

REVIEW

Clinical practice guidelines and consensus for the screening of breast cancer: A systematic appraisal of their quality and reporting

Marta Maes-Carballo^{1,2,3}  | Luciano Mignini⁴ | Manuel Martín-Díaz⁵ |
Aurora Bueno-Cavanillas^{3,6,7} | Khalid Saeed Khan^{3,6}

¹Department of General Surgery, Breast Cancer Unit, Complejo Hospitalario Universitario de Ourense, Ourense, Spain

²Department of General Surgery, Hospital Público de Verín, Ourense, Spain

³Department of Preventive Medicine and Public Health, University of Granada, Granada, Spain

⁴Unidad de Mastología, Grupo Oroño, Rosario, Argentina

⁵Department of General Surgery, Hospital de Motril, Granada, Spain

⁶CIBER of Epidemiology and Public Health, CIBERESP, Madrid, Spain

⁷Instituto de Investigación Biosanitaria, IBS, Granada, Spain

Correspondence

Marta Maes-Carballo, Department of General Surgery, Breast Cancer Unit, Complejo Hospitalario Universitario de Ourense, Calle Ramon Puga Noguerol, 54, Ourense 32005, Spain.

Email: marta.maes.md@gmail.com

Funding information

Ministry of Science, Innovation, and University of Granada /Consortio de Bibliotecas Universitarias de Andalucía (CBUA)

Abstract

Introduction: Clinical practice guidelines (CPGs) and consensus statements (CSs) are being promoted to provide high-quality healthcare guidance. This systematic review has assessed the breast cancer (BC) screening CPGs and CSs quality and reporting.

Methods: A search of bibliographic databases (MEDLINE, Embase, Web of Science, Scopus and CDSR), 12 guideline databases and 51 professional society websites was performed without language restrictions from January 2017 to June 2020, following prospective registration (Prospero no.: CRD42020203807). AGREE II (% of maximum score) and RIGHT (% of total 35 items) appraised quality and reporting individually, extracting data in duplicate; reviewer agreement was 98% and 93%, respectively.

Results: Forty guidances with median overall quality and reporting 51% (interquartile range [IQR] 39–63) and 48% (IQR 35–65), respectively. Twenty-two (55%) and 20 (50%) did not reach the minimum standards (scores <50%). The guidances that deployed systematic reviews had better quality (74.2% vs. 46.9%; $p = 0.001$) and reporting (80.5% vs. 42.6%; $p = 0.001$). Guidances reporting a tool referral scored better (AGREE II: 72.8% vs. 43.1%, $p = 0.002$; RIGHT: 75.0% vs. 46.9%, $p = 0.004$).

Conclusion: BC screening CPGs and CSs suffered poor quality and reporting. More than half did not reach the minimum standards. They would improve if systematic reviews were used to underpin the recommendations made.

Abbreviations: ABS, Association of Breast Surgery; ABSI, Association of Breast Surgeons of India; ACOG, American College of Obstetricians and Gynecologists; ACP, American College of Physicians; ACR, American College of Radiology; ACS, American Cancer Society; AEC, Asociación Española de Cirugía; AGO, Arbeitsgemeinschaft Gynäkologische Onkologie; AJR, American Journal of Radiology; ASBS, American Society of Breast Surgeons; BBDS, Brazilian Breast Disease Society; BCRDI, Brazilian College of Radiology and Diagnostic Imaging; BFGOA, Brazilian Federation of Gynecological and Obstetrical Associations; CACA, China Anti-Cancer Association; CADTH, Canadian Agency for Drugs and Technologies in Health; CCO, Cancer Care Ontario; CJCRNC, Chinese Journal of Cancer Research; CPGs, clinical practice guidelines; CSs, consensus statements; CTF, Canadian Task Force; ESMO, European Society for Medical Oncology; ESO, European Society of Oncology; Eusoma, European Society of Breast Cancer Specialists; HIS, Healthcare improvement Scotland; IETS, Instituto de Evaluación Tecnológica en Salud; INC, Instituto Nacional de Cancerología; INCJA, Instituto Nacional de Cáncer José Alencar Gomes da Silva; J BCS, Japanese Breast Cancer Society; JACR, Journal of the American College of Radiology; MHM, Ministry of Health Malaysia; NCA, Breast Expert Advisory Group/Northern Cancer Alliance; NCCN, National Comprehensive Cancer Network; NCRCC, National Clinical Research Center for Cancer; NEJM, New England Journal of Medicine; NHCPRC, National Health Commission of the People's Republic of China; NHS, National Health Service; NICE, National Institute for Health and Care Excellence; PHE, Public Health England; RCR, Royal College of Radiologists; SEAP, Sociedad Española de Anatomía Patológica; SEDIM, Sociedad Española de Diagnóstico por Imagen de la Mama; SEGO, Sociedad Española de Ginecología y Obstetricia; SEMNIM, Sociedad Española de Medicina Nuclear e Imagen Molecular; SEOM, Sociedad Española de Oncología Médica; SEOR, Sociedad Española de Oncología Radioterápica; SESPM, Sociedad Española de Senología y Patología Mamaria; SSM, Secretaría de Salud de México; UHW, University Hospital of Würzburg.

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2021 The Authors. *European Journal of Cancer Care* published by John Wiley & Sons Ltd.

KEYWORDS

AGREE II, breast cancer screening, clinical practice guidelines, consensus statements, quality, RIGHT

1 | INTRODUCTION

Breast cancer (BC) is the most common cancer in women with an incidence of 2 million cases and 15% (670,000) of global cancer deaths per year (Bray et al., 2018; Ministry of Health, Social Services and Equality, 2013; World Health Organization, 2019). Morbidity and survival have decreased in the last years due to the early detection with more effective and efficient treatments (Loberg et al., 2015; NHS, 2018). Nonetheless, BC screening can be irksome and expensive (Loberg et al., 2015); false negatives could delay BC diagnosis, and false positives may conduct unnecessary procedures (Morris et al., 2015; Welch & Black, 2010). These false-positive outcomes have generated a debate about the efficacy of BC screening and over-treatment (Loberg et al., 2015; Welch & Black, 2010). Doctors often do not take into account wishes and the psychological harm of women in screening (Sicsic et al., 2018).

Clinical practice guidelines (CPGs) and consensus statements (CS) are being promoted to provide guidance for high-quality effective healthcare (Browman et al., 2003; Field & Lohr, 1990; Grimshaw & Russell, 1993; Woolf et al., 1999). CPGs and CSs should be well informed, implementing factual advances to evidence analysis to build advice (Grimshaw & Russell, 1993; Grol, 2001). We did not find previous reviews of the quality and reporting in BC screening guidelines. However, necessity of studying the quality and reporting has been spotlighted to identify a worthy guideline (Booth, 2016). Further, it has been recognised the necessity of examining the quality and reporting as different issues but related (Yao et al., 2020). The first handles with questions of the validity of the recommendations made, whereas the second examines the rigour of the presentation of the document prepared. Accordingly, there is a need for evaluation of recently published guidance documents (Wouters et al., 2010).

The main objective of this systematic review was to assess the quality and reporting of CPGs and CSs for BC screening, appraising them with validated instruments and focusing on the method utilised for evidence analysis.

