American College of Radiology ACR Appropriateness Criteria®

Breast Implant Evaluation

Variant 1: Adult of any age. Female or transfeminine. Evaluation of saline breast implants. Asymptomatic. Initial imaging.

D 1	Appropriateness	COE	ALL DET	D I DDY	D 4	3.6.11			F	inal '	<u> Tab</u> u	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	Limited	�� 0.1-1mSv	v	1	1	0	0	0	0	0	0	0	0	0
		References		Study	Quality										
		15 (34794604)			4										
MRI breast without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
		References		Study	Quality							•			
		21 (24792659)			4										
MRI breast without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
		References		Study	Quality										
		21 (24792659)			4		_								
US breast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
Digital breast tomosynthesis screening	Usually not appropriate	Limited	�� 0.1-1mSv	v	1	1	0	0	0	0	0	0	0	0	0
		References		Study	Quality										
		15 (34794604)		·	4										

Variant 2: Adult younger than 30 years of age. Female or transfeminine. Evaluation of saline breast implants. Suspected implant rupture. Initial imaging.

Duo anduma	Appropriateness	COF	A Julka DD	I Doda DDI	Datina	Madian			F	inal '	Гаbu	latio	ıs		
Procedure	Category	SOE	Adults RR	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]	8	8	0	0	0	0	0	0	0	0	0
		References		Study	y Quality		-								
		22 (28186859)			4										
Mammography diagnostic	Usually not appropriate	Limited	Limited		3	3	0	0	0	0	0	0	0	0	0
MRI breast without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
		References		Study	y Quality		-								
		21 (24792659)			4		_								
MRI breast without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
		References		Study	y Quality										
		21 (24792659)			4										
Digital breast tomosynthesis diagnostic	Usually not appropriate	Limited	�� 0.1-1m	Sv	1	1	0	0	0	0	0	0	0	0	0

Variant 3: Adult 30 to 39 years of age. Female or transfeminine. Evaluation of saline breast implants. Suspected implant rupture. Initial imaging.

22 (28186859)

n 1	Appropri	ateness	COF	4 1 14 DD		D I DDI	D 41	N. T. 11			F	inal [Гаbu	latio	ns		
Procedure	Categ		SOE	Adults RR	T I	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
US breast	Usua approp	.*	Limited	O 0 mSv	, (O 0 mSv [ped]	8	8	0	0	0	0	0	0	0	0	0
			References				Quality					•					

Mammography diagnostic	May approp	be oriate	Limited	⊕⊕ 0.1-1mS	Sv	5	5	0	0	0	0	0	0	0	0	0
Digital breast tomosynthesis diagnostic	May approp		Limited	�� 0.1-1mS	Sv	5	5	0	0	0	0	0	0	0	0	0
MRI breast without IV contrast	Usuall approp	y not oriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
			References		Study	y Quality										
			21 (24792659)			4		_								
MRI breast without and with IV contrast	Usuall approp	y not oriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
			References		Study	y Quality										
			21 (24792659)			4										

Variant 4: Adult age 40 years or older. Female or transfeminine. Evaluation of saline breast implants. Suspected implant rupture. Initial imaging.

D 1	Appropriateness	COF	4.1.14 DDI	D I DDI	D 4	3.6.11			F	inal '	Гаbu	latio	ıs		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
Mammography diagnostic	Usually appropriate	Limited	�� 0.1-1mSv		8	8	0	0	0	0	0	0	0	0	0
Digital breast tomosynthesis diagnostic	Usually appropriate	Limited	�� 0.1-1mSv		8	8	0	0	0	0	0	0	0	0	0
US breast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	0	0	0	0	0	0
MRI breast without IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
		References		Study	Quality			-			-				
		21 (24792659)			4		_								
MRI breast without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0

References	Study Quality
21 (24792659)	4

Variant 5: Adult of any age. Female or transfeminine. Evaluation of silicone breast implants. Asymptomatic. Less than 5 years after implant placement. Initial imaging.

