



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 tailored screening with magnetic resonance imaging, in addition to digital mammography vs. digital mammography alone be used for early detection of breast cancer in asymptomatic women with high mammographic breast density in organised screening programmes?	
POPULATION:	asymptomatic women with high mammographic breast density and negative mammography in screening
INTERVENTION:	tailored screening with magnetic resonance imaging (MRI), in addition to mammography
COMPARISON:	digital mammography alone
MAIN OUTCOMES:	Breast cancer mortality, breast cancer stage, breast cancer detection, recall for assessment, quality of life, other-cause mortality, adverse effects (including radiation exposure, radiation induced cancers-related to radiation dose, overdiagnosis related adverse effects, false positive related adverse effects)
SETTING:	European Union
PERSPECTIVE:	Population (National Health System)
BACKGROUND:	<p>Breast cancer is the second most common cancer in the world and, by far, the most frequent cancer among women, with an estimated 2 088 849 new cancer cases diagnosed in 2018 (11.6% of all cancers), it ranks as the fourth cause of death from cancer overall (626 679 deaths) (1)</p> <p>Screening programmes play a crucial role in early breast cancer detection; they can increase the chance of survival as well as reduce disease specific mortality. Mammography remains the best method to detect breast cancer in an early stage. However, mammography has a lower sensitivity and specificity in women with radiologically dense breasts (2). The use of different screening strategies including other imaging modalities, in addition to mammography, might improve early detection of breast cancer in women with higher mammographic breast density.</p> <p>Dense breast tissue is made up mostly of ductal structures and connective tissue, while non-dense breast tissue is mostly fatty. Breast density is seen only on mammograms.</p> <p>Due to lack of evidence using the breast density BIRADS (Breast Imaging Report and Database System) classification edition 5, the GDG decided to base the recommendation on the previous breast density BIRADS classification assuming that the results are comparable for the two versions. Therefore, for the purpose of this clinical guideline, one of the following criteria classifies as dense breast:</p> <p>(1) BIRADS category scale: III-IV score.</p> <p>(2) For studies reporting quantitative percent density, a dense area of 50% as roughly equivalent to BIRADS III-IV (BIRADS III would</p>

	<p>be 50-75% and BI-RADS IV would be greater than 75%).</p> <p>(3) For those studies reporting the old Wolfe categories: BIRADS III would be P2 and BIRADS IV corresponding DY.</p> <p>This recommendation was updated in January 2020. Previous versions of the recommendation are available on the ECIBC website.</p>
CONFLICT OF INTEREST:	<p><u>Management of Conflicts of Interest (Col):</u> Cols for 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 member was recused from voting: Axel Gräwingholt. Miranda Langendam, as external expert, was also not allowed to vote, according to the ECIBC rules of procedure.</p> <p>For more information please visit https://healthcare-quality.jrc.ec.europa.eu/discover-ecibc/governance/ecibc-working-groups</p>

ASSESSMENT

Problem Is the problem a priority?		
JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> <input type="radio"/> No <input type="radio"/> Probably no <input type="radio"/> Probably yes <input checked="" type="radio"/> Yes <input type="radio"/> Varies <input type="radio"/> Don't know 	<p>Breast cancer is the second most common cancer in the world and, by far, the most frequent cancer among women, with an estimated 2 088 849 new cancer cases diagnosed in 2018 (11.6% of all cancers), it ranks as the fourth cause of death from cancer overall (626 679 deaths) (1).</p> <p>Breast cancer screening with additional screening modalities might improve the early detection of breast cancer in women with mammographically dense breast tissue. Although digital mammography (DM) has become an accepted standard of care in screening and diagnosis of breast cancer, up to 30% of breast cancers are not detected by standard screening (2) . This percentage is even higher in women with dense breasts and in women under 50 years of age (2). In women with dense breasts, risk of breast cancer is increased (3), and cancers may be masked and missed on mammography due to superposition of tissue; as a result, there might be an excess of late stage disease (stages II and III) (4).</p>	<p>The GDG prioritised this question for the ECIBC.</p>

