

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

**Imaging of the Axilla**

**Variant 1: Female. New palpable, unilateral, axillary lump. Initial imaging of the axilla.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
US axilla	Usually appropriate	Limited	0 0 mSv	0 0 mSv [ped]	9	9	0	0	0	0	0	0	1	0	14
		References		Study Quality											
		37 (29083988)		3											
		36 (26626499)		4											
Mammography diagnostic	May be appropriate	Expert Consensus	⊕⊕ 0.1-1mSv		4	4	1	0	6	4	3	1	0	1	0
Digital breast tomosynthesis diagnostic	May be appropriate	Strong	⊕⊕ 0.1-1mSv		4	4	1	1	4	3	4	2	0	1	0
		References		Study Quality											
		28 (25058084)		3											
		24 (23345348)		2											
		25 (23620367)		2											
		26 (23255766)		3											
		27 (23844366)		3											
		29 (28523569)		3											
MRI breast without and with IV contrast	Usually not appropriate	Strong	0 0 mSv	0 0 mSv [ped]	2	2	7	2	3	0	2	0	1	0	0
		References		Study Quality											
		34 (16244803)		2											



**Variant 2: Female. New palpable, bilateral, axillary lump. Initial imaging of the axilla.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations									
							1	2	3	4	5	6	7	8	9	
US axilla	Usually appropriate	Limited	0 0 mSv	0 0 mSv [ped]	9	9	0	0	0	1	0	0	0	2	12	
		References	Study Quality													
		37 (29083988)	3													
		20 (26847811)	3													
		41 (1503012)	4													
		40 (15344978)	4													
Mammography diagnostic	Usually not appropriate	Limited	⊗⊗ 0.1-1mSv		3	3	3	1	5	3	2	2	0	0	0	
		References	Study Quality													
		7 (-3182246)	4													
		21 (-3194181)	4													
Digital breast tomosynthesis diagnostic	Usually not appropriate	Limited	⊗⊗ 0.1-1mSv		3	3	3	1	5	1	4	2	0	0	0	
		References	Study Quality													
		32 (23890400)	3													
		7 (-3182246)	4													
		21 (-3194181)	4													
CT chest abdomen pelvis with IV contrast	Usually not appropriate	Expert Consensus	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	2	2	8	6	0	1	0	0	1	0	0	
CT chest abdomen pelvis without IV contrast	Usually not appropriate	Expert Consensus	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	1	1	9	2	4	0	0	0	0	0	0	

CT chest abdomen pelvis without and with IV contrast	Usually not appropriate	Expert Consensus	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	1	1	12	2	1	1	0	0	0	0	0
MRI breast without IV contrast	Usually not appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	1	1	14	1	0	0	0	0	0	0	0
		References	Study Quality												
		34 (16244803)	2												
		35 (10894136)	1												
		39 (19822403)	4												
MRI breast without and with IV contrast	Usually not appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	1	1	9	1	1	1	2	0	1	0	0
		References	Study Quality												
		34 (16244803)	2												
		35 (10894136)	1												
		39 (19822403)	4												
FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	9	2	1	1	2	0	0	0	0
		References	Study Quality												
		38 (23002144)	4												
Sestamibi MBI	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv		1	1	14	0	1	0	0	0	0	0	0

**Variant 3: Female. Newly diagnosed breast cancer, 2 cm or less, with clinical node-negative. Initial imaging of the axilla following diagnostic mammography or DBT.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
US axilla	May be appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	5	5	0	1	1	2	5	6	0	0	1
		References	Study Quality												
		59 (25797740)	2												

60 (27896640)	3
61 (28427743)	3
63 (25667099)	3
58 (24859939)	2
54 (29279156)	3
5 (28898379)	1
55 (24074422)	3
56 (23628226)	2
57 (25205303)	3
62 (21597359)	Good

MRI breast without and with IV contrast	Usually not appropriate	Limited	0 0 mSv	0 0 mSv [ped]	3	3	1	7	1	2	3	1	1	0	0
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References	Study Quality
51 (23359240)	4
50 (25727555)	4
53 (24687378)	3
48 (29516387)	4
7 (-3182246)	4
52 (31885585)	4

CT chest abdomen pelvis with IV contrast	Usually not appropriate	Moderate	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	11	4	0	1	0	0	0	0	0
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References	Study Quality
45 (30797241)	3
44 (28890415)	3
47 (28236777)	1
46 (31685110)	4
7 (-3182246)	4

