



**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**

## QUESTION

**Should an organised mammography screening programme vs. an opportunistic or non-organised mammography screening programme be used for early diagnosis of breast cancer in asymptomatic women?**

<b>POPULATION:</b>	asymptomatic women
<b>INTERVENTION:</b>	an organised mammography screening programme
<b>COMPARISON:</b>	an opportunistic or non-organised mammography screening programme
<b>PURPOSE OF THE TEST:</b>	Detection of lesions / mammographic findings suspicious of breast cancer
<b>LINKED TREATMENTS:</b>	
<b>ANTICIPATED OUTCOMES:</b>	Diagnostic outcomes: false/true positives; false/true negatives from sensitivity and specificity; breast cancer detection; breast cancer mortality; recall for assessment (rate of positive mammography results); breast cancer stage; interval breast cancer; participation in screening; screening coverage; benign biopsy rate, awareness of information; satisfaction with decision making; all cause mortality
<b>SETTING:</b>	European countries
<b>PERSPECTIVE:</b>	Population (National Health System)
<b>BACKGROUND:</b>	<p>Although mammography screening is recommended for women between the ages of 45 and 74 (and strongly recommended for women between the ages of 50 and 69), there is variation in practice with respect to offering them organised or non-organised screening. In 2003 the EC recommended the implementation of organised screening programmes. Currently, in most European countries that have screening, an organised screening programme is used (1). However, the two systems co-exist (see definitions of both below) and as there are some uncertainties regarding their effectiveness the Guidelines Development Group issued this healthcare question. The rationale for the recommendation of organised screening can be based on a greater ability to cover the target population and therefore greater effectiveness at the population level of organised programmes compared to non-organised screening, as shown by several observational studies, as well as a more equitable access. Several systematic reviews of large observational studies have focussed on specific aspects such as the effect of test uptake, equity in uptake (2, 3), appropriate use of resources, false positives, interval cancers (4, 5, 6) and costs (7).</p>

	<p>Definitions considered by the GDG for this healthcare question:</p> <p><u>Organised screening</u> is a screening programme that sets up a systematic call/recall system and quality assurance at all appropriate levels, together with an effective and appropriate diagnostic and treatment and after-care service following evidence-based guidelines. There are seven characteristics of an organised screening programme: a policy specifying target population, screening method and interval; a defined target population; an active invitation of the entire target population; a team responsible for overseeing screening centres; a decision structure and responsibility for healthcare management; a quality assurance system utilising relevant data; and monitoring of cancer occurrence in the target population(8, 9). <u>Opportunistic or non-organised screening</u> refers to all other screening programmes based on the initiative of women themselves to go for a mammogram (8, 10).</p>
<b>CONFLICT OF INTEREST:</b>	<p><u>Management of Conflicts of Interests (Col)</u>: Cols of all Guidelines Development Group (GDG) members were assessed and managed by the European Commission Joint Research Centre (JRC) following an established procedure in line with the institutional rules. GDG member participation in the development of the recommendations was restricted, according to Col disclosure. Consequently, for this particular question, the following GDG members were recused from voting: Jan Danes and Axel Gräwingholt. Miranda Langendam, as external expert, was also not allowed to vote, according to the ECIBC rules of procedure.</p>

## ASSESSMENT

### Problem

Is the problem a priority?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> <li>○ No</li> <li>○ Probably no</li> <li>○ Probably yes</li> <li>● Yes</li> <li>○ Varies</li> <li>○ Don't know</li> </ul>	<p>Breast cancer is the second most common cancer in the world and, by far, the most frequent cancer among women with an estimated 1.67 million new cancer cases diagnosed in 2012—accounting for 25% of all cancers (11). Breast cancer ranks as the fifth leading cause of cancer death worldwide and the second leading cause of cancer-related death in developed regions (11). In the European Union, 367 090 women were diagnosed with breast cancer and 92 000 women died from the disease in 2012 (11). Breast cancer ranks fourth among the top five cancers with the highest disease burden (12). Annual incidence of breast cancer in the EU among women aged 50 to 69 is 2.7 per 1 000 and mortality is 0.5 per 1 000 (11)</p>	<p>This question was prioritised by the GDG</p>