2 | METHODS

A systematic review was developed following Prospero protocol no.: CRD42020203807. It was reported following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses statement (Liberati et al., 2009; Moher et al., 2009).

2.1 | Data sources and searches

This systematic literature review included CPGs and CSs published from 2017 until 23 August 2020, using MeSH terms 'practice

Key summary points

- Clinical practice guidelines (CPGs) and consensus (CSs) in breast cancer treatment have presented poor quality and reporting, and more than half of them did not reach the minimum standards of care.
- The quality and reporting of CPGs and CSs recommendations should be improved, underpinned by systematic reviews.
- AGREE II and RIGHT assessment tools should be followed for assessing high-quality guidances.

guidelines', 'guidelines', 'consensus', 'breast neoplasms', 'breast cancer', 'screening' and including word alternatives. Important online databases (Embase, Web of Science, MEDLINE, Scopus, Cochrane Database of Systematic Reviews, etc.), 84 websites of relevant professional societies, 12 guidance-specific databases and the World Wide Website were sought to include guidance that met the selection criteria (Appendix S1). We also checked the references of the included CPGs and CSs if there were additional eligible guideline documents. We have chosen a 3-year time window following a recent systematic review of the literature indications; most of the methodological guidance manuals for updating guidelines determined that its update should be done in <3 years (Vernooij et al., 2014). We only incorporated in the analysis of professional societies from countries with a global BC's scientific yield >0.5%, a decision in line with previous peer-reviewed published studies (Maes-Carballo, Mignini, et al., 2020; Maes-Carballo, Munoz-Nunez, et al., 2020). Scopus was searched on 10 July 2020 to estimate the scientific production of each country (23,748 'breast cancer and health' documents).

2.2 | Study selection and data extraction

Published CPGs and CSs about BC screening were considered for inclusion in any language from 2017 onwards. We excluded CPGs and CSs about treatment and diagnosis without screening, old guidelines superseded by updates from the same organisation and CPG and CSs for education and information purposes only. We classified each document as CPG or CS based on its title, subtitle and methods.

Two authors (M. M. C. and L. M.), both specialists in breast pathology, independently considered titles and abstracts for eligibility. Discrepancies were resolved by consensus between M. M. C. and L. M. and a third reviewer (M. M. D.). The full-text assessment was

then done by M. M. C. and L. M. Duplicate articles were identified and removed. The most recent version of the guidelines was incorporated into the review where several updates were found. Duplicated data extraction was obtained independently.

2.3 | Quality and reporting assessment

Two validated appraisal tools, the AGREE II instrument and the RIGHT statement (Appendix S2; Brouwers et al., 2016; Chen et al., 2017), were used to collect data to assess the quality and reporting of the guidances on a data extraction proforma. The quality was understood as the 'reliability that potential development biases have been appropriately addressed and recommendations are internally and externally valid' like in AGREE II. (Brouwers et al., 2010) Twenty-three items were fulfilled according to six domains: scope and purpose (items 1–3), stakeholder involvement (items 4–6), the rigour of development (items 7–14), clarity and presentation (items 15–17), applicability (items 18–21) and editorial independence (items 22 and 23). Each item was scored between 1 (*strongly disagree*; i.e., when there is no important information of the item) and 7 (*strongly agree*; i.e., when there is a fantastic description of the item). Two reviewers' discrepancies on scoring were discussed, and unresolved issues were addressed by a referee. The summing up reviewers' individual scores were used to calculate the 0%–100% domain quality scores and to follow the AGREE II formula supplied in the tool manual (Brouwers et al., 2010).

Furthermore, we calculated an overall guideline assessment as the mean scores of the six standardised domains, and on the basis of the results, a proposal was made: a CPG or CS was 'recommended' when scored >80% (Oh et al., 2014), 'recommended with modifications' if scored 50%–80% and 'not recommended' if <49% (Hoffmann-Esser et al., 2018).

The RIGHT (Chen et al., 2017) statement was used for reporting assessment. Thirty-five items were scored in 1 (reported), 0.5 (partially reported) or 0 (unreported) and were classified into seven domains: basic information (items 1–4), background (items 5–9), evidence (items 10–12), recommendations (items 13–15), review and quality assurance (items 16 and 17), funding, declaration and management of interests (items 18 and 19) and other information (items 20–22). Disagreements were solved by an arbitrator after the two reviewers' discussion. An overall reporting assessment was calculated based on the rate of the total (score >80%: 'well reported'; score = 50%–80%: 'moderate reported'; and score <50%: 'low reported'; Hoffmann-Esser et al., 2018).

2.4 | Data analysis

All analyses were obtained using Stata 15. We have made a descriptive analysis of domain and overall scores. The Kruskal–Wallis test was utilised for comparing results and studying factors that could modify the quality and reporting of guidelines. Statistical significance

was fixed in a $p < 0.05$. The intraclass correlation coefficient (ICC) was calculated for determining consistency among reviewers, and excellent compliance was >0.90 (Koo & Li, 2016).

3 | RESULTS

3.1 | Study selection

The systematic search retrieved 5803 citations: 5714 from online databases (Embase, MEDLINE, Web of Science, Scopus and Trip database) and 89 from secondary provenances (guideline-specific databases, professional societies and the World Wide Web). A total of 5616 publications for not meeting the selection criteria and 146 duplicated guidances were removed. Finally, 35 CPGs ((ABS) AoBS, 2018; (AGO) AGO, 2019a; (AGO) AGO, 2019b; (HIS) HIS, 2018; (RCR) RCoR, 2019; American Cancer Society, 2019; Asociación Española de Cirugía (AEC), 2017; Breast Expert Advisory Group/Northern Cancer Alliance, 2019; Canadian Agency for Drugs and Technologies in Health, 2019; China Anti-Cancer Association, 2019; Ditsch et al., 2020; ESMO, 2019; Fisterra, 2019; Huang et al., 2019; Instituto Nacional de Colombia, 2017; Klarenbach et al., 2018; Mainiero et al., 2017; Migowski, Dias, et al., 2018; Migowski, Silva, et al., 2018; Migowski, Stein, et al., 2018; Ministry of Health Malaysia, 2019; Monticciolo et al., 2018; National Health Commission of the People's Republic of China, 2019; NCCN, 2019; Ontario, 2017; Pinder et al., 2018; Public Health England, 2017, 2019; Practice Bulletin Number 179, 2017; Qaseem et al., 2019; SEGO, SEOR, SEAP, SESPM, SEDIM, SEMNIM, 2017; Sociedad Española de Senología y Patología Mamaria, 2019; Uematsu et al., 2018; UHo, 2018; Urban et al., 2017) and 5 CSs ((ABS) AoBSol, 2017; (ASBS) ASoBS, 2017; Cardoso et al., 2018; The American Society of Breast Surgeons, 2019; Secretaría de Salud de México, 2019; 40 documents) were included for the final review (Table 1). Four CPGs and two CSs were in Spanish and the rest in English. Figure 1 detailed the flow diagram with the study selection process. Reviewer agreement (ICC) was 0.98 in AGREE II and 0.93 in RIGHT, being their correlation score $r = 0.92$ (Appendix S3).