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>	<div>Date of last search: January 2020</div> <table><tr><th rowspan="2">Outcomes</th><th rowspan="2">No of participants (studies) Follow up</th><th rowspan="2">Certainty of the evidence (GRADE)</th><th rowspan="2">Relative effect (95% CI)</th><th colspan="2">Anticipated absolute effects* (95% CI)</th></tr><tr><th>Risk with digital mammography alone</th><th>Risk difference with tailored screening with magnetic resonance imaging (MRI), in addition to mammography</th></tr><tr><td>Breast cancer detection - incremental (all lesions)</td><td>9,876 (7 observational studies)^{1,2,3,4,5,6,7,a,b}</td><td>⊕⊕○○ LOW^{c,d}</td><td>-</td><td colspan="2">1,819 more per 100,000 examinations (95% CI 1,012 more to 2,837 more). Population 9,876 exams</td></tr><tr><td>Breast cancer detection - incremental (invasive)</td><td>8,153 (6 observational studies)^{1,3,4,5,6,7,a,b}</td><td>⊕⊕⊕○ MODERATE^c</td><td>-</td><td colspan="2">1,323 more per 100,000 examinations (95% CI 1,073 more to 1,596 more). Population 8,153 exams.</td></tr><tr><td>Adverse effects (False positive recall - incremental)</td><td>9,709 (7 observational studies)^{1,2,3,4,5,6,7,b}</td><td>⊕⊕○○ LOW^{c,d}</td><td>-</td><td colspan="2">9,972 more per 100,000 exams (95%CI 6,533 more to 14,032 more). Population 9,709.</td></tr><tr><td rowspan="2">Interval cancer - Per protocol (undergone MRI)</td><td rowspan="2">40366 (3 observational studies)^{1,2,6,e}</td><td rowspan="2">⊕⊕○○ LOW^{c,f,g,h,i}</td><td rowspan="2">RR 0.19 (0.09 to 0.43)^j</td><td colspan="2">Study population</td></tr><tr><td>519 per 100.000</td><td>420 fewer per 100.000 (472 fewer to 296 fewer)</td></tr></table>	Outcomes	No of participants (studies) Follow up	Certainty of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects* (95% CI)		Risk with digital mammography alone	Risk difference with tailored screening with magnetic resonance imaging (MRI), in addition to mammography	Breast cancer detection - incremental (all lesions)	9,876 (7 observational studies) ^{1,2,3,4,5,6,7,a,b}	⊕⊕○○ LOW ^{c,d}	-	1,819 more per 100,000 examinations (95% CI 1,012 more to 2,837 more). Population 9,876 exams		Breast cancer detection - incremental (invasive)	8,153 (6 observational studies) ^{1,3,4,5,6,7,a,b}	⊕⊕⊕○ MODERATE ^c	-	1,323 more per 100,000 examinations (95% CI 1,073 more to 1,596 more). Population 8,153 exams.		Adverse effects (False positive recall - incremental)	9,709 (7 observational studies) ^{1,2,3,4,5,6,7,b}	⊕⊕○○ LOW ^{c,d}	-	9,972 more per 100,000 exams (95%CI 6,533 more to 14,032 more). Population 9,709.		Interval cancer - Per protocol (undergone MRI)	40366 (3 observational studies) ^{1,2,6,e}	⊕⊕○○ LOW ^{c,f,g,h,i}	RR 0.19 (0.09 to 0.43) ^j	Study population		519 per 100.000	420 fewer per 100.000 (472 fewer to 296 fewer)	<div>The outcome breast cancer detection rate was eliminated from the table as it did not include information coming from the DENSE trial which is the only study carried out in an organised screening programme context.</div> <div>For the desirable effects, the GDG focused therefore on the incremental breast cancer detection and the reduction in interval cancers.</div> <div>The incremental breast cancer detection is approximately 18 per 1000 women screened more with additional MRI (an increase of about 1.8%).</div> <div>The concern is that only the DENSE trial is dealing with a representative baseline risk, however, the breast cancer detection results are quite consistent across studies.</div> <div>Reduction in interval cancer (per protocol) of about 0.4% (420 per 100 000).</div> <div>The GDG agreed the overall desirable effects were large.</div>
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Serious adverse effects (During or immediately after MRI)	4,783 (1 RCT) ^{1,b,k}	⊕⊕⊕○ MODERATE ^{f,l}	-	104 more per 100, 000 MRI examinations (0 more to 200 more) (5/4783) b
Provision of chemotherapy - not measured	-	-	-	
Breast cancer mortality - not measured	-	-	-	
Breast cancer stage - not measured	-	-	-	
Mastectomy - not measured	-	-	-	
<ol style="list-style-type: none"> 1. Bakker MF, de Lange SV,Pijnappel RM,Mann RM,Peeters PHM,Monninkhof EM,Emaus MJ,for the DENSE Trial Study Group. Supplemental MRI Screening for Women with Extremely Dense Breast Tissue. NEJM; 2019. 2. M, Kriege. Factors affecting sensitivity and specificity of screening mammography and MRI in women with an inherited risk for breast cancer. Breast Cancer Res Treat; 2006. 3. Kuhl CK, Schrading S,Strobel K,Schild HH,Hilgers RD,Bieling HB. Abbreviated Breast Magnetic Resonance Imaging (MRI): First Postcontrast Subtracted Images and Maximum- Intensity Projection-A Novel Approach to Breast Cancer Screening With MRI. J Clin Oncol; 2014. 4. Chen SQ, Huang M,Shen YY,Liu CL,Xu CX. Application of Abbreviated Protocol of Magnetic Resonance Imaging for Breast Cancer Screening in Dense Breast Tissue. Acad Radiol; 2017. 5. Kuhl CK, Strobel K,Bieling H,Leutner C,Schild HH,Schradingb S. Supplemental Breast MR Imaging Screening of Women with Average Risk of Breast Cancer. Radiology; 2017. 6. Berg WA, Zhang Z,Lehrer D,Jong RA,Pisano ED,Barr RG,et al. Detection of breast cancer with addition of annual screening ultrasound or a single screening MRI to mammography in women with elevated breast cancer risk. JAMA ; 2012. 7. Strahle D, Pathak D,Sierra A,Saha S,Strahle C,Devisetty K. Systematic development of an abbreviated protocol for screening breast magnetic resonance imaging. Breast Cancer Res Treat; 2017. 				