### Test accuracy

How accurate is the test?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> <li>○ Very inaccurate</li> <li>○ Inaccurate</li> <li>● Accurate</li> <li>○ Very accurate</li> <li>○ Varies</li> <li>○ Don't know</li> </ul>	<p>The GDG only included under this research evidence column those studies considered most direct comparisons between organised and non-organised screening programmes which were those studies carried out <u>within the same country</u> (13, 14, 15), as they assumed the definitions and techniques used as well as country breast cancer incidence within the populations would be more similar.</p> <p><b>Test accuracy</b></p> <p>Organised mammography screening programme: Sensitivity: 0.69 (95% CI: 0.64 to 0.74) Specificity: 0.99 (95% CI: 0.98 to 0.99)</p> <p>Opportunistic or non-organised mammography screening programme: Sensitivity: 0.39 (95% CI: 0.30 to 0.50) Specificity: 0.98 (95% CI: 0.98 to 0.99)</p>	<p>In this column, the GDG decided to include one relevant study that compared screening programmes in <u>different countries</u>.</p> <p>Domingo et al (6) reported a cross-national comparison of screening mammography accuracy measures in U.S. (opportunistic programme), Norway, and Spain (both population-based organised programmes) from women aged 50–69 years who underwent mammographic screening 1996–2009.</p> <p><u>Organised mammography screening programme (Norway, Spain)</u> Sensitivity: Norway 0.75 (95% CI 0.75-0.76), Spain 0.79 (95% CI 0.78-0.80) Specificity: Norway 0.97 (95% CI 0.97–0.97), Spain 0.96 95% CI (0.96–0.96)</p> <p><u>Opportunistic or non-organised mammography screening programme (US)</u> Sensitivity: 0.83 (95% CI 0.82-0.84); Specificity: 0.91 (95% CI 0.91.–0.91)</p> <p>Although the 83% sensitivity might be overestimated in opportunistic screening from Domingo study due to a shorter screening interval, the sensitivity with opportunistic screening from Bihrmann study(13) is much lower (39%), probably due to retrospective interpretation of mammography results from the medical records without direct assessment of the images. The GDG notes that this question assesses two test strategies using the</p>

		<p>same screening test, mammography. The GDG clarified that the reference test for the calculation of the sensitivity and specificity is usual diagnostic work-up and clinical follow-up.</p> <p>The GDG agreed by consensus that the tests are accurate.</p> <p>The GDG notes that the mammography screening programmes conducted in the U.S. from the Domingo study(6) represent screening efforts that have some characteristics of organised screening programmes and are, therefore, not purely opportunistic. They do not invite, but they have a system for reminders, recall and follow-up. In this sense it is similar to organised screening. Also, we compare women 50-69, but in the US women have likely been screened up to 10 times previously before reaching the age of 50, and so the comparison is not similar.</p>
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## Desirable Effects

How substantial are the desirable anticipated effects?


JUDGEMENT	RESEARCH EVIDENCE				ADDITIONAL CONSIDERATIONS	
<div>○ Trivial</div> <div>○ Small</div> <div>○ Moderate</div> <div>● Large</div> <div>○ Varies</div> <div>○ Don't know</div>	Test result	Number of results per 1000 women tested (95% CI)		No of participants (studies)	Certainty of the evidence (GRADE)	<p>The GDG notes that three more true positives and three more true negatives per 1,000 women screened are desirable effects. On an absolute scale the GDG notes that the doubling of true positive detections in organised screening programmes is a large desirable effect. The GDG notes that there are not likely many more breast cancers that could be detected.</p> <p>The GDG agreed by consensus that the desirable anticipated effects of organised screening programmes were large.</p> <p>As additional considerations to the results from the diagnostic accuracy studies, the other outcomes (breast cancer detection rates at different size and stage- table below the accuracy data results) of the included studies supported the accuracy results. The following statements synthesise the points taken into account by the GDG:</p> <div><div>- The anticipated downstream clinical consequences from accuracy data were expected to be in favour of organised screening.</div><div>- This was confirmed with the other outcomes not related to test accuracy (shown in the table below) retrieved from</div></div>
		Prevalence 0.88%				
		organised mammography screening programme	opportunistic or non-organised mammography screening programme			
	True positives patients with (suspected lesions of) breast cancer	6 (6 to 7)	3 (3 to 4)	39927 (1)	⊕⊕⊕○ MODERATE <sup>a,b</sup>	
		3 more TP in organised mammography screening programme				
	False negatives patients incorrectly classified as not having (suspected lesions of) breast cancer	3 (2 to 3)	6 (5 to 6)			
		3 fewer FN in organised mammography screening programme				