CT chest abdomen pelvis without IV contrast	Usually not appropriate	Moderate	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	14	2	0	0	0	0	0	0	0
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References	Study Quality
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Sestamibi MBI	Usually not appropriate	Expert Consensus	⊕⊕⊕ 1-10 mSv		1	1	16	0	0	0	0	0	0	0	0
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**Variant 4: Female. Newly diagnosed breast cancer, 2 cm or less, with clinical node-positive. Initial imaging of the axilla following diagnostic mammography or DBT.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
US axilla	Usually appropriate	Strong	0 0 mSv	0 0 mSv [ped]	9	9	0	0	0	0	0	0	1	2	13

References	Study Quality
83 (26711795)	1
90 (23664535)	3
85 (22972506)	2
86 (29972239)	Good
87 (29381381)	1
91 (27206399)	3
58 (24859939)	2
54 (29279156)	3
62 (21597359)	Good
81 (18955508)	3
82 (16632729)	4
84 (23436877)	2
88 (23515655)	3
89 (24455284)	3

MRI breast without and with IV contrast	May be appropriate (Disagreement)	Expert Opinion	0 0 mSv	0 0 mSv [ped]	5	5	1	6	2	0	5	0	2	0	0
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References	Study Quality
79 (27842679)	3
15 (24220324)	2
48 (29516387)	4

69 (28139203)	Good
80 (27161063)	Good
7 (-3182246)	4
52 (31885585)	4

CT chest abdomen pelvis with IV contrast	Usually not appropriate	Expert Consensus	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	2	2	7	7	1	1	0	0	0	0	0
FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Strong	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	2	2	8	6	2	0	0	0	0	0	0

References	Study Quality
71 (23672678)	2
70 (30504372)	2
67 (28984814)	2
75 (28208155)	3
69 (28139203)	Good
72 (27015862)	3
78 (27069160)	4
68 (26722071)	3
74 (26219608)	3
73 (25298170)	4
76 (30017264)	Good
77 (26537078)	3
49 (20140703)	Good

CT chest abdomen pelvis without IV contrast	Usually not appropriate	Expert Consensus	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	1	1	13	3	0	0	0	0	0	0	0
CT chest abdomen pelvis without and with IV contrast	Usually not appropriate	Expert Consensus	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗ 10-30 mSv [ped]	1	1	11	4	1	0	0	0	0	0	0
MRI breast without IV contrast	Usually not appropriate	Moderate	○ 0 mSv	○ 0 mSv [ped]	1	1	14	2	0	0	0	0	0	0	0

References	Study Quality
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79 (27842679)	3
15 (24220324)	2
48 (29516387)	4
69 (28139203)	Good
80 (27161063)	Good
7 (-3182246)	4
52 (31885585)	4

Sestamibi MBI	Usually not appropriate	Expert Consensus	☹☹☹ 1-10 mSv		1	1	16	0	0	0	0	0	0	0	0
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**Variant 5: Female. Newly diagnosed breast cancer, greater than 2 cm, with clinical node-negative. Initial imaging of the axilla following diagnostic mammography or DBT.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
US axilla	May be appropriate	Strong	0 0 mSv	0 0 mSv [ped]	6	6	0	0	0	1	3	6	1	2	3

References	Study Quality
59 (25797740)	2
60 (27896640)	3
92 (26314782)	4
61 (28427743)	3
63 (25667099)	3
58 (24859939)	2
54 (29279156)	3
5 (28898379)	1
6 (-3182230)	4
55 (24074422)	3
56 (23628226)	2
57 (25205303)	3
62 (21597359)	Good



			92 (26314782)			4												
			47 (28236777)			1												
			14 (28161935)			3												
			7 (-3182246)			4												
MRI breast without IV contrast	Usually not appropriate	Moderate	0 0 mSv	0 0 mSv [ped]	1	1	14	1	0	0	1	0	0	0	0	0	0	
		References	Study Quality															
			79 (27842679)			3												
			15 (24220324)			2												
			48 (29516387)			4												
			69 (28139203)			Good												
			80 (27161063)			Good												
			7 (-3182246)			4												
			52 (31885585)			4												
FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Strong	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	1	1	9	5	1	1	0	0	0	0	0	0		
		References	Study Quality															
			93 (14722036)			1												
			94 (25214641)			2												
			7 (-3182246)			4												
			95 (27129866)			2												
Sestamibi MBI	Usually not appropriate	Expert Consensus	⊕⊕⊕ 1-10 mSv		1	1	16	0	0	0	0	0	0	0	0	0		