n 1	Appropria	teness	COF	A L LA DDI	D I DDI	D 4	3.7.11			F	inal '	Tabu	latio	ns		
Procedure	Catego		SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
Mammography diagnostic	Usually appropri		Limited	�� 0.1-1mSv		1	1	0	0	0	0	0	0	0	0	0
			References		Study	Quality										
			22 (28186859)			4										
			15 (34794604)			4		_								
MRI breast without IV contrast	Usually appropri		Limited	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
			References		Study	Quality									•	
			1 (-3195188)			4		_								
MRI breast without and with IV contrast	Usually appropri		Expert Consensus	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
US breast	Usually appropri	not late	Limited	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
			References		Study	Quality		-								
,			1 (-3195188)			4		_				_				
Digital breast tomosynthesis diagnostic	Usually appropri		Limited	�� 0.1-1mSv		1	1	0	0	0	0	0	0	0	0	0
			References		Study	Quality										
			22 (28186859)			4										
			15 (34794604)			4										

Variant 6: Adult of any age. Female or transfeminine. Evaluation of silicone breast implants. Asymptomatic. Initial imaging at 5 to 6 years after implant placement and follow-up imaging every 2 to 3 years after initial negative imaging.

	Appropriateness	207							F	inal	Tabu	latio	ns		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI breast without IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	0	0	0
		References		Study	Quality		-								
		21 (24792659))		4										
		30 (25028829)			3										
		1 (-3195188)			4										
US breast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	0	0	0	0	0
		References		Study	Quality		•								
		30 (25028829)		_	3										
		22 (28186859)			4										
		1 (-3195188)			4										
		15 (34794604)			4										
Mammography diagnostic	Usually not appropriate	Limited	�� 0.1-1mSv		1	1	0	0	0	0	0	0	0	0	0
		References		Study	Quality										
		22 (28186859)			4										
		15 (34794604)			4										
MRI breast without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
		References		Study	Quality										
		1 (-3195188)			4										
		15 (34794604)			4										
		21 (24792659)			4										
Digital breast tomosynthesis diagnostic	Usually not appropriate	Limited	�� 0.1-1mSv		1	1	0	0	0	0	0	0	0	0	0
		References		Study	Quality										

22 (28186859)	4
15 (34794604)	4

Variant 7: Adult younger than 30 years of age. Female or transfeminine. Evaluation of silicone breast implants. Suspected implant complication. Initial imaging.

	Appropriateness	COT		D 1 DD1	- ·	3.5 31			F	inal	Tabu	latio	ns		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI breast without IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	0	0	0
		References		Study	Quality						•				
		21 (24792659)			4										
		30 (25028829)			3										
		1 (-3195188)			4		_								
US breast	May be appropriate	Strong	O 0 mSv	O 0 mSv [ped]	5	5	0	0	0	0	0	0	0	0	0
		References		Study	Quality										
		30 (25028829)			3										
		42 (34063687)			2										
		22 (28186859))		4										
		1 (-3195188)			4										
		15 (34794604)			4		_								
Mammography diagnostic	Usually not appropriate	Limited	�� 0.1-1mSv	,	1	1	0	0	0	0	0	0	0	0	0
		References		Study	Quality										
		1 (-3195188)		_	4										
		15 (34794604)			4										
MRI breast without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
		References		Study	Quality										
		15 (34794604)			4										

Digital breast tomosynthesis diagnostic	Usually approp	Limited	�� 0.1-1m	ıSv		1	1	0	0	0	0	0	0	0	0	0
		References			Study	Quality										·
		1 (-3195188)				4										
		15 (34794604)				4										

Variant 8: Adult 30 to 39 years of age. Female or transfeminine. Evaluation of silicone breast implants. Suspected implant complication. Initial imaging.