True negatives patients without (suspected lesions of) breast cancer	977 (976 to 978)	974 (969 to 979)	39927 (1)	⊕⊕⊕○ MODERATE <sup>a,b</sup>	the included studies. As can be seen, those studies reporting breast cancer detection rates at different size and stage also suggest a similar direction of effect to the diagnostic accuracy results.  - There was moderate certainty in the accuracy data, while the certainty was low to very low for the other outcomes (breast cancer detection rates, stage, etc.).
	3 more TN in organised mammography screening programme				
False positives patients incorrectly classified as having (suspected lesions of) breast cancer	14 (13 to 15)	17 (12 to 22)			
	3 fewer FP in organised mammography screening programme				
<div><div>a. Single study</div><div>b. Organised and opportunistic programmes were not performed in the same population. We cannot exclude some impact due to differences between study populations.</div></div> <div>1. Bihrmann K, Jensen A,Olsen AH,Njor S,Schwartz W,Vejborg I,Lyng E. Performance of systematic and non-systematic ('opportunistic') screening mammography: a comparative study from Denmark. J Med Screen. 2008;15(1):23-6</div>					

## Undesirable Effects

How substantial are the undesirable anticipated effects?

JUDGEMENT	RESEARCH EVIDENCE				ADDITIONAL CONSIDERATIONS	
<div><div>○ Large</div><div>○ Moderate</div><div>○ Small</div><div>● Trivial</div><div>○ Varies</div><div>○ Don't know</div></div>	Test result	Number of results per 1000 women tested (95% CI)		No of participants (studies)	Certainty of the evidence (GRADE)	<div>The GDG notes that false positives would be undesirable effects. However, the evidence suggests that there are three fewer false positives with organised screening.</div> <div>The GDG therefore agreed by consensus that these undesirable anticipated effects were trivial.</div>
		Prevalence 0.88%				
		organised mammography screening programme	opportunistic or non-organised mammography screening programme			
	True positives patients with (suspected lesions of) breast cancer	6 (6 to 7)	3 (3 to 4)	39927 (1)	<div>⊕⊕⊕○</div> <div>MODERATE<sup>a,b</sup></div>	
		3 more TP in organised mammography screening programme				

	False negatives patients incorrectly classified as not having (suspected lesions of) breast cancer	3 (2 to 3)	6 (5 to 6)	39927 (1)	 MODERATE <sup>a,b</sup>
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<p>a. Single study</p> <p>b. Organised and opportunistic programmes were not performed in the same population. We cannot exclude some impact due to differences between study populations.</p> <p>1. Bihrmann K, Jensen A, Olsen AH, Njor S, Schwartz W, Vejborg I, Lynge E. Performance of systematic and non-systematic ('opportunistic') screening mammography: a comparative study from Denmark. J Med Screen. 2008;15(1):23-6</p>					

## Certainty of the evidence of test accuracy

What is the overall certainty of the evidence of test accuracy?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> <li>○ Very low</li> <li>○ Low</li> <li>● Moderate</li> <li>○ High</li> <li>○ No included studies</li> </ul>		The GDG agreed based on the overall certainty of test accuracy data that it was moderate.