**Variant 6: Female. Newly diagnosed breast cancer, greater than 2 cm, with clinical node-positive. Initial imaging of the axilla following diagnostic mammography or DBT (prior to treatment).**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations										
							1	2	3	4	5	6	7	8	9		
US axilla	Usually appropriate	Strong	0 0 mSv	0 0 mSv [ped]	9	9	0	0	0	0	0	0	1	2	13		

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations													
							1	2	3	4	5	6	7	8	9					
		References		Study Quality																
		59 (25797740)		2																
		60 (27896640)		3																
		92 (26314782)		4																
		105 (29705286)		1																
		61 (28427743)		3																
		63 (25667099)		3																
		58 (24859939)		2																
		54 (29279156)		3																
		7 (-3182246)		4																
		55 (24074422)		3																
		62 (21597359)		Good																
		103 (19933672)		3																
		104 (20047809)		3																
MRI breast without and with IV contrast	May be appropriate	Moderate	0 0 mSv	0 0 mSv [ped]	5	5	0	0	0	5	9	1	1	0	0					
		References		Study Quality																
		79 (27842679)		3																
		15 (24220324)		2																
		48 (29516387)		4																
		69 (28139203)		Good																
		80 (27161063)		Good																
		7 (-3182246)		4																
		52 (31885585)		4																
FDG-PET/CT skull base to mid-thigh	May be appropriate	Strong	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	5	5	1	1	1	2	9	2	0	0	0					

References	Study Quality
102 (23220901)	4
93 (14722036)	1
94 (25214641)	2
71 (23672678)	2
99 (29137072)	2
73 (25298170)	4
95 (27129866)	2
100 (21364034)	3
101 (22011459)	3

CT chest abdomen pelvis with IV contrast	May be appropriate	Strong	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	4	4	2	2	1	8	3	0	0	0	0
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References	Study Quality
51 (23359240)	4
50 (25727555)	4
92 (26314782)	4
47 (28236777)	1
14 (28161935)	3
7 (-3182246)	4
95 (27129866)	2

CT chest abdomen pelvis without and with IV contrast	Usually not appropriate	Strong	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	2	2	7	8	1	0	0	0	0	0	0
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References	Study Quality
51 (23359240)	4
50 (25727555)	4
92 (26314782)	4
47 (28236777)	1
14 (28161935)	3
7 (-3182246)	4
95 (27129866)	2

CT chest abdomen pelvis without IV contrast	Usually not appropriate	Strong	☢☢☢☢ 10-30 mSv	☢☢☢☢ 3-10 mSv [ped]	1	1	14	2	0	0	0	0	0	0	0
		References	Study Quality												
		51 (23359240)	4												
		50 (25727555)	4												
		92 (26314782)	4												
		47 (28236777)	1												
		14 (28161935)	3												
		7 (-3182246)	4												
		95 (27129866)	2												
		98 (25846421)	3												
MRI breast without IV contrast	Usually not appropriate	Moderate	○ 0 mSv	○ 0 mSv [ped]	1	1	15	1	0	0	0	0	0	0	0
		References	Study Quality												
		79 (27842679)	3												
		15 (24220324)	2												
		48 (29516387)	4												
		69 (28139203)	Good												
		80 (27161063)	Good												
		7 (-3182246)	4												
		52 (31885585)	4												
Sestamibi MBI	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	16	0	0	0	0	0	0	0	0

**Variant 7: Female. Breast cancer, greater than 2 cm in size, at mid-treatment of neoadjuvant chemotherapy, with initial clinical node-negative disease but now presenting with new palpable axillary lump. Imaging of the axilla at mid-treatment.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
US axilla	Usually appropriate	Moderate	○ 0 mSv	○ 0 mSv [ped]	9	9	0	0	0	0	0	0	1	2	12

