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%,[1] 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.[2]

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.[3] 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,[4] 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.[4–9] 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 84 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 fulfil 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.[10] 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

Institution	Recommendation for women aged 40 - 49 years old	Screening interval	Recommendation for women aged 70+
North American organisations			
U.S. Preventive Services Task Force (2016)[3]	Shared decision making	Every 2 years	Up to age 74
American College of Obstetricians and Gynecologists (2017)[4]	Shared decision making	1 to 2 years, after informed decision making	At least to age 75
American College of Physicians (2019)[5]	Shared decision making	Every 2 years	Up to age 74
American Cancer Society (2015)[6]	40 - 44 Shared decision making 45 - 49 Screen	1 year 45 - 54 1 to 2 years 55+	If life expectancy > 10 years
American College of Radiology (2017)[7]	Screen	Every year	Individualize to current health and life expectancy
Canadian Preventive Task Force on Preventive Healthcare (2018)[8]	Do not screen	2 to 3 years	Up to age 74
European organisations			
European Commission Initiative on Breast Cancer (2019)[11]	40 - 44 do not screen (conditional) 45 - 49 screen (conditional)	45 every 2 - 3 years 50 - 69 every 2 years 70 - 74 every 3 years	Up to age 74
NHS England[12]	Not included in breast cancer screening programme	Every 3 years	Up to age 71
Portugal (Despacho n.º 8254/2017)[13]	Do not screen	Every 2 years	No

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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REFERENCES

1. International Agency for Research on Cancer. Portugal fact sheets. 2021. [cited 2021 Jun 3]. Available from: https://gco.iarc.fr/today/data/factsheets/populations/620-portugal-fact-sheets.pdf.
2. Colégio da Especialidade de Radiologia da Ordem dos Médicos. Choosing Wisely Portugal. Rastreio de cancro da mama aos 40 com periodicidade anual. [cited 2021 Aug 25]. Available from: https://ordemdosmedicos.pt/rastreio-de-cancro-da-mama-aos-40-com-periodicidade-anual/.
3. Choosing Wisely. Our Mission. 2014. [cited 2021 Jul 10]. Available from: https://www.choosingwisely.org/our-mission/.
4. Expert Panel on Breast Imaging, Mainiero MB, Moy L, Baron P, Didwania AD, diFlorio RM, et al. ACR Appropriateness Criteria® breast Cancer screening. J Am Coll Radiol. 2017;14:S383–90.
5. Siu AL, U.S. Preventive Services Task Force. Screening for Breast Cancer: U.S. Preventive Services Task Force recommendation statement. Ann Intern Med. 2016;164:279–96.
6. American College of Obstetricians-Gynecologist. Practice Bulletin Number 179: Breast cancer risk assessment and screening in average-risk women. Obstet Gynecol. 2017;130:e1–16.
7. Qaseem A, Lin JS, Mustafa RA, Horwitch CA, Wilt TJ, Clinical Guidelines Committee of the American College of Physicians. Screening for breast cancer in average-risk women: a Guidance Statement From the American College of Physicians. Ann Intern Med. 2019;170:547–60.
8. Oeffinger KC, Fontham ETH, Etzioni R, Herzig A, Michaelson JS, Shih Y-CT, et al. Breast cancer screening for women at average risk: 2015 guideline update from the American Cancer Society. JAMA. 2015;314:1599–614.
9. Klarenbach S, Sims-Jones N, Lewin G, Singh H, Thériault G, Tonelli M, et al. Recommendations on screening for breast cancer in women aged 40-74 years who are not at increased risk for breast cancer. CMAJ. 2018;190:E1441–51.
10. Schünemann H, Brożek J, Guyatt G, Oxman AD. GRADE handbook. 2013. [cited 2021 Aug 25]. Available from: https://gdt.gradepro.org/app/handbook/handbook.html.
11. Schünemann HJ, Lerda D, Quinn C, Follmann M, Alonso-Coello P, Rossi PG, et al. Breast cancer screening and diagnosis: a synopsis of the European Breast Guidelines. Ann Intern Med. 2020;172:46–56.
12. National Health Service England. Breast screening: programme overview. GOV.UK. 2021. [cited 2021 Jul 10]. Available from: https://www.gov.uk/guidance/breast-screening-programme-overview.
13. Portugal. Despacho 8254/2017. Diário da República, II Série, n.º 183 (2017/00/21). p.20788-9.