## Certainty of the evidence of test's effects

What is the overall certainty of the evidence for any critical or important direct benefits, adverse effects or burden of the test?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> <li>○ Very low</li> <li>○ Low</li> <li>○ Moderate</li> <li>○ High</li> <li>● No included studies</li> </ul>		<p>The GDG noted that in organised screening there may be concerns with adverse effects such as stress due to the invitation process, as compared to opportunistic screening that may result from a conversation with their healthcare provider. In the context of a good invitation process, it is noted that this may not be a concern to women. The GDG noted that there may be benefits of invitation to screening, such as the feeling by women receiving invitations that the screening programme is looking out for their health.</p> <p>No evidence on the impact of stress on women being invited in organised screening programmes was identified.</p> <p>The GDG agreed by consensus that there were no included studies. However, the GDG had no concerns with regards to the effects of the test; they only had concerns regarding the effect of the invitation.</p>

## Certainty of the evidence of management's effects

What is the overall certainty of the evidence of effects of the management that is guided by the test results?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> <li>○ Very low</li> <li>○ Low</li> <li>○ Moderate</li> <li>○ High</li> <li>● No included studies</li> </ul>		<p>The GDG agreed that there were studies that addressed downstream outcomes that were directly measured, such as for example breast cancer stage that is a consequence of higher sensitivity, and also results on lymph node positivity (anticipating diagnosis and then having less lymph node positivity) that favour organised screening.</p> <p>The GDG did not look for treatment studies, so there are no included studies, but the panel considered that the evidence that the treatment works better for women detected in earlier stages of breast cancer is probably at least moderate.</p>



<b>Certainty of the evidence of test result/management</b> How certain is the link between test results and management decisions?		
JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> <li>○ Very low</li> <li>○ Low</li> <li>○ Moderate</li> <li>● High</li> <li>○ No included studies</li> </ul>		The GDG judged that the link between test results and management decisions was high. The GDG agreed that the link between test results and receiving treatment for breast cancer are quite strong.

<b>Certainty of effects</b> What is the overall certainty of the evidence of effects of the test?		
JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> <li>○ Very low</li> <li>○ Low</li> <li>○ Moderate</li> <li>○ High</li> <li>● No included studies</li> </ul>		Do not have direct evidence for mortality, but have evidence for surrogates, some prognostic factors.

<b>Values</b> Is there important uncertainty about or variability in how much people value the main outcomes?		
JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> <li>○ Important uncertainty or variability</li> <li>○ Possibly important uncertainty or variability</li> <li>● Probably no important uncertainty or variability</li> <li>○ No important uncertainty or variability</li> <li>○ No known undesirable outcomes</li> </ul>		<p>The GDG did not reach consensus on how women value the main outcomes (such as diagnostic accuracy, breast cancer detection, interval cancer, recall rate, participation in screening, etc.) and therefore voting was conducted.</p> <p>Among 20 GDG members without Col: 8 members voted 'possibly important uncertainty or variability'; 11 probably no important uncertainty or variability; 1 no important; 0 abstentions.</p>

## Balance of effects

Does the balance between desirable and undesirable effects favor the intervention or the comparison?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"><li>○ Favors the comparison</li><li>○ Probably favors the comparison</li><li>○ Does not favor either the intervention or the comparison</li><li>○ Probably favors the intervention</li><li>● Favors the intervention</li><li>○ Varies</li><li>○ Don't know</li></ul>		The GDG agreed by consensus that the balance favours the intervention.