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations												
							1	2	3	4	5	6	7	8	9				
		References		Study Quality															
		86 (29972239)		Good															
		109 (28314842)		2															
MRI breast without and with IV contrast	Usually not appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	3	3	4	4	5	0	2	1	0	0	0				
Digital breast tomosynthesis diagnostic	Usually not appropriate	Expert Consensus	⊕⊕ 0.1-1mSv		3	3	4	3	5	1	0	0	2	0	0				
CT chest abdomen pelvis with IV contrast	Usually not appropriate	Limited	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	2	2	6	5	0	3	0	0	1	0	0				
		References		Study Quality															
		108 (28267534)		2															
CT chest abdomen pelvis without and with IV contrast	Usually not appropriate	Limited	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕⊕ 10-30 mSv [ped]	2	2	5	7	1	1	0	0	1	0	0				
		References		Study Quality															
		108 (28267534)		2															
Mammography diagnostic	Usually not appropriate	Expert Consensus	⊕⊕ 0.1-1mSv		2	2	4	4	4	1	0	0	2	0	0				
CT chest abdomen pelvis without IV contrast	Usually not appropriate	Limited	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕⊕ 3-10 mSv [ped]	1	1	12	1	1	1	0	0	0	0	0				
		References		Study Quality															
		108 (28267534)		2															
MRI breast without IV contrast	Usually not appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	1	1	11	2	1	0	1	0	0	0	0				

FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Expert Consensus	☼☼☼☼ 10-30 mSv	☼☼☼☼ 3-10 mSv [ped]	1	1	9	3	2	0	0	0	1	0	0
Sestamibi MBI	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv		1	1	15	0	0	0	0	0	0	0	0

**Variant 8: Female. Breast cancer, greater than 2 cm in size, clinical node-negative. Imaging of the axilla after completion of neoadjuvant chemotherapy.**

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	May be appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	5	5	2	1	3	1	8	0	1	0	0
		References		Study Quality											
		124 (23297042)		Inadequate											
		127 (20224378)		3											
		126 (21947592)		3											
		122 (20143266)		2											
		123 (29877048)		Good											
		121 (27451892)		2											
		112 (30048319)		3											
		125 (30152746)		4											
		128 (31956542)		2											
US axilla	May be appropriate (Disagreement)	Expert Opinion	○ 0 mSv	○ 0 mSv [ped]	5	5	1	1	1	2	7	2	1	1	0
		References		Study Quality											
		129 (25646192)		3											
		130 (19345896)		Good											
		7 (-3182246)		4											
Mammography diagnostic	Usually not appropriate	Expert Consensus	☼☼ 0.1-1mSv		2	2	7	1	4	0	1	1	1	0	0



Digital breast tomosynthesis diagnostic	Usually not appropriate	Limited	☹☹ 0.1-1mSv		2	2	7	1	4	0	2	0	0	0	1
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References	Study Quality
113 (30396666)	3

CT chest abdomen pelvis with IV contrast	Usually not appropriate	Expert Consensus	☹☹☹☹ 10-30 mSv	☹☹☹☹ 3-10 mSv [ped]	1	1	12	1	2	0	0	0	0	0	0
CT chest abdomen pelvis without IV contrast	Usually not appropriate	Expert Consensus	☹☹☹☹ 10-30 mSv	☹☹☹☹ 3-10 mSv [ped]	1	1	14	0	1	0	0	0	0	0	0
CT chest abdomen pelvis without and with IV contrast	Usually not appropriate	Expert Consensus	☹☹☹☹ 10-30 mSv	☹☹☹☹ 10-30 mSv [ped]	1	1	10	2	3	0	0	0	0	0	0
MRI breast without IV contrast	Usually not appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	1	1	11	0	3	0	1	0	0	0	0

References	Study Quality
124 (23297042)	Inadequate
127 (20224378)	3
126 (21947592)	3
122 (20143266)	2
123 (29877048)	Good
121 (27451892)	2
112 (30048319)	3
125 (30152746)	4
128 (31956542)	2

FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Moderate	☹☹☹☹ 10-30 mSv	☹☹☹☹ 3-10 mSv [ped]	1	1	8	3	4	0	0	0	0	0	0
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References	Study Quality
114 (22734080)	Inadequate
118 (21960111)	Good
112 (30048319)	3
115 (26981529)	Good

116 (23714689)	Good
117 (28477166)	Good
119 (30714256)	3
120 (31826976)	2

Sestamibi MBI	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv		1	1	15	0	0	0	0	0	0	0	0	0
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**Variant 9: Female. Breast cancer, greater than 2 cm in size, clinical node-positive. Imaging of the axilla after completion of neoadjuvant chemotherapy and prior to surgery.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
US axilla	Usually appropriate	Strong	0 0 mSv	0 0 mSv [ped]	8	8	0	1	0	0	1	1	2	3	7