3.2 | Quality assessment

The review of guidances' quality demonstrated a heterogeneous and extensive overall score interval (17%–90%) and a median overall quality of 51.0% (interquartile range [IQR] 39.0–63.0). Appendices S4 and S5 epitomise all the outcomes. There were only 10% (4%) of the guidances classified as 'recommended'; 14 (35%) as 'recommended with modifications' and 22 (55%) as 'not recommended'. The domains' quality was very diverse (Appendix S4). The best-achieved domains (scoring >75%), based on solid evidence, were 1 (scope and purpose) with 19 (48%) guideline documents and 4 (clarity of presentation) with 18 (45%) CPGs and CSs. Domain 5 (applicability) was the worst explained with only two (5%) guidelines scoring >75%. Domain

TABLE 1 Description of the CPGs and CSs ($n = 40$) selected for the systematic review

Name of the CPG	Abbreviated name	Type of document	Country	Year	Entity	Publication in a journal	Version	Evidence analysis	Quality tool referral	Last updated date (months)
1 Breast cancer screening guideline for Chinese women (26)	CACA BC CPG (26)	CPG	China	2019	CACA, NCRCC	<i>Cancer Biol Med</i>	1	Not reported	Not reported	10
2 Interpretation of breast cancer screening guideline for Chinese women (27)	CACA Interpretation CPG (27)	CPG	China	2019	CACA, NCRCC	<i>Cancer Biol Med</i>	1	Not reported	Not reported	8
3 Chinese guidelines for diagnosis and treatment of breast cancer 2018 (28)	Chinese BC diagnosis treatment (28)	CPG	China	2018	NHCPRC	CJCRN	1	Not reported	Not reported	18
4 The Japanese Breast Cancer Society Clinical Practice Guidelines for Breast Cancer Screening and Diagnosis, 2018 Edition (29)	JBCS screening diagnosis CPG (29)	CPG	Japan	2018	JBCS	<i>Breast Cancer</i>	2	Delphy modified technique	Not reported	12
5 Management of breast cancer (3rd edition; 30)	MHM BC (30)	CPG	Malaysia	2019	MHM	Not published	3	Review	AGREE II	13
6 Early breast cancer: ESMO clinical practice guidelines for diagnosis, treatment and follow-up (31)	ESMO BC 2019 (31)	CPG	Europe	2019	ESMO	<i>Annals of Oncology</i>	3	Not reported	Not reported	14
7 AGO recommendations for the diagnosis and treatment of patients with locally advanced and metastatic breast cancer: Update 2020 (32)	AGO LA and MBC 2020 (32)	CPG	Germany	2020	AGO	<i>Breast Care</i>	6	Review	Not reported	3
8 AGO recommendations for the diagnosis and treatment of patients with early breast cancer: Update 2019 (33)	AGO early BC 2019 (33)	CPG	Germany	2019	AGO	<i>Breast Care</i>	5	Review	Not reported	15

TABLE 1 (Continued)

Name of the CPG	Abbreviated name	Type of document	Country	Year	Entity	Publication in a journal	Version	Evidence analysis	Quality tool referral	Last updated date (months)
9	Diagnosis and treatment of patients with primary and metastatic breast cancer (34)	CPG	Germany	2018	AGO	Not published	1	Review	Not reported	32
10	The screening, diagnosis, treatment, and follow-up of breast cancer (35)	CPG	Germany	2018	UHW	<i>Dtsch Arztebl Int</i>	1	Systematic review	Not reported	32
11	Cáncer de mama/breast cancer (36)	CPG	Spain	2017	Fisterra	Not published	3	Not reported	Not reported	38
12	Cirugía de la Mama (37)	CPG	Spain	2017	AEC	Not published	2	Not reported	Not reported	44
13	Manual de Práctica Clínica en Senología. 4ª Edición. 2019 (38)	CPG	Spain	2019	SESPM	Not published	4	Not reported	Not reported	20
14	Oncología SEGO: Cáncer infiltrante de mama. Guías de práctica clínica en cáncer ginecológico y mamario (39)	CPG	Spain	2017	SEGO, SEOM, SEOR, SEAP, SESP, SEDIM, SEMINIM	Not published	1	Review	AGREE II	38
15	Best practise guidelines for surgeons in breast cancer screening (40)	CPG	UK	2018	ABS	Not published	6	Not reported	Not reported	31
16	Breast screening standards (41)	CPG	UK	2018	HIS	Not published	1	Not reported	Not reported	14
17	Breast cancer clinical guidelines (42)	CPG	UK	2019	NCA	Not published	2	Review	Not reported	10
18	NHS breast screening Programme. Failsafe batch guidance (43)	CPG	UK	2019	PHE	Not published	1	Not reported	Not reported	19
19	NHS breast screening Programme. Guidance for breast screening mammographers (44)	CPG	UK	2017	PHE	Not published	3	Not reported	Not reported	33

(Continues)

TABLE 1 (Continued)

Name of the CPG	Abbreviated name	Type of document	Country	Year	Entity	Publication in a journal	Version	Evidence analysis	Quality tool referral	Last updated date (months)
20	Guidance on screening and symptomatic breast imaging. Fourth edition (45)	CPG	UK	2019	RCR	Not published	4	Not reported	Not reported	10
21	NHS breast screening multidisciplinary working group guidelines for the diagnosis and management of breast lesions of uncertain malignant potential on core biopsy (B3 lesions; 46)	CPG	UK	2018	RCR, NHS	<i>Clinical Radiology</i>	1	Review	Not reported	32
22	Screening for breast cancer in average-risk women: A guidance statement from the American College of Physicians (47)	CPG	USA	2019	ACP	<i>Ann Intern Med</i>	1	Review	AGREE II	25
23	Digital tomosynthesis for the screening and diagnosis of breast cancer: Diagnostic accuracy and guidelines (48)	CPG	Canada	2019	CADTH	<i>CADTH</i>	1	Systematic review	AGREE II	69
24	Recommendations on screening for breast cancer in women aged 40–74 years who are not at increased risk for breast cancer (49)	CPG	Canada	2018	CTF	<i>CMAJ</i>	1	Systematic review	Not reported	21
25	Magnetic resonance imaging screening of women at high risk for breast cancer (50)	CPG	Canada	2017	CCO	Not published	3	Systematic review	Not reported	31

TABLE 1 (Continued)

Name of the CPG	Abbreviated name	Type of document	Country	Year	Entity	Publication in a journal	Version	Evidence analysis	Quality tool referral	Last updated date (months)
26 Clinical management guidelines for obstetrician–gynaecologists. Breast cancer risk assessment and screening in average-risk women (51)	ACOG BC screening (51)	CPG	USA	2017	ACOG	ACOG Practice Bulletin.	2	Review	Not reported	37
27 Breast cancer screening and diagnosis. Version 1.2019 (52)	NCCN BC screening (52)	CPG	USA	2019	NCCN	Not published	4	Review	Not reported	16
28 Breast cancer screening in women at higher-than-average risk: Recommendations from the ACR (53)	ACR high-risk BC (53)	CPG	USA	2018	ACR	JACR	1	Review	Not reported	29
29 ACR appropriateness criteria breast cancer screening (54)	ACR criteria BC (54)	CPG	USA	2017	ACR	JACR	1	Review	Not reported	33
30 Breast cancer early detection and diagnosis. Can breast cancer be found early? (55)	ACS BC detection (55)	CPG	USA	2019	ACS	AJR	2	Not reported	Not reported	10
31 Guidelines for early detection of breast cancer in Brazil. I—Development methods (56)	INC BC screening I (56)	CPG	Brazil	2018	INC	Cad. Saúde Pública	1	Review	AGREE II	32
32 Guidelines for early detection of breast cancer in Brazil. II—New national recommendations, main evidence, and controversies (57)	INC BC screening II (57)	CPG	Brazil	2018	INC	Cad. Saúde Pública	1	Review	Not reported	32
33 Guidelines for early detection of breast cancer in Brazil. II—Challenges for implementation (58)	INC BC screening III (58)	CPG	Brazil	2018	INCIA	Cad. Saúde Pública	1	Review	Not reported	32