## Resources required

How large are the resource requirements (costs)?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
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- Large costs
- Moderate costs
- Negligible costs and savings
- Moderate savings
- Large savings
- Varies
- Don't know

Organised vs. opportunistic screening

Study ID	Country	Year-value	Organized (Euro)	Opportunistic (Euro)	Incremental cost (Euro)	Quality					
Mammography cost (per woman)											
Neeser2007	Switzerland	2004	120	160	-40	Moderate <sup>a</sup>					
deGelder2009	Switzerland	2007	138	171	-33						
Schiller-Fruehwirth2017	Austria	2012	77.7	75.0	2.7						
Additional, diagnostic, treatment and follow up (per woman)											
Neeser2007	Switzerland	2004	4029	2516	1513	Moderate <sup>a</sup>					
deGelder2009	Switzerland	2007	1492	1466	26						
Schiller-Fruehwirth2017	Austria	2012	1588.9	1602.48	-13.58						
Total life time cost (per woman , develop or do not develop breast cancer during the life)											
Neeser2007	Switzerland	2004	4149	2676	1473	Moderate <sup>a</sup>					
deGelder2009	Switzerland	2007	1630	1637	-7						
Schiller-Fruehwirth2017	Austria	2012	1666.6	1677.5	-10.9						
<sup>a</sup> The quality is moderate due to imprecision. Two studies reported organized screening as a dominant strategy, that is more effective and less costly and the other one does not.											
Characteristics of the studies											
Study	Study design	Time horizon	Age	Organized attendance	Opportunistic attendance	Organized BC mortality reduction	Opportunistic BC mortality reduction	Organized cost per woman	Opportunistic cost per woman	Organized life-years per woman	Opportunistic life-years per woman
Neeser2007	Markov-based decision model	20 years	50-70	70%	20%	15%	14.3%	4149	2676	25.322	25.302
deGelder2009	Micro-simulation modelling MISCAN	20 years	55-74	80%	40%	13%	13%	1630	1637	21.325	21.308
Schiller-Fruehwirth2017	Micro-simulation modelling MISCAN	20 years	45-69	60%	30% to 55%	19.1%	14.2%	1666.6	1677.5	23.955	23.946
De Gelder R, et al. Cost-effectiveness of opportunistic versus organised mammography screening in Switzerland. Eur J Cancer. 2009 Jan;45(1):127-38. Neeser K, et al. Cost-effectiveness analysis of a quality-controlled mammography screening program from the Swiss statutory health-care perspective: quantitative assessment of the most influential factors. Value Health. 2007 Jan-Feb;10(1):42-53. Schiller-Fruehwirth I, et al. The Long-Term Effectiveness and Cost Effectiveness of Organized versus Opportunistic Screening for Breast Cancer in Austria. Value Health. 2017 Sep;20(8):1048-1057.											

(7) (16)(17)

The GDG reviewed evidence incorporated from three research studies (16, 7, 17), notes that the costs were lower for organised screening and higher in one study. The GDG discussed that the differences in the total costs of opportunistic vs organised screening may be related to differences in the year value of costs (one study uses 2004 cost value (16) and the other one uses 2007 cost value (7)) or it may also be related to the model inputs or type of modelling used (Markov modelling vs microsimulation). For this reason the quality of the evidence was downgraded to low. There was uncertainty in the results because of indirectness, information from two studies come from the same canton in Switzerland (Voud) and may not be able to be extrapolated (16, 7).

The GDG noted that radiologist costs may be higher for opportunistic screening. The GDG also notes that in organised screening there may be additional administration costs, however, the cost per examination may be lower and would vary by country.

The GDG notes that health related costs may be higher if additional tests beyond mammogram are ordered as a result of opportunistic screening.

The GDG also notes that the definition of organised screening may vary from country to country in Europe. The GDG agreed by consensus that the resources required would vary.

## Certainty of evidence of required resources

What is the certainty of the evidence of resource requirements (costs)?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> <li>○ Very low</li> <li>● Low</li> <li>○ Moderate</li> <li>○ High</li> <li>○ No included studies</li> </ul>	<p>The quality is low due to imprecision and indirectness. Two studies reported organised screening as a dominant strategy, that is more effective and less costly and the other one did not. The research was further downgraded for imprecision and indirectness.</p>	<p>The GDG suggests that local data may be available in their own languages, and not published, to inform cost-effectiveness evidence. The GDG also notes that grey literature may also inform cost-effectiveness decision-making locally.</p>

