊕⊕ 10-30 mSv		1	1	0	0	0	0	0	0	0	0	0

References	Study Quality
45 (21045179)	2
44 (25615744)	1
46 (25615745)	4

Sestamibi MBI	Usually not appropriate	Strong	⊕⊕⊕ 1-10 mSv		1	1	0	0	0	0	0	0	0	0	0
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References	Study Quality
45 (21045179)	2
44 (25615744)	1
46 (25615745)	4

**Variant 2: Breast cancer screening. Female. Intermediate-risk, with personal history of breast cancer, lobular neoplasia, atypical ductal hyperplasia, or 15% to 20% lifetime risk of breast cancer.**

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	Strong	⊕⊕ 0.1-1mSv		9	9	0	0	0	0	0	0	0	0	0

References	Study Quality
15 (24316152)	1
12 (23623721)	1
28 (25188431)	3
16 (25058084)	3
17 (24918774)	3

31 (23901124)	3
18 (24746887)	1
33 (24896197)	3
19 (24121712)	M
29 (25247407)	3
20 (25313245)	3
32 (23969151)	2
21 (23169790)	1
22 (24450665)	3
30 (23701081)	3
23 (25107868)	3
24 (23553585)	1
25 (23297332)	1
26 (22674710)	2
27 (23803075)	3
13 (24582915)	1
11 (28648873)	4
36 (24475859)	3
34 (24354377)	2
35 (24484063)	1
14 (23175484)	2

Digital breast tomosynthesis screening	Usually appropriate	Strong	☢☢ 0.1-1mSv		9	9	0	0	0	0	0	0	0	0	0
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References	Study Quality
15 (24316152)	1
12 (23623721)	1
28 (25188431)	3
16 (25058084)	3
17 (24918774)	3
31 (23901124)	3
18 (24746887)	1

33 (24896197)	3
19 (24121712)	M
29 (25247407)	3
20 (25313245)	3
32 (23969151)	2
21 (23169790)	1
22 (24450665)	3
30 (23701081)	3
23 (25107868)	3
24 (23553585)	1
25 (23297332)	1
26 (22674710)	2
27 (23803075)	3
13 (24582915)	1
11 (28648873)	4
36 (24475859)	3
34 (24354377)	2
35 (24484063)	1
14 (23175484)	2

MRI breast without and with IV contrast	May be appropriate	Limited	0 0 mSv	0 0 mSv [ped]	6	6	0	0	1	0	4	9	2	1	0
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References	Study Quality
53 (20651211)	3
51 (21900617)	4
50 (21900618)	3
52 (26744477)	3
47 (17392385)	4

US breast	May be appropriate	Strong	0 0 mSv	0 0 mSv [ped]	6	6	0	0	0	2	5	10	0	0	0
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References	Study Quality
48 (18477782)	1



15 (24316152)	1
12 (23623721)	1
28 (25188431)	3
16 (25058084)	3
17 (24918774)	3
31 (23901124)	3
18 (24746887)	1
33 (24896197)	3
19 (24121712)	M
29 (25247407)	3
20 (25313245)	3
32 (23969151)	2
21 (23169790)	1
22 (24450665)	3
30 (23701081)	3
23 (25107868)	3
24 (23553585)	1
25 (23297332)	1
26 (22674710)	2
27 (23803075)	3
13 (24582915)	1
10 (20129267)	4
11 (28648873)	4
36 (24475859)	3
34 (24354377)	2
35 (24484063)	1
14 (23175484)	2

MRI breast without and with IV contrast	Usually appropriate	Strong	0 0 mSv	0 0 mSv [ped]	9	9	0	0	0	0	0	0	0	0	0
References			Study Quality												
59 (17244718)			2												



10 (20129267)	4
62 (19155400)	4
54 (17317184)	3
55 (16615112)	4
56 (16293877)	2
57 (15910949)	2
63 (16720823)	4
64 (19248993)	4
58 (24789418)	3
49 (22474203)	2
60 (20177029)	1
61 (19884532)	1
47 (17392385)	4

Digital breast tomosynthesis screening	Usually appropriate	Strong	☼☼ 0.1-1mSv		9	9	0	0	0	0	0	0	0	0
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References	Study Quality
15 (24316152)	1
12 (23623721)	1
28 (25188431)	3
16 (25058084)	3
17 (24918774)	3
31 (23901124)	3
18 (24746887)	1
33 (24896197)	3
19 (24121712)	M
29 (25247407)	3
20 (25313245)	3
32 (23969151)	2
21 (23169790)	1
22 (24450665)	3
30 (23701081)	3



References	Study Quality
59 (17244718)	2
10 (20129267)	4
62 (19155400)	4
54 (17317184)	3
55 (16615112)	4
56 (16293877)	2
57 (15910949)	2
63 (16720823)	4
64 (19248993)	4
58 (24789418)	3
49 (22474203)	2
60 (20177029)	1
61 (19884532)	1
47 (17392385)	4

## **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).