(Continues)

TABLE 1 (Continued)

Name of the CPG	Abbreviated name	Type of document	Country	Year	Entity	Publication in a journal	Version	Evidence analysis	Quality tool referral	Last updated date (months)
34 Breast cancer screening: Updated Recommendations of the Brazilian College of Radiology and Diagnostic Imaging, Brazilian Breast Disease Society, and Brazilian Federation of Gynaecological and Obstetrical Associations (59)	BCRDI BC screening (59)	CPG	Brazil	2017	BCRDI, BBDS, BFGOA	<i>Thieme Revinter Publicações</i>	1	Review	Not reported	35
35 Guía de práctica clínica (GPC) Para la detección temprana, tratamiento integral, seguimiento y rehabilitación del cáncer de mama (60)	GPC Colombia (60)	CPG	Colombia	2017	IETS	Not published	2	Systematic review	Not reported	44
36 Indian Solutions for Indian Problems—Association of Breast Surgeons of India (ABSI) Practical consensus statement, recommendations, and guidelines for the treatment of breast cancer in India (61)	Indian ABSI CS (61)	CS	India	2017	ABSI	<i>Indian J Surg</i>	1	Consensus method; review	Not reported	38
37 4th ESO-ESMO international consensus guidelines for advanced breast Cancer (ABC 4; 62)	ABC4 (62)	CS	Europe	2018	ESMO, ESO, EUSOMA	<i>The Breast</i>	4	Consensus method, not specified technique	Not reported	25
38 Position statement on screening mammography (63)	ASBS mammography (63)	CS	UK	2019	ASBS	Not published	3	Consensus method; review	Not reported	17
39 Consensus guideline on diagnostic and screening magnetic resonance imaging of the breast (64)	ASBS MRI (64)	CS	USA	2017	ASBS	Not published	1	Consensus method; review	Not reported	37

TABLE 1 (Continued)

Name of the CPG	Abbreviated name	Type of document	Country	Year	Entity	Publication in a journal	Version	Evidence analysis	Quality tool referral	Last updated date (months)
40 Consenso Mexicano sobre diagnóstico y tratamiento del cáncer mamario. Octava revisión. Colina 2019 (65)	GPC México (65)	CS	México	2019	SSM	Not published	7	Nominal group technique	Not reported	20

Abbreviations: ABS, Association of Breast Surgeons of India; ACOG, American College of Obstetricians and Gynecologists; ACR, American College of Radiology; ACS, American Cancer Society; AEC, Asociación Española de Cirugía; AGO, Arbeitsgemeinschaft Gynäkologische Onkologie; AJR, American Journal of Radiology; ASBS, American Society of Breast Surgeons; BBDS, Brazilian Breast Disease Society; BCRDI, Brazilian College of Radiology and Diagnostic Imaging; BFGOA, Brazilian Federation of Gynecological and Obstetrical Associations; CACA, China Anti-Cancer Association; CADTH, Canadian Agency for Drugs and Technologies in Health; CCO, Cancer Care Ontario; CJCRCN, Chinese Journal of Cancer Research; CPGs, clinical practice guidelines; CSs, consensus; ESO, European Society of Oncology; Eusoma, European Society of Breast Cancer Specialists; HIS, Healthcare Improvement Scotland; CTF, Canadian Task Force; IETS, Instituto de Evaluación Tecnológica en Salud; INC, Instituto Nacional de Cancerología; INCJA, Instituto Nacional de Cáncer José Alencar Gomes da Silva; JACR, Journal of the American College of Radiology; JBCS, Japanese Breast Cancer Society; MHM, Ministry of Health Malaysia; NCA, Breast Expert Advisory Group/Northern Cancer Alliance; NCCN, National Comprehensive Cancer Network; NCRCC, National Clinical Research Center for Cancer; NHCPRC, National Health Commission of the People's Republic of China; NHS, National Health Service; PHE, Public Health England; RCR, Royal College of Radiologists; SEAP, Sociedad Española de Anatomía Patológica; SEDIM, Sociedad Española de Diagnóstico por Imagen de la Mama; SEGO, Sociedad Española de Ginecología y Obstetricia; SEMNIM, Sociedad Española de Medicina Nuclear e Imagen Molecular; SEOM, Sociedad Española de Oncología Médica; SEOR, Sociedad Española de Oncología Radioterápica; SESPM, Sociedad Española de Senología y Patología Mamaria; SSM, Secretaría de Salud de México; UHW, University Hospital of Würzburg.

6 (editorial independence) was high scored (>75%) in 10 (25%) CPGs but was very low scored (<25%) in 16 (40%). The health questions were specifically described in 75% of the CPGs and CSs (30/40). More than three parts of the guidances (76%; 31/40) correctly described the end-population to whom they meant to apply. Regarding the clarity of presentation, the recommendations were specific and unambiguous in 77% (32/40); the different options for management of the condition or health issue were clearly presented in 76% (31/40); and the key recommendations were easily identifiable (75%; 30/40). In contrast, the weakest areas of the guidances analysed were about the rigour development. Only a third part of the CPGs and CSs were externally reviewed by experts prior to its publication (34%; 14/40), and even less guidances provided a procedure for updating the guideline (30%; 12/40). See Appendix S6. The higher quality guidelines were the Ministry of Health Malaysia (MHM; Ministry of Health Malaysia, 2019), the American College of Physicians (ACP; Qaseem et al., 2019), Canadian Task Force (CTF; Klarenbach et al., 2018) and Colombian (Instituto Nacional de Colombia, 2017) CPGs (Appendices S4 and S7).

3.3 | Reporting assessment

The reporting overall score range was varied (17%–90%; Appendices S8 and S9), and the median overall reporting achievement was 48% (IQR 35.0–65.0). Half of the CPGs and CSs (20) were classified as 'low reported'. Fifteen (38%) guidelines were 'moderate reported', and only five (13%) were 'well reported'. The diverse reporting in guidelines was summarised in Appendix S8. The results of the domains were very varied that they should be taken with caution. The median of the domain scores was 58% (8%–53%) for domain 1 (basic information), 63% (25%–100%) for domain 2 (background), 50% (0%–100%) for domain 3 (evidence), 50% (7%–100%) for domain 4 (recommendations), 25% (0%–100%) for domain 5 (review and quality assurance), 19 (0%–100%) for domain 6 (funding, declaration and management of interests) and 33% (0%–100%) for domain 7 (other information). More than three parts in (79%; 32/40) of the guidances were well-identified as a guideline, and 91% (36/40) described the focus of the guideline in the title. The primary population and subgroups were specified in 86% (34/40) of the CPGs and CSs. The recommendations were clear, precise and actionable (85%; 33/40) and separated by subgroups if it was needed (85%; 34/40). On the other hand, abbreviations and acronyms were not usually provided (33%; 13/40). The description of the selection and role of the contributors were scarce (25%; 11/40). The resource implications in the formulation of recommendations were usually not studied (29%; 12/40). The description used by the guidances development group to make decisions was not usually described (29%; 12/40). External review (24%; 10/40) and quality assurance (24%; 10/40), funding sources (30%; 12/40) and roles of the funder (31%; 13/40) were not usually adequately described. Finally, the limitations and the external validity of recommendations were not presented appropriately in 30% (12/40) of the guidances. See Appendix S10. The highest reporting compliance guidelines were

