Rethinking the Choosing Wisely Portugal Recommendation on Breast Cancer Screening

Repensar a Recomendação Choosing Wisely Portugal sobre Rastreio do Cancro da Mama

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Breast cancer is a formidable disease despite all the advances in health technology. Portuguese women have a cumulative risk of breast cancer of 7.43%, a cumulative risk of dying of breast cancer of 1.32%, and this illness tragically affects not only women with the disease as well as those around them. While breast cancer screening is an attractive idea, it is also very controversial. In this paper, we argue that the recommendation “choose not to postpone breast cancer screening to age 50; choose to start breast cancer screening annually at age 40” is a poor candidate for a strong Choosing Wisely (CW) recommendation.

Choosing Wisely recommendations

Since 2012, Choosing Wisely has asked medical organizations to identify tests or procedures commonly used in their field whose need should be questioned and discussed. The fundamental purpose of Choosing Wisely is to reduce unnecessary medical tests and treatments. Its mission is to help patients choose care that respects four core principles: 1) supported by evidence; 2) not duplicative of other tests or procedures already received; 3) free from harm; 4) truly necessary. The recommendations should be based on the best available evidence, which entails a broad literature review that includes secondary evidence sources such as systematic reviews and guidelines, thus avoiding the possibility of selective choices amongst competing evidence.

Recommending annual breast cancer screening from age 40 onwards does not serve this purpose and does not respect the principles cited in the Choosing Wisely mission statement. This Choosing Wisely recommendation is based on a non-systematic, non-patient-oriented guideline, which does not give us a full perspective on breast cancer screening literature. Firstly, scientific evidence is controversial regarding screening between 40 and 49 years of age, as explained further in this article and also mentioned in the supporting literature in the aforementioned guideline. Secondly, this procedure can result in harm. Although there is a strong body of evidence regarding false positives, overdiagnosis and cancer anxiety, it appears to have been overlooked in this recommendation.

Experts cannot agree on breast cancer screening.

Most governmental and scientific organizations recommend breast cancer screening in women as a way to save lives and reduce suffering. The age at which screening should start, its frequency and when it should end is far more controversial. Table 1 offers a non-systematic overview of guidelines about cancer screening. It exemplifies how authoritative organizations have reached different recommendations with the same body of evidence available.

This level of disagreement is unsurprising when we look at the evidence. Consider the decision regarding whether to screen women aged 40 - 50. Imagine that you are part of a guideline panel, and you are provided with the following evidence about breast cancer screening (estimates calculated from data in the appendixes of reference 11):

- In the 40 – 44-year-old group there is moderate quality evidence that screening leads to 48 fewer breast cancer deaths per 100 000 screened women (95% CI: -96 to +8 deaths).
- In the 45 – 49-year-old group there is moderate quality evidence that screening leads to 48 fewer breast cancer deaths per 100 000 screened women (95% CI: -168 to +14 deaths).


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There is moderate quality evidence that in a screened population of 100,000 women, 186 women are overdiagnosed with cancer (95% CI: 148 to 224 women), meaning that these women are diagnosed with a slow-growing breast cancer that would not lead to symptoms within their lifetime and would not need any treatment.

There is very low-quality evidence that 29,000 in 100,000 women receive at least one false-positive mammogram and that 4000 in 100,000 women receive a false-positive biopsy result. Low-quality evidence also suggests that women who receive a false-positive mammogram experience greater distress, fear, and anxiety about breast cancer for up to 35 months, even though there are no differences in clinical anxiety or depression.

Your final decision will depend on taking several factors into account. Even using this simplified body of evidence, you not only need to compare outcomes that are qualitatively different, such as saving one life versus the experience of overdiagnosis, you also need to recognize that the evidence is imperfect due to risk of bias and lack of precision and, finally, you also need to be aware of the difficulty of applying such evidence base to your own setting.

Regarding screening frequency, there are no randomized trials that provide comparative evidence of the effect of different time intervals on outcomes. Evidence from observational studies, data extrapolated from clinical trials and statistical modelling studies suggest that increased screening frequency leads to higher breast cancer detection, but also leads to higher cumulative false-positive screening rates and overdiagnosis. Guideline panels must therefore decide on screening frequency based on judgements of the optimal balance between the benefit of decreased mortality and the possible harm of overdiagnosis or false-positive results. The evidence suggests that most women attribute more value to a small reduction in mortality and less value to a larger increase in overdiagnosis or false-positive results, but individual decisions are very dependent on personal values. There are also opportunity costs to think of, such as displacement of resources. Without direct evidence from randomized trials, decisions need to be based on a logical argument and modelling studies, which try to predict outcomes based on several assumptions.