References	Study Quality
143 (23846781)	3
141 (27411945)	3
140 (30366878)	4
87 (29381381)	1
139 (28704697)	3
8 (26811528)	2
10 (26649589)	3
142 (25891674)	4
88 (23515655)	3
138 (31897672)	4

MRI breast without and with IV contrast	May be appropriate	Strong	0 0 mSv	0 0 mSv [ped]	5	5	0	1	1	5	7	1	1	0	0
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References	Study Quality
124 (23297042)	Inadequate
121 (27451892)	2
112 (30048319)	3

		137 (30152744)		2													
FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Moderate	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	3	3	3	2	3	3	2	1	1	0	0		
		References	Study Quality														
		102 (23220901)	4														
		134 (25458227)	4														
		118 (21960111)	Good														
		117 (28477166)	Good														
		119 (30714256)	3														
		120 (31826976)	2														
		132 (29758503)	Good														
		133 (27401897)	Good														
		135 (22761341)	3														
		136 (22037787)	3														
Digital breast tomosynthesis diagnostic	Usually not appropriate	Limited	⊗⊗ 0.1-1mSv		3	3	3	4	5	2	0	0	0	0	0	1	
		References	Study Quality														
		113 (30396666)	3														
		131 (30673338)	4														
Mammography diagnostic	Usually not appropriate	Expert Consensus	⊗⊗ 0.1-1mSv		2	2	4	5	3	2	0	0	1	0	0		
CT chest abdomen pelvis with IV contrast	Usually not appropriate	Expert Consensus	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	1	1	11	2	1	1	0	0	0	0	0		
CT chest abdomen pelvis without IV contrast	Usually not appropriate	Expert Consensus	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	1	1	14	1	0	0	0	0	0	0	0		
CT chest abdomen pelvis without and with IV contrast	Usually not appropriate	Expert Consensus	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗⊗ 10-30 mSv [ped]	1	1	10	3	2	0	0	0	0	0	0		

MRI breast without IV contrast	Usually not appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	1	1	12	1	2	0	0	0	0	0	0
		References	Study Quality												
		124 (23297042)	Inadequate												
		121 (27451892)	2												
		112 (30048319)	3												
		137 (30152744)	2												
Sestamibi MBI	Usually not appropriate	Expert Consensus	⊗⊗⊗ 1-10 mSv		1	1	14	0	1	0	0	0	0	0	0

**Variant 10: Female. Newly diagnosed locally recurrent breast cancer. Initial imaging of the axilla following diagnostic mammography or DBT.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
US axilla	May be appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	6	6	0	0	0	0	7	4	2	2	1
		References	Study Quality												
		154 (31558898)	4												
MRI breast without and with IV contrast	May be appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	5	5	0	1	1	3	8	2	1	0	0
		References	Study Quality												
		156 (26744477)	3												
		158 (27902592)	3												
		157 (31161975)	4												
FDG-PET/CT skull base to mid-thigh	May be appropriate	Limited	⊗⊗⊗⊗ 10-30 mSv	⊗⊗⊗⊗ 3-10 mSv [ped]	5	5	0	0	1	3	7	5	0	0	0
		References	Study Quality												
		7 (-3182246)	4												
		155 (27428888)	Good												

CT chest abdomen pelvis with IV contrast	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 3-10 mSv [ped]	2	2	8	4	1	1	1	1	0	0	0
		References	Study Quality												
		92 (26314782)	4												
		7 (-3182246)	4												
		154 (31558898)	4												
CT chest abdomen pelvis without and with IV contrast	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 10-30 mSv [ped]	2	2	8	5	2	1	0	0	0	0	0
		References	Study Quality												
		92 (26314782)	4												
		7 (-3182246)	4												
		154 (31558898)	4												
CT chest abdomen pelvis without IV contrast	Usually not appropriate	Limited	☼☼☼☼ 10-30 mSv	☼☼☼☼☼ 3-10 mSv [ped]	1	1	13	1	1	0	0	0	1	0	0
		References	Study Quality												
		92 (26314782)	4												
		7 (-3182246)	4												
		154 (31558898)	4												
MRI breast without IV contrast	Usually not appropriate	Limited	○ 0 mSv	○ 0 mSv [ped]	1	1	14	2	0	0	0	0	0	0	0
		References	Study Quality												
		156 (26744477)	3												
		158 (27902592)	3												
		157 (31161975)	4												
Sestamibi MBI	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv		1	1	16	0	0	0	0	0	0	0	0