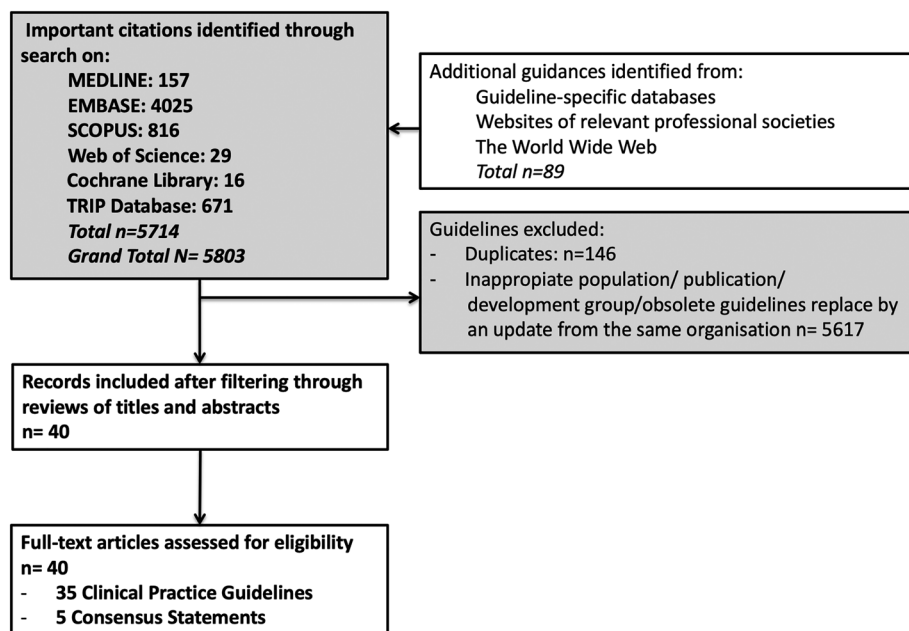


FIGURE 1 The flow diagram detailing the study selection

the MHM (Ministry of Health Malaysia, 2019), the ACP (Qaseem et al., 2019), the CTF (Klarenbach et al., 2018), the Cancer Care Ontario (Ontario, 2017) and the Colombian (Instituto Nacional de Colombia, 2017; Appendices S8 and S11).

3.4 | Variables related to quality and reporting

Although CPGs scored better than CSs in both quality and reporting assessments, the results were not significant (AGREE II: $p = 0.728$; RIGHT: $p = 0.919$). No differences were found between countries (AGREE II: $p = 0.106$; RIGHT: $p = 0.292$), publication year (AGREE II: $p = 0.841$; RIGHT: $p = 0.106$), number of version (AGREE II: $p = 0.486$; RIGHT: $p = 0.770$) or publication in a journal neither. Guidelines based on systematic reviews had better quality (74.2% vs. 46.9%; $p = 0.001$) and reporting than consensus (80.5% vs. 42.6%; $p = 0.001$). The guidances, which reported the following of a quality tool referral, scored better than when it was not reported (AGREE II: 72.8% vs. 43.1%, $p = 0.002$; RIGHT: 75.0% vs. 46.9%, $p = 0.004$). Table 2 summarises all these results.

3.5 | Screening versus treatment guidelines

Analysing screening versus treatment guidelines, the median overall quality was 45.80% (31.88–62.50) versus 53.98% (35.86–74.27), $p = 0.096$, respectively, and the median overall reporting was 49.60% (35.93–68.35) versus 60.93% (44.53–84.37), $p = 0.043$, separately. There was an unequivocal reduction in quality of the screening CPGs and CSs by at least 10% in all domains except domain 5 (for applicability), which have improved, although punctuation had not reached minimal requirements. Studying the reporting in both screening and treatment guideline documents, results were more

similar. Although domains 1 (basic information), 3 (evidence) and 7 (other information) scored worse in screening CPGs and CSs, domains 4 (recommendations), 5 (review and quality assurance) and 6 (funding, declaration and management of interests) were slightly improved. Figure 2 showed a comparison between screening and treatment guidances regarding AGREE II and RIGHT tools.

4 | DISCUSSION

4.1 | Main findings

As in BC treatment guidelines, our current review showed a very diverse quality and reporting between BC screening guidances. More than three quarters of these guidelines could not be endorsed as they are currently presented, so their quality and reporting were even worse than in a complimentary review by our team about the quality and reporting of BC treatment CPGs and CSs (Maes-Carballo, Mignini, et al., 2020). Studying the methods of evidence analysis, the guideline documents that deployed systematic reviews had better quality and reporting. CSs had worse quality and reporting, less editorial independence and higher risks of bias than CPGs. The reporting of the quality tool referral use as AGREE II or RIGHT during the guidance elaboration improved quality and reporting.

Screening guidances had lower quality than treatment CPGs and CSs in all the domains except for applicability, although it remains poor. Rigour of development and editorial independence scored very low. The health questions, the end-population applied, the clarity and identification of the different recommendations were well described in more than three parts of the guidances. However, the external review and the updating procedure were specified in less than a third. Treatment and screening CPGs and CSs reporting results were more similar. Recommendations, review, quality

TABLE 2 Variables related to the quality and reporting of CPGs and CSs

Variable	AGREE II			RIGHT		
	Median (%)	IQR	p value	Median (%)	IQR	p value
Type of document						
CPGs	44.2	31.2–63.1	0.728	50.0	35.9–69.5	0.919
CSs	47.1	46.7–51.1		43.0	42.1–59.4	
Country						
USA	75.7	27.5–51.5	0.106	46.5	35.9–57.8	0.292
Europe	45.1	39.5–74.3		49.2	42.2–85.2	
Other countries	55.1	34.1–63.1		59.4	35.9–70.3	
Publication year						
2017	51.1	30.1–72.8	0.841	71.9	44.5–90.6	0.106
2018	44.2	34.1–63.1		60.9	35.9–76.6	
2019–2020	40.9	31.7–53.3		58.2	48.4–83.2	
Publication in a journal						
Yes	51.3	38.8–63.1	0.248	55.9	38.3–69.5	0.271
No	38.4	27.5–53.6		42.6	33.6–67.2	
Version number						
1	48.9	36.7–65.1	0.486	51.2	35.2–68.4	0.770
2	33.2	23.9–54.3		43.0	35.9–50.8	
3 or more	45.1	30.1–53.6		52.0	35.9–71.1	
Evidence analysis						
Consensus	46.9	34.1–51.1	0.001	42.6	35.9–59.4	0.001
Not reported	27.5	23.5–31.5		33.6	25.0–38.3	
Review	52.9	42.2–62.5		55.9	48.8–69.9	
Systematic review	74.2	70.3–76.1		80.5	75.0–85.2	
Quality tool referral						
Reported	72.8	70.2–83.0	0.002	75.0	69.5–89.8	0.004
Not reported	43.1	31.1–53.6		46.9	35.9–61.7	

Abbreviations: CPGs, clinical practice guidelines; CSs, consensus; IQR, interquartile range.