	<ul style="list-style-type: none"> a. Cohort diagnostic studies that provided incremental information on participants with negative mammography. The risk of bias was assessed using an ad-hoc modified QUADAS-2 tool. b. The RCT estimated the outcomes as incremental events in the MRI arm. The baseline number of events in the mamography arm were not reported. c. Included studies recruited participants that had additional risk factors and/or were younger than the average participant in a organized screening program. None of the participants from the included study had personal history of breast cancer or were BRCA mutation carriers. d. Relevant unexplained heterogeneity across studies e. Cohort diagnostic studies, with a paired assessment and one study with random allocation of the index tests. The risk of bias was assessed using an ad-hoc modified QUADAS-2 tool. f. One study included only patients with extremely dense breast tissue, which roughly represents the 10% of the population (Bakker 2019) g. Imprecise estimates due to low number of events, but the range of possible absolute events is below the clinical decision threshold. h. The reading of index tests were blinded from each other. No information about the previous readers experience (Kriege 2006, Berg 2012) i. In one study, the 40% of participants allocated to the MRI arm did not accepted the intervention (Bakker 2019) j. One RCT (FaMRIsc) compared annual MRI plus annual breast clinical examination (BCE) + biennial mammography Vs. annual breast clinical examination (BCE) + annual mammography. Participants had familiar history of breast cancer. The RR for ICR was 0.71 (95% CI 0.06 to 7.88) (Saadatmand 2019) k. A diagnostic study with random allocation of the index tests. The risk of bias was assessed using an ad-hoc modified QUADAS-2 tool. l. Low number of events in each arms. 	
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Undesirable Effects

How substantial are the undesirable anticipated effects?

