

American College of Radiology
ACR Appropriateness Criteria®

Evaluation of Nipple Discharge

Variant 1: Adult female or male or transfeminine (male-to-female) or transmasculine (female-to-male). Physiologic 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
Image-guided core biopsy breast	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	12	1	0	0	0	0	0	0	1
Image-guided fine needle aspiration breast	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	11	1	1	0	0	0	0	0	1
Mammography diagnostic	Usually not appropriate	Limited	☢☢ 0.1-1mSv		1	1	9	2	1	0	0	1	1	0	0
		References		Study Quality											
		28 ()		3											
		29 (8167884)		4											
MRI breast without IV contrast	Usually not appropriate	Limited	0 0 mSv	0 0 mSv [ped]	1	1	12	2	0	0	0	0	0	0	0
		References		Study Quality											
		28 ()		3											
		29 (8167884)		4											
MRI breast without and with IV contrast	Usually not appropriate	Limited	0 0 mSv	0 0 mSv [ped]	1	1	12	2	0	0	0	0	0	0	0
		References		Study Quality											
		28 ()		3											
		29 (8167884)		4											

FDG-PET breast dedicated	Usually not appropriate	Limited	☼☼☼ 1-10 mSv		1	1	13	0	1	0	0	0	0	0	0	0
		References		Study Quality												
		28 ()		3												
		29 (8167884)		4												
US breast	Usually not appropriate	Limited	○ ○ mSv	○ ○ mSv [ped]	1	1	14	0	0	0	0	0	0	0	0	0
		References		Study Quality												
		28 ()		3												
		29 (8167884)		4												
Digital breast tomosynthesis diagnostic	Usually not appropriate	Limited	☼☼ 0.1-1mSv		1	1	10	2	1	0	0	0	1	0	0	0
		References		Study Quality												
		28 ()		3												
		29 (8167884)		4												
Ductography	Usually not appropriate	Limited	☼☼ 0.1-1mSv		1	1	12	1	0	0	0	1	0	0	0	0
		References		Study Quality												
		28 ()		3												
		29 (8167884)		4												
Sestamibi MBI	Usually not appropriate	Limited	☼☼☼ 1-10 mSv		1	1	14	0	0	0	0	0	0	0	0	0
		References		Study Quality												
		28 ()		3												
		29 (8167884)		4												
		6 (6277258)		4												
		7 (15467662)		4												

Variant 2: Adult male or female 40 years of age or older. Pathologic nipple discharge. Initial imaging.

FDG-PET breast dedicated	Usually not appropriate	Limited	☢☢☢ 1-10 mSv		1	1	12	1	0	0	0	0	0	0	0	1
		References		Study Quality												
		41 (16848840)		2												
		53 (17659240)		3												
Ductography	Usually not appropriate	Strong	☢☢☢ 0.1-1mSv		1	1	8	2	2	0	1	0	1	0	0	
		References		Study Quality												
		44 (17896158)		3												
		42 (9587119)		4												
		43 (-3101778)		4												
		23 (12648684)		3												
		39 (20079481)		3												
		16 (16164940)		3												
		1 (1947092)		4												
		41 (16848840)		2												
		45 (11089460)		3												
Sestamibi MBI	Usually not appropriate	Expert Consensus	☢☢☢ 1-10 mSv		1	1	14	0	0	0	0	0	0	0	0	

Variant 3: Adult male or female 30 to 39 years of age. Pathologic 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	1	10
		References		Study Quality											
		64 (17690501)		4											
		65 (23182522)		3											
		19 (19735390)		4											

MRI breast without IV contrast	Usually not appropriate	Strong	0 0 mSv	0 0 mSv [ped]	1	1	11	2	1	0	0	0	0	0	0
		References		Study Quality											
		48 (25433415)		2											
		51 (25123174)		3											
		44 (17896158)		3											
		52 (26249144)		3											
		3 (21116634)		3											
		46 (-3099493)		4											
		47 (-3099494)		4											
		49 (25685810)		2											
		12 (14634510)		3											
		32 (10887256)		3											
		50 (18705577)		4											
		MRI breast without and with IV contrast	Usually not appropriate	Strong	0 0 mSv	0 0 mSv [ped]	1	1	8	3	2	0	0	1	0
		References		Study Quality											
		48 (25433415)		2											
		51 (25123174)		3											
		44 (17896158)		3											
		52 (26249144)		3											
		3 (21116634)		3											
		46 (-3099493)		4											
		47 (-3099494)		4											
		49 (25685810)		2											
		12 (14634510)		3											
		32 (10887256)		3											
		50 (18705577)		4											
		FDG-PET breast dedicated	Usually not appropriate	Limited	☼☼☼ 1-10 mSv		1	1	13	1	0	0	0	0	0
		References		Study Quality											