## Cost effectiveness

Does the cost-effectiveness of the intervention favor the intervention or the comparison?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS																																																																																	
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Neeser2007	Markov-based decision model	20 years	50-70	70%	20%	15%	14.3%	4149	2676	25.322	25.302																																																																								
deGelder2009	Micro-simulation modelling MISCAN	20 years	55-74	80%	40%	13%	13%	1630	1637	21.325	21.308																																																																								
Schiller-Fruehwirth2017	Micro-simulation modelling MISCAN	20 years	45-69	60%	30% to 55%	19.1%	14.2%	1666.6	1677.5	23.955	23.946																																																																								

## Equity

What would be the impact on health equity?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> <li>○ Reduced</li> <li>○ Probably reduced</li> <li>○ Probably no impact</li> <li>○ Probably increased</li> <li>● Increased</li> <li>○ Varies</li> <li>○ Don't know</li> </ul>		<p>Palencia et al. (2) performed a cross-sectional study using individual-level data from the WHO World Health Survey (2002) and data regarding the implementation of cancer screening programmes. The study population consisted of women from 22 European countries who participated in cervical and breast cancer screening programmes. A total of 4784 women aged 50 to 69 years participated in breast</p>

		<p>cancer screening.</p> <p>Socio-economic inequalities (comparing highest with lowest educational level) were found in countries with opportunistic screening, but not in those with national (organised) screening programmes.</p> <p>In certain country settings, women would have to pay for opportunistic screening, whereas with organised screening they would not have to pay. In this context, organised screening would increase equity.</p> <p>The GDG noted that the impact of organised screening on equity may vary based on the participation rate in organised screening. As agreement could not be reached, voting was conducted among members without Col: 15 members voted in favour of 'increased', 5 members voted in favour of 'probably increased'.</p>
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## Acceptability

Is the intervention acceptable to key stakeholders?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> <li>○ No</li> <li>○ Probably no</li> <li>○ Probably yes</li> <li>○ Yes</li> <li>● Varies</li> <li>○ Don't know</li> </ul>		<p>The GDG agreed that stakeholder acceptability of organized screening may vary, depending on the stakeholder and their setting.</p> <p>Radiologists may not favour organised screening programmes in certain contexts, depending on funding considerations. Also acceptability depends on the healthcare system and the incentives given to the different types of screening.</p> <p>Policy-makers may not find this intervention feasible if organised screening is not currently implemented due to the new administrative costs associated with it. Kalcinski at al. (18) reported the results from a qualitative interview in 48 women from a randomly selected sample of women who were invited to attend organised breast cancer screening in 13 French departments between 2010 and 2011. Twenty-seven women chose the organised screening programme, which they considered to be trustworthy, as negative mammograms are double checked by a second radiologist. Twenty-one women preferred individual screening, which they considered to be more reliable, less anonymous and providing them with more liberty to take control of their own health.</p>

		Women that would want to participate in screening may find this intervention acceptable. Some women may not wish to receive invitations for organised screening programmes depending on their preferences.
<b>Feasibility</b> Is the intervention feasible to implement?		
<b>JUDGEMENT</b>	<b>RESEARCH EVIDENCE</b>	<b>ADDITIONAL CONSIDERATIONS</b>
<ul style="list-style-type: none"> <li>○ No</li> <li>○ Probably no</li> <li>○ Probably yes</li> <li>○ Yes</li> <li>● Varies</li> <li>○ Don't know</li> </ul>		<p>There may be some other barriers to implementation in addition to the economic ones that may be strong in certain settings for the feasibility of organised screening programmes. Barriers related to acceptability discussed above, such as that of radiologists, may impact the feasibility of implementing organised screening programmes.</p> <p>Voting was conducted among members without Col because agreement was not reached by consensus: 13 members voted in favour of 'varies', 5 members voted in favour of 'probably yes' and 2 members voted in favour of 'yes'.</p>