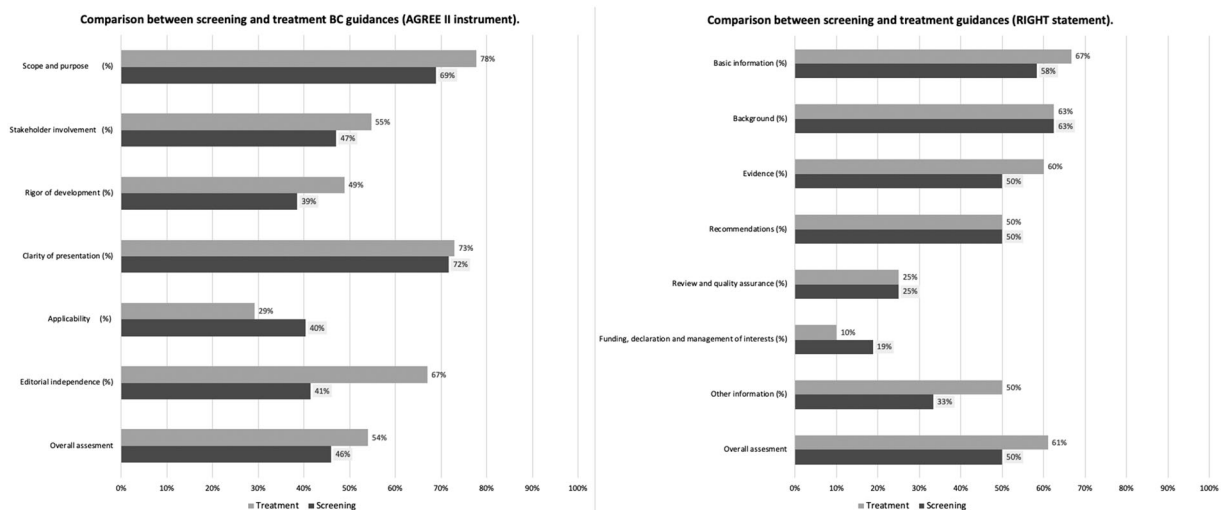


FIGURE 2 Comparison between screening and treatment guidance documents. Abbreviation: BC, breast cancer

assurance and funding, declaration and management of interests improved slightly, whereas basic information, evidence and other information scored worse.

More than three parts of the guidances were well identified and described the aim in the title; the primary population and subgroups were well-specified, and recommendations were clear and separated by subgroups if it was needed. On the other hand, in more than three parts, abbreviations and acronyms were not usually provided; the selection criteria and role of the contributors were also scarce; the development decisions were not usually described; and the external review, the quality assurance and the funding sources were not adequately described. Finally, limitations and external validity of the recommendations were not presented appropriately.

4.2 | Strengths and limitations

This non-language-restriction systematic review gave a broad view of the screening scenario guidance literature with a big large number of CPGs and CSs. Being English and Spanish the most widely spoken languages (Amano et al., 2016), most of the societies (China Anti-Cancer Association, 2019; Huang et al., 2019; National Health Commission of the People's Republic of China, 2019; Uematsu et al., 2018; Ditsch et al., 2020; (AGO) AGO, 2019a; Migowski, Stein, et al., 2018; Migowski, Silva, et al., 2018; Migowski, Dias, et al., 2018; Urban et al., 2017; (AGO) AGO, 2019c presented guideline versions in English and Spanish. One strength of this review is that the authors were fluent in both. Two well-developed assessment tools, AGREE II instrument (Brouwers et al., 2016) and RIGHT statement (Chen et al., 2017) were used to assess quality and reporting. To our knowledge, there were no other appraisals of BC screening guidelines applying both AGREE II and RIGHT. AGREE II is an instrument to measure the quality of the guidelines, whereas RIGHT studies the reporting. However, some of their items overlap (the general and specific aims, the target population and end-users of guidances, the use of systematic reviews to generate recommendations, the evidence and feasibility of these and the editorial independence). See Appendix S2. As previously mentioned (Maes-Carballo, Mignini, et al., 2020), this review demonstrated a correlation between quality and reporting of the CPG or CSs. As any other tools, AGREE II have inherent limitations. It did not include statement of the patient's values and preferences, and they did not measure the strength of the recommendations, which are also recognised as important components to guideline quality.

The subjective character of the data extraction concerning quality and reporting domains and items can be taken as a possible weakness of our review as it may confer bias. For reducing this problem, we chose two experienced BC specialist clinicians who studied the appraisal tool manuals and set up a common comprehension of the grading procedure before the duplicate analysis was undertaken. An independent arbitrator was assigned to solve diversions between reviewers within the individual items, although his work was minimal as the reviewer agreement was excellent (ICC > 90%).

There is a lack of clear rules on the domain and item weighting in scoring tool manuals (Alonso-Coello et al., 2010), so the overall assessments calculated in our review may have limitations. The RIGHT statement (Chen et al., 2017) indicates avoiding obtaining an average score in each guide because it is not clear that the items could be weighted equitably, and a resume score could reduce the quality of the analysis. However, we find them useful to make a comparison between guides because they facilitate in a simplified way to be able to know in which areas CPGs and CSs have remarkable results and in which they do not. It permits to show if there is a correlation between quality and reporting in each guide. There are no thresholds provided to classify high, moderate and poor quality and reporting in the AGREE II (Brouwers et al., 2016) or RIGHT (Chen et al., 2017) manuals. However, we have used formerly published cut-offs (Hoffmann-Esser et al., 2018; Maes-Carballo, Mignini, et al., 2020; Oh et al., 2014) for easier and powerful analysis. We would recommend caution in interpretation as global scores may vary among recommended guides because the domains do not weigh equally in their contribution towards overall quality and reporting.

The CPGs and CSs included were from 2017 onwards, so there is a possibility that some guidelines from distinguished organisations might be excluded. A recent systematic review revealed that updates should be done in <3 years, supporting the choice of our search time threshold (Vernooij et al., 2014). Even though we only included CPGs and CSs, which met all the inclusion criteria, there was diversity between CPGs and CSs included in our review. This is an important observation, and this type of heterogeneity may be inevitable as the guidelines diverge in their development, structure, context, objectives and so forth (Pentheroudakis et al., 2008). Therefore, considering the strengths of our review, the deficient quality and reporting of the guidance documents, the lack of use of systematic reviews for the synthesis of evidence and the almost non-existent following of tools for quality and reporting improvement during their writing are powerful observations.

4.3 | Implications

Quality and reporting in BC screening guidelines have not been systematically analysed previously. As we have stated before, the classification of documents selected into CPG or CS was based on their titles, subtitles and methods as reported by the authors. CPGs are ideally based on a systematic review of current evidence ((IOM) IoM, 2011), although this practice is not universal. A CS is typically developed by an independent panel of experts, generally multi-disciplinary, convened to review the evidence-based literature on a specific procedure but with a lower and less strict development methodology (Jacobs et al., 2014). CSs are generally intended for controversial areas of breast management (where the evidence is still incomplete), and recommendations are based on the perspective of experts. Therefore, they are more likely to have less editorial independence and endorse a specific product with lower quality and higher risks of bias (Jacobs et al., 2014). The avoidance of a systematic

review to collate evidence in a CS is a serious methodological deficiency that predisposes them to bias.