	Appropriate	ness			D 1 DD1	.				F	inal	Tabu	latio	ns		
Procedure	Category	soe soe		Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI breast without IV contrast	Usually appropriat		5	O 0 mSv	O 0 mSv [ped]	8	8	0	0	0	0	0	0	0	0	0
		Refere	ences		Study	Quality										
		21 (2479	92659)			4										
		30 (2502	30 (25028829) 1 (-3195188)			3										
		1 (-319	1 (-3195188)			4										
Mammography diagnostic	May be appropriat		d	�� 0.1-1mSv	v	5	5	0	0	0	0	0	0	0	0	0
		Refere	Limited			Quality										
		1 (-319	5188)			4										
		15 (3479	94604)			4										
US breast	May be appropriat	e Strong	5	O 0 mSv	O 0 mSv [ped]	5	5	0	0	0	0	0	0	0	0	0
		Refere	ences		Study	Quality										
		30 (2502	28829)			3										
		42 (3406	63687)			2										
		22 (2818	86859)			4										
		1 (-319	5188)			4										
		15 (3479	94604)			4										

Digital breast tomosynthesis diagnostic	May approp		Limited	�� 0.1-1mS	Sv	5	5	0	0	0	0	0	0	0	0	0
			References		Study	Quality										
			1 (-3195188)		4											
			15 (34794604)			4										
MRI breast without and with IV contrast	Usually approp		Limited	O 0 mSv	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
			References	Study	Quality											
		1 (-3195188)				4										
			15 (34794604)			4										

Variant 9: Adult age 40 years or older. Female or transfeminine. Evaluation of silicone breast implants. Suspected implant complication. Initial imaging.

,	Appropria	teness	COF	4.1.1/ DD	_	D I DDI		3.5.11			F	'inal '	Tabu	latio	ns		
Procedure	Catego		SOE	Adults RR	L	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRI breast without IV contrast	Usuall appropri		Strong	O 0 mSv	,	O 0 mSv [ped]	9	9	0	0	0	0	0	0	0	0	0
			References			Study	Quality										
		21 (24792659) 30 (25028829) 1 (-3195188)					4										
			30 (25028829) 1 (-3195188)				3										
			1 (-3195188)				4			_		_					
Mammography diagnostic	May b	Limited ⊕⊕ 0.		�� 0.1-1m	ıSv		5	5	0	0	0	0	0	0	0	0	0
			References			Study	Quality										
			1 (-3195188)				4										
			15 (34794604)				4										
US breast	May b appropri	e iate	Strong	O 0 mSv	,	O 0 mSv [ped]	5	5	0	0	0	0	0	0	0	0	0
			References			Study	Quality		•								
			30 (25028829)				3										

			42 (34063687)				2.]								
			1 (-3195188)				4										
			15 (34794604)				4										
Digital breast tomosynthesis diagnostic	May approp	be oriate	Limited References 1 (-3195188)				5	5	0	0	0	0	0	0	0	0	0
			References 1 (-3195188)			Study	Quality										
			1 (-3195188)				4										
							4										
MRI breast without and with IV contrast	Usually approp	y not oriate	Expert Consensus	O 0 mSv	,	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
			Consensus References			Study	Quality										
			References 1 (-3195188)				4										
			15 (34794604)				4										

Variant 10: Adult younger than 30 years of age. Female or transfeminine. Evaluation of unexplained axillary adenopathy. Silicone breast implants current or prior. Initial imaging.

	Appropriate	eness	COE	4.1.1/ DD		D 1 DD1	D ()	3.5.11			F	inal '	Fabu	latio	ns		
Procedure	Category		SOE	Adults RR	L 1	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	0	0	0	0
Digital breast tomosynthesis diagnostic	Usually no appropriate		Expert Consensus	�� 0.1-1m	ıSv		2	2	0	0	0	0	0	0	0	0	0
Mammography diagnostic	Usually no appropriate		Expert Consensus	�� 0.1-1m	ıSv		1	1	0	0	0	0	0	0	0	0	0
MRI breast without IV contrast	Usually no appropriate		Expert Consensus	O 0 mSv	,	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
MRI breast without and with IV contrast	Usually no appropriate		Expert Consensus	O 0 mSv	′	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
			References			Study	Quality										