JUDGEMENT	RESEARCH EVIDENCE					ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> ● Large ○ Moderate ○ Small ○ Trivial ○ Varies ○ Don't know 	Outcomes	No of participants (studies) Follow up	Certainty of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects* (95% CI)	<p>There is an incremental false positive recall of about 11%.</p> <p>There is approximately 0.1% more serious adverse events.</p> <p>Some overdiagnosis will exist in the additional detection, although relatively speaking the risk for clinically relevant breast cancer is higher in women with high breast density.</p> <p>The PICO Responsible Unit (PRU) estimated the potential overdiagnosis as 1.2% as the excess detection due to MRI (1.65%) minus the difference of interval cancer rate in the per-protocol analysis (0.5%-0.08%).</p>
					<div>Risk with digital mammography alone</div> <div>Risk difference with tailored screening with magnetic resonance imaging (MRI), in addition to mammography</div>	

	Breast cancer detection - incremental (all lesions)	9,876 (7 observational studies) ^{1,2,3,4,5,6,7,a,b}	⊕⊕○○ LOW ^{c,d}	-	1,819 more per 100,000 examinations (95% CI 1,012 more to 2,837 more). Population 9,876 exams	There are also possible side effects of contrast enhancement, including allergic reaction or intravenous procedure complications, that are higher with MRI-based screening.
	Breast cancer detection - incremental (invasive)	8,153 (6 observational studies) ^{1,3,4,5,6,7,a,b}	⊕⊕⊕○ MODERATE ^c	-	1,323 more per 100,000 examinations (95% CI 1,073 more to 1,596 more). Population 8,153 exams.	
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	Interval cancer - Per protocol (undergone MRI)	40366 (3 observational studies) ^{1,2,6,e}	⊕⊕○○ LOW ^{c,f,g,h,i}	RR 0.19 (0.09 to 0.43) ^j	Study population	
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	Serious adverse effects (During or immediately after MRI)	4,783 (1 RCT) ^{1,b,k}	⊕⊕⊕○ MODERATE ^{f,i}	-	104 more per 100, 000 MRI examinations (0 more to 200 more) (5/4783)	
	Provision of chemotherapy - not measured	-	-	-		
	Breast cancer mortality - not measured	-	-	-		
	Breast cancer stage - not measured	-	-	-		
	Mastectomy - not measured	-	-	-		

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	<p>k. A diagnostic study with random allocation of the index tests. The risk of bias was assessed using an ad-hoc modified QUADAS-2 tool.</p> <p>l. Low number of events in each arms.</p> <p>Date of last search: January 2020</p>	
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Certainty of evidence

What is the overall certainty of the evidence of effects?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> ● Very low ○ Low ○ Moderate ○ High ○ No included studies 		The certainty is low for accuracy data but as we do not know the downstream consequences, it is very low overall.