This review observed that there was a large scope of improvement even for CPGs and CSs with high overall scores as all have deficient areas. On the other hand, our team had been working in a complementary study (Maes-Carballo, Mignini, et al., 2020) about analysis of quality and reporting in BC treatment guidelines, so both studies, with more than 100 guideline documents analysed, have been correlated in the present article. The analysis of these two aspects of BC care management allowed obtaining a broad vision of all process peculiarities and confronting the weaknesses of each one. Comparing the screening versus treatment guidelines, there is a clear decrease in quality in all the domains except for domain 5 (applicability), which have improved, although punctuation was still poor. Domains 3 (rigour of development), 5 (applicability) and 6 (editorial independence) scored very low. So main goals should be direct to improve all these domains and especially to provide a clear and efficient procedure for updating the guideline (item 13) and to settle an external review by experts (item 14; Appendix S6). Regarding the reporting in guidelines, results between treatment and screening CPGs and CSs were more comparable. Besides domains 4 (recommendations), 5 (review and quality assurance) and 6 (funding, declaration and management of interests) were slightly improved, domains 1 (basic information), 3 (evidence) and 7 (other information) scored worse. New efforts have to be directed to improve these weak areas, particularly describing the selection of all the contributors and their roles (item 9a), specifying the process of formulating a recommendation (item 15), and if costs and resources were considered (item 14b), explaining if there were an external review (item 16) and a quality assessment (item 17) and describing the founding sources (items 18a and 18b) and the limitations of the process (item 22; Appendix S10). Only five CPGs and no CSs have specified the following of AGREE II (Brouwers et al., 2010; Brouwers et al., 2016) instrument in their development, although RIGHT statement (Chen et al., 2017) was never used. There is still a discussion on the cut-off points to define tolerable scores and the weighting of the items and domains. As has been highlighted before, this question should be confronted in future researches. More studies should be also needed to measure the quality of the recommendations. One suggestion to address this issue should be to investigate the similarity of the cited articles supporting the recommendations and compare the differences of direction (favour or against) and strength (strong or weak) of recommendations between guidelines of higher and lower quality and between guidelines and CSs. Nowadays, where the search for quality patient care is a must, it could not be permissible or justifiable that some guidances do not even meet the basic quality and reporting criteria. These deficiencies decrease the quality of healthcare provider.

5 | CONCLUSIONS

CPGs and CSs in BC screening had poor quality and reporting, and more than half of them did not reach the minimum standards. Quality

and reporting would improve if systematic reviews were used to underpin the recommendations made. Therefore, it would be necessary to make greater efforts to meet the quality and reporting criteria of well-known tools such as AGREE II and RIGHT. This review also found that BC screening CPGs and CSs had slightly worse quality and a significantly lower score for reporting than BC treatment guidances.

ACKNOWLEDGEMENTS

KSK is a Distinguished Investigator funded by the Beatriz Galindo (senior modality) Program grant given to the University of Granada by the Ministry of Science, Innovation, and Universities of the Spanish Government. We want to also thank the University of Granada /CBUA.

CONFLICT OF INTEREST

The authors declare no competing financial interests exist.

DATA AVAILABILITY STATEMENT

The authors confirm that the data supporting the findings of this study are available within the article and its supplementary materials. Other supplementary materials can be accessed upon request via email to the corresponding authors of this review.

ORCID

Marta Maes-Carballo  <https://orcid.org/0000-0002-4852-5100>

REFERENCES

- (ABS) AoBS. (2018). Best practise guidelines for surgeons in breast cancer screening.
- (ABS) AoBSol. Indian solutions for Indian problems—Association of Breast Surgeons of India (ABS) Practical consensus statement, recommendations, and guidelines for the treatment of breast cancer in India. 2017
- (AGO) AGO. AGO recommendations for the diagnosis and treatment of patients with advanced and metastatic breast cancer: Update 2019. 2019a
- (AGO) AGO. Diagnosis and treatment of patients with primary and metastatic breast cancer. 2019b
- (AGO) AGO. Recommendations for the diagnosis and treatment of patients with early breast cancer: Update 2019. 2019c
- (ASBS) ASoBS. Consensus guideline on diagnostic and screening magnetic resonance imaging of the breast. 2017
- (HIS) HiS. Breast screening standards 2018
- (IOM) IoM. (2011). *Clinical practice guidelines we can trust*. <https://www.ncbi.nlm.nih.gov/books/NBK209539/>
- (RCR) Royal College of Radiologist. (2019). *Guidance on screening and symptomatic breast imaging* (Fourth ed.). https://www.rcr.ac.uk/system/files/publication/field_publication_files/bfcr199-guidance-on-screening-and-symptomatic-breast-imaging.pdf
- Alonso-Coello, P., Irfan, A., Sola, I., Gich, I., Delgado-Noguera, M., Rigau, D., Tort, S., Bonfill, X., Burgers, J., & Schunemann, H. (2010). The quality of clinical practice guidelines over the last two decades: A systematic review of guideline appraisal studies. *Quality & Safety in Health Care*, 19(6), e58. <https://doi.org/10.1136/qshc.2010.042077>
- American Cancer Society. (2019). *Breast cancer early detection and diagnosis. Can breast cancer be found early?* <https://www.cancer.org/cancer/breast-cancer/screening-tests-and-early-detection/american-cancer-society-recommendations-for-the-early-detection-of-breast-cancer>.

