



EUROPEAN COMMISSION
JOINT RESEARCH CENTRE

Directorate F - Health, Consumers & Reference Materials (Ispra)
Health in Society

European Commission Initiative on Breast Cancer (ECIBC): European guidelines on breast cancer screening and diagnosis Evidence profile

Healthcare question	Should needle core biopsy vs. fine needle aspiration cytology be used to diagnose breast cancer in women with suspicious breast lesions in mammography?
Date	September 2016

Needle core biopsy		Fine needle aspiration cytology	
Sensitivity	0.92 (95% CI: 0.87 to 0.95)	Sensitivity	0.83 (95% CI: 0.71 to 0.91)
Specificity	0.99 (95% CI: 0.66 to 1.00)	Specificity	0.96 (95% CI: 0.92 to 0.98)

Prevalence	34%		
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Outcome	Nº of studies (Nº of participants)	Study design	Factors that may decrease certainty of evidence					Effect per 1,000 patients tested		Test accuracy CoE
								Pre-test probability of 34%		
			Risk of bias	Indirectness	Inconsistency	Imprecision	Publication bias	Needle core biopsy	Fine needle aspiration cytology	
True positives (TP) (patients with breast cancer)	9 studies 1,498 participants	cross-sectional (cohort type accuracy study)	not serious ^a	not serious ^b	not serious	not serious	none	313 (296 to 323)	282 (241 to 309)	⊕⊕⊕⊕ HIGH
31 more TP in needle core biopsy										
False negatives (FN) (patients incorrectly classified as not having breast cancer)								27 (17 to 44)	58 (31 to 99)	
								31 fewer FN in needle core biopsy		

Outcome	Nº of studies (Nº of participants)	Study design	Factors that may decrease certainty of evidence					Effect per 1,000 patients tested		Test accuracy CoE
								Pre-test probability of 34%		
			Risk of bias	Indirectness	Inconsistency	Imprecision	Publication bias	Needle core biopsy	Fine needle aspiration cytology	
True negatives (TN) (patients without breast cancer)	9 studies 1,498 participants	cross-sectional (cohort type accuracy study)	not serious ^a	not serious ^b	not serious	not serious	none	653 (436 to 660)	634 (607 to 647)	⊕⊕⊕⊕ HIGH
19 more TN in needle core biopsy										
False positives (FP) (patients incorrectly classified as having breast cancer)								7 (0 to 224)	26 (13 to 53)	
								19 fewer FP in needle core biopsy		

Explanations

- Most studies do not clearly report details on patients' selection, index test or intervention. The panel considers that this unclear risk of bias does not affect the overall confidence in the accuracy estimates
- Most studies include a heterogeneous population with suspected lesions in the mammography, being mass lesions the most frequent. This directly applies to the question whether biopsy or cytology should be used.