Values

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"> ● Important uncertainty or variability ○ Possibly important uncertainty or variability ○ Probably no important uncertainty or variability ○ No important uncertainty or variability ○ No known undesirable outcomes 	<p>No specific studies focusing in MRI were identified. The findings, all from mammography studies, however, are likely to be generalisable to MRI, as both screening tests are associated with similar desirable and undesirable effects (e.g. false positive findings or overdiagnosis).</p> <p>A systematic review (JRC Technical Report PICO 10-11, contract FWC443094012015; available upon request) shows that participants in mammography screening programmes place a low value on the psychosocial and physical effects of false positive results and overdiagnosis. However, participants generally consider these undesirable effects acceptable (<i>low confidence</i>). These findings are of limited value mainly given the significant concerns regarding the adequacy of the information provided to the participants, in order to take an informed decision. Also, acceptability of false positive results is based on studies of participants who have already received a false positive result, whose preferences may differ from the general population. Another finding is that breast cancer screening represents a significant burden for some participants due to the associated psychological distress and inconvenience.</p> <p>Regarding breast cancer diagnosis, there is very limited data available on patients' views. One of the main themes identified in the literature is that patients disvalue highly the anxiety caused by delays in the receipt of results of diagnostic procedures, or by a lack of understanding of the tests due to suboptimal communication with physicians (moderate confidence). Also, women have a higher overall preference towards more comfortable, brief diagnostic procedures (<i>low confidence</i>).</p> <p>Date of last search: April 2016</p>	The GDG agreed that there is important uncertainty or variability, as it should be the same as with other related questions on high mammographic breast density.

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"> ○ Favors the comparison ○ Probably favors the comparison ● Does not favor either the intervention or the comparison ○ Probably favors the intervention ○ Favors the intervention ○ Varies ○ Don't know 	<p>The currently available evidence suggests that there are both large desirable and large undesirable effects. The uncertainty indicates that the changes to either benefits or harms may change the balance. If higher certainty evidence is generated, the changes might be substantial even if small relative changes in effects occur.</p>	<p>The main factors driving the GDG's judgment were the 0.4% fewer interval cancers, as a benefit, compared to a 13% increase in false positives, as a harm of using MRI. Although the interval cancers may be more important, the GDG agreed that the balance did not favour either the intervention or the comparison.</p>

Resources required

How large are the resource requirements (costs)?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> ● Large costs ○ Moderate costs ○ Negligible costs and savings ○ Moderate savings ○ Large savings ○ Varies ○ Don't know 	<p>Date of last search: January 2020</p> <p>No new evidence was included.</p>	<p>As no new evidence was included, the GDG members used the same judgement made in the previous version of this criterion, using previous considerations:</p> <p>Costs associated with breast MRI screening include:</p> <ul style="list-style-type: none"> - Costs of the technology, capital costs of the machines and the lifetime of the machine. - Time to acquire and read the images, storage of several hundred images. - Training for radiographers and radiologists. - Costs associated with the increased recall rate. <p>The GDG noted that the cost considerations must also include the increased costs that result from the increased recall rate including repetition of exams and biopsies. The GDG noted that the MRI equipment is about four times as expensive, and the examination costs of MRI could be estimated to be ten times higher than those for digital mammography.</p>

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"> ○ Very low ○ Low ○ Moderate ○ High ● No included studies 	No relevant economic evaluations were identified.	

Cost effectiveness

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

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> ○ Favors the comparison ○ Probably favors the comparison ○ Does not favor either the intervention or the comparison ○ Probably favors the intervention ○ Favors the intervention ○ Varies ● No included studies 	<p>Date of last search: January 2020</p> <p>No new evidence was included.</p>	As no new evidence was included, and previously there were also no studies included, the GDG members used the same judgement made in the previous version of this criterion.

Equity

What would be the impact on health equity?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul style="list-style-type: none"> ○ Reduced ○ Probably reduced ○ Probably no impact ○ Probably increased ○ Increased ● Varies ○ Don't know 	No new evidence was included.	<p>As no new evidence was included, the GDG members used the same judgement made in the previous version of this criterion, using previous considerations:</p> <p>The utilisation of breast cancer screening services may largely depend on the availability of national public screening programmes. There are findings in Europe highlighting that inequalities are larger in countries without population-based screening programmes (Palència L, 2010) . This is indirect evidence as it does not refer to MRI screening.</p> <p>The GDG felt that the impacts on health equity may vary. The GDG felt that the intervention would have different impacts on health equity within countries and between countries. Within countries, there may be different access for persons who have private insurance or easier access to MRI. Across countries, the GDG felt that there would be different access to MRI depending</p>