Image-guided core biopsy breast	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	12	1	0	0	0	0	0	0	1
Image-guided fine needle aspiration breast	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	13	0	0	0	0	0	0	0	1
MRI breast without IV contrast	Usually not appropriate	Expert Consensus	0.0 mSv	0.0 mSv [ped]	1	1	12	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	2	1	0	0	0	0	0	0
FDG-PET breast dedicated	Usually not appropriate	Expert Consensus	3-10 mSv		1	1	13	1	0	0	0	0	0	0	0
Ductography	Usually not appropriate	Expert Consensus	0.1-1mSv		1	1	11	1	1	1	0	0	0	0	0
Sestamibi MBI	Usually not appropriate	Expert Consensus	3-10 mSv		1	1	14	0	0	0	0	0	0	0	0

Variant 6: Adult transfeminine (male-to-female) patient 30 years of age or older. Pathologic 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	1	0	1	0	3	1	8
		References	Study Quality												
		1 (1947092)	4												
		2 (15908532)	4												
		40 (30392600)	4												
US breast	Usually appropriate	Limited	0 0 mSv	0 0 mSv [ped]	9	9	1	0	0	0	0	1	0	3	9
		References	Study Quality												
		3 (21116634)	3												

		40 (30392600)		4												
Digital breast tomosynthesis diagnostic	Usually appropriate	Limited	☼☼ 0.1-1mSv		9	9	0	0	1	0	1	0	4	1	7	
		References		Study Quality												
		30 (17646365)		3												
		35 (26133221)		2												
		36 (33411577)		3												
Image-guided core biopsy breast	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	11	1	1	0	0	0	0	0	1	
Image-guided fine needle aspiration breast	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	12	1	0	0	0	0	0	0	1	
MRI breast without IV contrast	Usually not appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	1	1	12	1	1	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	10	2	1	0	0	1	0	0	0	
FDG-PET breast dedicated	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv		1	1	13	1	0	0	0	0	0	0	0	
Ductography	Usually not appropriate	Expert Consensus	☼☼ 0.1-1mSv		1	1	9	3	1	0	1	0	0	0	0	
Sestamibi MBI	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv		1	1	13	0	1	0	0	0	0	0	0	

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	1	2	4	7
		References		Study Quality											

		1 (1947092)	4													
		2 (15908532)	4													
		40 (30392600)	4													
US breast	Usually appropriate	Limited	0 0 mSv	0 0 mSv [ped]	9	9	1	0	0	0	0	1	0	2	10	
		References	Study Quality													
		3 (21116634)	3													
		40 (30392600)	4													
Digital breast tomosynthesis diagnostic	Usually appropriate	Limited	☼☼ 0.1-1mSv		9	9	0	0	0	0	0	0	3	4	7	
		References	Study Quality													
		30 (17646365)	3													
		35 (26133221)	2													
		36 (33411577)	3													
Image-guided core biopsy breast	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	11	2	0	0	0	0	0	1	0	
Image-guided fine needle aspiration breast	Usually not appropriate	Expert Consensus	Varies	Varies	1	1	12	1	0	0	0	0	0	1	0	
MRI breast without IV contrast	Usually not appropriate	Expert Consensus	0 0 mSv	0 0 mSv [ped]	1	1	14	0	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	12	1	0	0	0	1	0	0	0	
FDG-PET breast dedicated	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv		1	1	14	0	0	0	0	0	0	0	0	
Ductography	Usually not appropriate	Expert Consensus	☼☼ 0.1-1mSv		1	1	11	2	1	0	0	0	0	0	0	
Sestamibi MBI	Usually not appropriate	Expert Consensus	☼☼☼ 1-10 mSv		1	1	13	0	1	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.