In summary, there is low-quality evidence supporting decisions about when to start, how often to screen and when to end screening. The overall decision involves balancing benefits and harms which are valued differently by relevant groups within society. Different authoritative organizations propose a wide range of conflicting recommendations, both strong and conditional, for the same age cohorts, which demonstrates the lack of consensus between experts. We therefore consider that the recommendation suggested by the College of Radiology to start annual breast cancer screening at the age of 40 does not fulfill criteria for a CW recommendation.

**The key distinction between a strong and a conditional recommendation**

A strong recommendation for an intervention (e.g., screening) should be issued when the guideline panel is confident that the benefits outweigh the harms. In other words, when most informed patients would want that intervention and only a small proportion would not, and when

### Table 1 – Summary of breast cancer screening recommendations in Western countries

<table>
<thead>
<tr>
<th>Institution</th>
<th>Recommendation for women aged 40 - 49 years old</th>
<th>Screening interval</th>
<th>Recommendation for women aged 70+</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>North American organisations</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. Preventive Services Task Force (2016)&lt;sup&gt;6&lt;/sup&gt;</td>
<td>Shared decision making</td>
<td>Every 2 years</td>
<td>Up to age 74</td>
</tr>
<tr>
<td>American College of Obstetricians and Gynecologists (2017)&lt;sup&gt;7&lt;/sup&gt;</td>
<td>Shared decision making</td>
<td>1 to 2 years, after informed decision making</td>
<td>At least to age 75</td>
</tr>
<tr>
<td>American College of Physicians (2019)&lt;sup&gt;8&lt;/sup&gt;</td>
<td>Shared decision making</td>
<td>Every 2 years</td>
<td>Up to age 74</td>
</tr>
<tr>
<td>American Cancer Society (2015)&lt;sup&gt;9&lt;/sup&gt;</td>
<td>40-44 Shared decision making</td>
<td>1 year 45 - 54</td>
<td>If life expectancy &gt; 10 years</td>
</tr>
<tr>
<td>45-49 Screen</td>
<td>1 to 2 years 55+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>American College of Radiology (2017)&lt;sup&gt;10&lt;/sup&gt;</td>
<td>Screen</td>
<td>Every year</td>
<td>Individualize to current health and life expectancy</td>
</tr>
<tr>
<td>Canadian Preventive Task Force on Preventive Healthcare (2018)&lt;sup&gt;11&lt;/sup&gt;</td>
<td>Do not screen</td>
<td>2 to 3 years</td>
<td>Up to age 74</td>
</tr>
<tr>
<td><strong>European organisations</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>European Commission Initiative on Breast Cancer (2019)&lt;sup&gt;12&lt;/sup&gt;</td>
<td>40 - 44 do not screen (conditional)</td>
<td>45 every 2 - 3 years</td>
<td>Up to age 74</td>
</tr>
<tr>
<td>45 - 49 screen (conditional)</td>
<td>50 - 69 every 2 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70 - 74 every 3 years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NHS England&lt;sup&gt;13&lt;/sup&gt;</td>
<td>Not included in breast cancer screening programme</td>
<td>Every 3 years</td>
<td>Up to age 71</td>
</tr>
<tr>
<td>Portugal (Despacho n.º 8254/2017)&lt;sup&gt;14&lt;/sup&gt;</td>
<td>Do not screen</td>
<td>Every 2 years</td>
<td>No</td>
</tr>
</tbody>
</table>

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most clinicians agree, then they should offer it to most patients. Policymakers should adopt that intervention as a general policy for most of the population. Conditional recommendations are issued when the guideline panel agrees that the desirable effects of adherence to a recommendation probably outweigh the undesirable effects. In other words, many but not most patients would choose that procedure, and clinicians acknowledge that different options are appropriate for different patients, and therefore a personalized decision-making approach, integrating patients’ values and preferences, is required. Finally, policymakers should acknowledge that the procedure still requires substantial debate involving all relevant stakeholders.

The way forward

The current Choosing Wisely breast cancer screening statement does not take into account concerns about the balance of benefits and harms in breast cancer screening. We suggest that the statement should be subject to further debate between relevant stakeholders such as medical specialties directly involved in breast cancer screening, such as General Surgery, Gynaecology, Family Medicine, Public Health and Radiology, as well as representatives of women and patient groups. This debate should focus on providing a recommendation supported by all, that facilitates the difficult decision of choosing a screening program that is best suited to individual preferences and values.

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AUTHORS CONTRIBUTION

BH: Conception, literature research and analysis, first draft of the article.

CVD: Literature research and analysis, first draft of the article.

CM, NJ, LC, PS: Literature research and analysis, critical review of the paper with significant intellectual contribution.

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REFERENCES