**Variant 11: Female. Suspicious axillary node on mammography or ultrasound. Next imaging study.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
US-guided core biopsy axillary node	Usually appropriate	Limited	0 0 mSv	0 0 mSv [ped]	9	9	0	0	0	0	0	0	1	4	10
		References	Study Quality												
		86 (29972239)	Good												
US-guided fine needle aspiration biopsy axillary node	Usually appropriate	Limited	0 0 mSv	0 0 mSv [ped]	8	8	0	0	0	0	1	0	3	4	7
		References	Study Quality												
		63 (25667099)	3												
		62 (21597359)	Good												
MRI breast without and with IV contrast	May be appropriate (Disagreement)	Expert Opinion	0 0 mSv	0 0 mSv [ped]	5	5	4	3	3	0	3	2	1	0	0
		References	Study Quality												
		123 (29877048)	Good												
		34 (16244803)	2												
		35 (10894136)	1												
		39 (19822403)	4												
FDG-PET/CT skull base to mid-thigh	Usually not appropriate	Moderate	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	3	3	6	1	3	1	3	1	0	0	0
		References	Study Quality												
		160 (22474203)	1												
		33 (27813620)	4												
		159 (12355001)	4												
		31 (19771506)	Good												
		32 (23890400)	3												
		39 (19822403)	4												
CT chest abdomen pelvis with IV contrast	Usually not appropriate	Moderate	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	2	2	7	3	2	1	1	1	0	0	0
		References	Study Quality												

			47 (28236777)		1													
CT chest abdomen pelvis without IV contrast	Usually not appropriate	Moderate	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕ 3-10 mSv [ped]	1	1	11	2	1	0	1	0	0	0	0	0	0	0
			References		Study Quality													
			47 (28236777)		1													
CT chest abdomen pelvis without and with IV contrast	Usually not appropriate	Moderate	⊕⊕⊕⊕ 10-30 mSv	⊕⊕⊕⊕⊕ 10-30 mSv [ped]	1	1	8	3	3	0	1	0	0	0	0	0	0	0
			References		Study Quality													
			47 (28236777)		1													
MRI breast without IV contrast	Usually not appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	1	1	11	2	1	0	1	0	0	0	0	0	0	0
			References		Study Quality													
			123 (29877048)		Good													
			34 (16244803)		2													
			35 (10894136)		1													
			39 (19822403)		4													
Sestamibi MBI	Usually not appropriate	Expert Consensus	⊕⊕⊕ 1-10 mSv		1	1	14	0	0	1	0	0	0	0	0	0	0	0

**Variant 12: Female. Suspicious axillary node on any other imaging modality (excluding mammography and ultrasound). Next imaging study.**

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations												
							1	2	3	4	5	6	7	8	9				
Digital breast tomosynthesis diagnostic	Usually appropriate	Limited	⊕⊕ 0.1-1mSv		9	9	0	0	0	0	1	0	2	4	8				
			References		Study Quality														
			161 (28710582)		2														
US axilla	Usually appropriate	Strong	○ 0 mSv	○ 0 mSv [ped]	9	9	0	0	0	0	1	0	3	2	9				

References	Study Quality
83 (26711795)	1
90 (23664535)	3
85 (22972506)	2
87 (29381381)	1
58 (24859939)	2
54 (29279156)	3
55 (24074422)	3
62 (21597359)	Good
84 (23436877)	2
88 (23515655)	3
89 (24455284)	3
103 (19933672)	3
104 (20047809)	3

Mammography diagnostic	Usually appropriate	Limited	☼☼ 0.1-1mSv		8	8	0	0	0	0	1	1	3	4	6
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References	Study Quality
162 (22227922)	3

US-guided fine needle aspiration biopsy axillary node	May be appropriate	Moderate	○ 0 mSv	○ 0 mSv [ped]	5	5	0	0	1	1	7	5	1	1	0
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References	Study Quality
86 (29972239)	Good
163 (17033920)	2
164 (12736105)	3
165 (12618878)	3

US-guided core biopsy axillary node	May be appropriate (Disagreement)	Expert Opinion	○ 0 mSv	○ 0 mSv [ped]	5	5	0	0	1	2	5	5	1	0	2
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References	Study Quality
59 (25797740)	2
60 (27896640)	3
86 (29972239)	Good



61 (28427743)	3
63 (25667099)	3
62 (21597359)	Good

## **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).