## SUMMARY OF JUDGEMENTS

	JUDGEMENT						
PROBLEM	No	Probably no	Probably yes	Yes		Varies	Don't know
TEST ACCURACY	Very inaccurate	Inaccurate	<b>Accurate</b>	Very accurate		Varies	Don't know
DESIRABLE EFFECTS	Trivial	Small	Moderate	<b>Large</b>		Varies	Don't know
UNDESIRABLE EFFECTS	Large	Moderate	Small	<b>Trivial</b>		Varies	Don't know
CERTAINTY OF THE EVIDENCE OF TEST ACCURACY	Very low	Low	<b>Moderate</b>	High			No included studies
CERTAINTY OF THE EVIDENCE OF TEST'S EFFECTS	Very low	Low	Moderate	High			<b>No included studies</b>
CERTAINTY OF THE EVIDENCE OF MANAGEMENT'S EFFECTS	Very low	Low	Moderate	High			<b>No included studies</b>
CERTAINTY OF THE EVIDENCE OF TEST RESULT/MANAGEMENT	Very low	Low	Moderate	<b>High</b>			No included studies
CERTAINTY OF EFFECTS	Very low	Low	Moderate	High			<b>No included studies</b>
VALUES	Important uncertainty or variability	Possibly important uncertainty or variability	<b>Probably no important uncertainty or variability</b>	No important uncertainty or variability			No known undesirable outcomes
BALANCE OF EFFECTS	Favors the comparison	Probably favors the comparison	Does not favor either the intervention or the comparison	Probably favors the intervention	<b>Favors the intervention</b>	Varies	Don't know
RESOURCES REQUIRED	Large costs	Moderate costs	Negligible costs and savings	Moderate savings	Large savings	<b>Varies</b>	Don't know
CERTAINTY OF EVIDENCE OF REQUIRED RESOURCES	Very low	<b>Low</b>	Moderate	High			No included studies
COST EFFECTIVENESS	Favors the comparison	Probably favors the comparison	Does not favor either the intervention or the comparison	<b>Probably favors the intervention</b>	Favors the intervention	Varies	No included studies
EQUITY	Reduced	Probably reduced	Probably no impact	Probably increased	<b>Increased</b>	Varies	Don't know
ACCEPTABILITY	No	Probably no	Probably yes	Yes		<b>Varies</b>	Don't know

JUDGEMENT							
FEASIBILITY	No	Probably no	Probably yes	Yes		Varies	Don't know

## TYPE OF RECOMMENDATION

Strong recommendation against the intervention ○	Conditional recommendation against the intervention ○	Conditional recommendation for either the intervention or the comparison ○	Conditional recommendation for the intervention ○	Strong recommendation for the intervention ●
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## CONCLUSIONS

### Recommendation

The ECIBC's Guidelines Development Group recommends using an organised mammography screening programme for early detection of breast cancer in asymptomatic women (strong recommendation, moderate certainty in the evidence).

### Justification

#### Overall justification

The GDG recommends by consensus that organised screening programmes should be used over opportunistic or non-organised mammography screening programmes on both the research evidence presented and the additional considerations noted above by the GDG.

#### Detailed justification

##### *Desirable Effects*

The GDG judged that the desirable effects including increased breast cancer detection were large.

##### *Undesirable Effects*

The GDG judged that the undesirable effects of an organised screening programme would be trivial.

##### *Certainty of the evidence of test accuracy*

The GDG judged that the overall certainty of the test accuracy was moderate.

##### *Balance of effects*

The GDG judged that the balance of effects favours organised screening.

##### *Equity*

The GDG judged that organised screening would increase health equity.



## Subgroup considerations

None identified.

## Implementation considerations

1. Information from local contexts and grey literature may provide additional evidence on the cost-effectiveness of this intervention in different settings.
2. This recommendation only applies to the age-groups where the GDG has recommended screening.
3. The GDG notes that there may be barriers to implementation based on the resistance to organised screening programmes of some professionals.
4. The GDG agreed there was room for improvement in developing information material that is more acceptable to women invited to screening.

## Monitoring and evaluation

Appropriateness and adherence to protocols for organised screening programme.

## Research priorities

Additional research on the cost-effectiveness of organised screening in different settings is suggested.

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