54 (28457073))	3

Variant 11: Adult 30 to 39 years of age. Female or transfeminine. Evaluation of unexplained axillary adenopathy. Silicone breast implants current or prior. Initial imaging.

n ,	Appropriate	eness	COF	4 1 14 DD		D I DDI	D.	3.6.11			F	inal [Гаbu	latio	ns		
Procedure	Categor		SOE	Adults RR	KL _	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
US breast	Usually appropria		Limited	O 0 mSv	/	O 0 mSv [ped]	9	9	0	0	0	0	0	0	0	0	0
			References			Study	Quality		-								
			42 (34063687)				2		_								
Mammography diagnostic	Usually appropria		Expert Consensus	Expert Consensus © 0.1-1mSv			8	8	0	0	0	0	0	0	0	0	0
Digital breast tomosynthesis diagnostic	Usually appropria		Expert Consensus © 0.1-1mSv		nSv		8	8	0	0	0	0	0	0	0	0	0
MRI breast without IV contrast	Usually n appropria		Expert Consensus	O 0 mSv	,	O 0 mSv [ped]	2	2	0	0	0	0	0	0	0	0	0
MRI breast without and with IV contrast	Usually n appropria		Expert Consensus O 0 mSv		,	O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0
			References			Study	Quality		-								
			54 (28457073)				3										

Variant 12: Adult age 40 years or older. Female or transfeminine. Evaluation of unexplained axillary adenopathy. Silicone breast implants current or prior. Initial imaging.

ъ .	Appropriateness	COF	A L L DDI	D I DDI	D. (3.6 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 diagnostic	Usually appropriate	Expert Consensus	�� 0.1-1mSv		9	9	0	0	0	0	0	0	0	0	0
US breast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	0	0	0

Digital breast tomosynthesis diagnostic	Usua approp	.*	Expert Consensus	�� 0.1-1m	Sv		9	9	0	0	0	0	0	0	0	0	0
MRI breast without and with IV contrast	Usually approp		Expert Consensus	O 0 mSv		O 0 mSv [ped]	2	2	0	0	0	0	0	0	0	0	0
			References			Study	Quality										
			54 (28457073)				3										
MRI breast without IV contrast	Usually approp		Expert Consensus	O 0 mSv		O 0 mSv [ped]	1	1	0	0	0	0	0	0	0	0	0

Variant 13: Adult of any age. Female or transfeminine. Suspected breast implant-associated malignancy. Breast implant of any type. Initial imaging.

Duran James	Appropriateness	COE	A 3-14- DDI	D. J. DDI	D - 45	N/1-11		_	I	inal	Tabu	latio	ns		
Procedure	Category	SOE	Adults RRI	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	1	0	0	0	0	3	12
		References		Study	Quality										
		19 (25073777)			3										
		10 (28184418)			4										
		4 (28918365)			4										
		44 (33554880)			4										
		20 (32302264)			4										
		18 (30715173)			4		_								
MRI breast without and with IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	1	0	8	1	6
		References		Study	/ Quality										
		19 (25073777)			3										
		11 (33234792)			4										
		44 (33554880)			4										
		References 19 (25073777) 10 (28184418) 4 (28918365) 44 (33554880) 20 (32302264) 18 (30715173) Limited			4										

Mammography diagnostic	May be appropriate	ite	Limited	�� 0.1-1m	Sv		5	5	0	0	0	2	7	3	2	1	1
			References			Study	Quality										
			19 (25073777)				3										
			52 (33222158)				4										
			20 (32302264)				4										
Digital breast tomosynthesis diagnostic	May be appropriate	ite	Limited �� 0.1-1n		Sv		5	5	0	0	0	0	14	1	1	0	0
			References			Study	Quality										
			19 (25073777)				3										
			52 (33222158)				4										
			20 (32302264)				4										
MRI breast without IV contrast	Usually no appropriat	ot ite	Limited	O 0 mSv		O 0 mSv [ped]	3	3	4	3	7	1	1	0	0	0	0
		-	References			Study	Quality										
			20 (32302264)				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.