		on the country's ability to fund tailored MRI for high mammographic breast density.
Acceptability Is the intervention acceptable to key stakeholders?		
JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<input type="radio"/> No <input checked="" type="radio"/> Probably no <input type="radio"/> Probably yes <input type="radio"/> Yes <input type="radio"/> Varies <input type="radio"/> Don't know	Date of last search: April 2016	<p>The GDG discussed acceptability among different stakeholders:</p> <p>For policymakers, increased costs would be a strong concern for acceptability.</p> <p>For radiologists acceptability varies depending on their professional opinion on MRI tailored-screening. Those professionals concerned about contrast medium may not consider it to be at all acceptable.</p> <p>From the trial included now, we know that 59% of women did not accept the intervention (5)</p>
Feasibility Is the intervention feasible to implement?		
JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<input type="radio"/> No <input checked="" type="radio"/> Probably no <input type="radio"/> Probably yes <input type="radio"/> Yes <input type="radio"/> Varies <input type="radio"/> Don't know	No new evidence was included.	<p>As no new evidence was included, the GDG members used the same judgement made in the previous version of this criterion, using previous considerations:</p> <p>The GDG felt that it would probably not be feasible to implement due to high costs, too few MRI facilities, longer radiologist examination and reading times, and increased inequity. Additionally, the lack of direct evidence on the balance of effects for MRI-tailored screening would make it difficult to convince stakeholders to implement it.</p>

SUMMARY OF JUDGEMENTS

CRITERIA	PREVIOUS VERSION APRIL 2016	UPDATE JANUARY 2020
PROBLEM	Yes	Yes
DESIRABLE EFFECTS	Moderate	Large
UNDESIRABLE EFFECTS	Large	Large
CERTAINTY OF EVIDENCE	Very low	Very low
VALUES	Possibly important uncertainty or variability	Important uncertainty or variability
BALANCE OF EFFECTS	Probably favors the comparison	Does not favor either the intervention or the comparison
RESOURCES REQUIRED	Large costs	The same as original
CERTAINTY OF EVIDENCE OF REQUIRED RESOURCES	No included studies	The same as original
COST EFFECTIVENESS	No included studies	The same as original
EQUITY	Varies	The same as original
ACCEPTABILITY	Probably no	Probably no
FEASIBILITY	Probably no	Probably no

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

For asymptomatic women, with high mammographic breast density and a negative mammography, in the context of an organised screening programme, the ECIBC's Guidelines Development Group (GDG) suggests not implementing tailored screening with magnetic resonance imaging (MRI) over digital mammography alone (conditional recommendation, very low certainty of the evidence).

Justification

The recommendation was agreed by consensus with no need for voting.

The recommendation is conditional because there is still a lot of uncertainty; costs and feasibility are still key issues. Health benefits and harms seem to be equal but there is still concern about the other factors.

Subgroup considerations

This recommendation is for the women specified in the question

Implementation considerations

The GDG did not feel that there is a current trend towards women receiving MRI-tailored screening for dense breast in practice, and therefore no considerations required for this conditional recommendation against using MRI-tailored screening.

Monitoring and evaluation

The GDG did not feel that there were any monitoring and evaluation considerations as MRI-tailored screening for women with high mammographic breast density was not felt to be currently conducted in practice.

Research priorities

Not all GDG members felt that there is a need for further research. GDG members acknowledged that there are clinical trials ongoing regarding MRI-tailored screening for women with high breast density. Research priorities included:

1. Research into the balance of effects, including the potential risk of adverse events due to contrast reaction or intravenous procedures is required for MRI.
2. Research to improve the specificity of MRI-tailored screening.
3. Need to study abbreviated protocols to make the intervention less costly and more acceptable.

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