- html#:~:text=Mammograms%20are%20low%2Ddose%20x,years%20before%20physical%20symptoms%20develop
- Amano, T., Gonzalez-Varo, J. P., & Sutherland, W. J. (2016). Languages are still a major barrier to global science. *PLoS Biology*, 14(12), e2000933. <https://doi.org/10.1371/journal.pbio.2000933>
- Asociación Española de Cirugía (AEC). (2017). *Cirugía de la Mama [breast surgery]*. <https://www.aecirujanos.es/files/documentacion/documentos/cirugia-mama.pdf>
- Booth, A. (2016). Searching for qualitative research for inclusion in systematic reviews: A structured methodological review. *Systematic Reviews*, 5, 74. <https://doi.org/10.1186/s13643-016-0249-x>
- Bray, F., Ferlay, J., Soerjomataram, I., Siegel, R. L., Torre, L. A., & Jemal, A. (2018). Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: a Cancer Journal for Clinicians*, 68(6), 394–424. <https://doi.org/10.3322/caac.21492>
- Breast Expert Advisory Group/Northern Cancer Alliance. (2019). *NCA breast cancer clinical guidelines*. <https://www.northerncanceralliance.nhs.uk/wp-content/uploads/2019/02/NCA-Breast-Cancer-Guidelines-v2-10.pdf>
- Brouwers, M. C., Kerkvliet, K., Spithoff, K., & Consortium ANS. (2016). The AGREE reporting checklist: A tool to improve reporting of clinical practice guidelines. *BMJ*, 352, i1152. <https://doi.org/10.1136/bmj.i1152>
- Brouwers, M. C., Kho, M. E., Brouman, G. P., Burgers, J. S., Cluzeau, F., Feder, G., Fervers, B., Graham, I. D., Grimshaw, J., Hanna, S. E., Littlejohns, P., Makarski, J., Zitzelsberger, L., & AGREE Next Steps Consortium. (2010). AGREE II: Advancing guideline development, reporting, and evaluation in health care. *Preventive Medicine*, 51(5), 421–424. <https://doi.org/10.1016/j.ypmed.2010.08.005>
- Brouman, G. P., Snider, A., & Ellis, P. (2003). Negotiating for change. The healthcare manager as catalyst for evidence-based practice: Changing the healthcare environment and sharing experience. *Healthcare Papers*, 3(3), 10–22. <https://doi.org/10.12927/hcpap.17125>
- Canadian Agency for Drugs and Technologies in Health. (2019). *Digital tomosynthesis for the screening and diagnosis of breast cancer: Diagnostic accuracy and guidelines*. <https://www.ncbi.nlm.nih.gov/books/NBK551874/>
- Cardoso, F., Senkus, E., Costa, A., Papadopoulos, E., Aapro, M., André, F., Harbeck, N., Lopez, B. A., Barrios, C. H., Bergh, J., Biganzoli, L., Boers-Doets, C. B., Cardoso, M. J., Carey, L. A., Cortés, J., Curigliano, G., Diéras, V., El Saghier, N. S., Eniu, A., ... Winer, E. P. (2018). 4th ESO-ESMO international consensus guidelines for advanced breast cancer (ABC 4) dagger. *Annals of Oncology*, 29(8), 1634–1657. <https://doi.org/10.1093/annonc/mdy192>
- Chen, Y., Yang, K., Marusic, A., Qaseem, A., Meerpohl, J. J., Flottorp, S., Akl, E. A., Schünemann, H. J., Chan, E. S. Y., Falck-Ytter, Y., Ahmed, F., Barber, S., Chen, C., Zhang, M., Xu, B., Tian, J., Song, F., Shang, H., Tang, K., ... for the RIGHT (Reporting Items for Practice Guidelines in Healthcare) Working Group. (2017). A reporting tool for practice guidelines in health care: The RIGHT statement. *Annals of Internal Medicine*, 166(2), 128–132. <https://doi.org/10.7326/M16-1565>
- China Anti-Cancer Association. (2019). Breast cancer screening guideline for Chinese women. *Cancer Biology & Medicine*, 16(4), 822–824. <https://doi.org/10.20892/j.issn.2095-3941.2019.0321>
- Ditsch, N., Untch, M., Kolberg-Liedtke, C., Jackisch, C., Krug, D., Friedrich, M., Janni, W., Müller, V., Albert, U.-S., Banys-Paluchowski, M., Bauerfeind, I., Blohmer, J.-U., Budach, W., Dall, P., Diel, I., Fallenberg, E. M., Fasching, P. A., Fehm, T., Gerber, B., ... Thill, M. (2020). AGO recommendations for the diagnosis and treatment of patients with locally advanced and metastatic breast cancer: Update 2020. *Breast Care (Basel)*, 15(3), 294–309. <https://doi.org/10.1159/000508736>
- ESMO. (2019). Early breast cancer: ESMO clinical practice guidelines for diagnosis, treatment and follow-up. *Annals of Oncology*, 30(8), 1194–1220.
- Field, M. J., & Lohr, K. N. (Eds.). (1990). *Clinical practice guidelines: Directions for a new program*. <https://doi.org/10.17226/1626>
- Fisterra. (2019). *Cáncer de mama/breast cancer*. <https://www.fisterra.com/guias-clinicas/cancer-mama/>
- Grimshaw, J. M., & Russell, I. T. (1993). Effect of clinical guidelines on medical practice: A systematic review of rigorous evaluations. *Lancet*, 342(8883), 1317–1322. [https://doi.org/10.1016/0140-6736\(93\)92244-n](https://doi.org/10.1016/0140-6736(93)92244-n)
- Grol, R. (2001). Successes and failures in the implementation of evidence-based guidelines for clinical practice. *Medical Care*, 39(8 Suppl 2), II46–II54. <https://doi.org/10.1097/00005650-200108002-00003>
- Hoffmann-Esser, W., Siering, U., Neugebauer, E. A. M., Lampert, U., & Eikermann, M. (2018). Systematic review of current guideline appraisals performed with the Appraisal of Guidelines for Research & Evaluation II instrument—A third of AGREE II users apply a cut-off for guideline quality. *Journal of Clinical Epidemiology*, 95, 120–127. <https://doi.org/10.1016/j.jclinepi.2017.12.009>
- Huang, Y., Tong, Z., Chen, K., Wang, Y., Liu, P., Gu, L., Liu, J., Yu, J., Song, F., Zhao, W., Shi, Y., Li, H., Xiao, H., & Hao, X. (2019). Interpretation of breast cancer screening guideline for Chinese women. *Cancer Biology & Medicine*, 16(4), 825–835. <https://doi.org/10.20892/j.issn.2095-3941.2019.0322>
- Instituto Nacional de Colombia. (2017). *Guía de práctica clínica (GPC) para la detección temprana, tratamiento integral, seguimiento y rehabilitación del cáncer de mama. [Clinical practice guide (CPG) for the early detection, comprehensive treatment, follow-up and rehabilitation of breast cancer]*. <https://www.minsalud.gov.co/sites/rid/1/Gu%C3%ADa%20de%20Pr%C3%A1ctica%20Cl%C3%ADnica%20de%20Cancer%20de%20Mama%20versi%C3%B3n%20completa.pdf>
- Jacobs, C., Graham, I. D., Makarski, J., Chassé, M., Fergusson, D., Hutton, B., & Clemons, M. (2014). Clinical practice guidelines and consensus statements in oncology—An assessment of their methodological quality. *PLoS ONE*, 9(10), e110469. <https://doi.org/10.1371/journal.pone.0110469>
- Klarenbach, S., Sims-Jones, N., Lewin, G., Singh, H., Thériault, G., Tonelli, M., Doull, M., Courage, S., Garcia, A. J., & Thombs, B. D. (2018). Recommendations on screening for breast cancer in women aged 40–74 years who are not at increased risk for breast cancer. *CMAJ*, 190(49), E1441–E1451. <https://doi.org/10.1503/cmaj.180463>
- Koo, T. K., & Li, M. Y. (2016). A guideline of selecting and reporting intraclass correlation coefficients for reliability research. *Journal of Chiropractic Medicine*, 15(2), 155–163. <https://doi.org/10.1016/j.jcm.2016.02.012>
- Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P. A., Clarke, M., Devereaux, P. J., Kleijnen, J., & Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: Explanation and elaboration. *Annals of Internal Medicine*, 151(4), W65–W94. <https://doi.org/10.7326/0003-4819-151-4-200908180-00136>
- Loberg, M., Lousdal, M. L., Bretthauer, M., & Kalager, M. (2015). Benefits and harms of mammography screening. *Breast Cancer Research*, 17, 63. <https://doi.org/10.1186/s13058-015-0525-z>
- Maes-Carballo, M., Mignini, L., Martin-Diaz, M., Bueno-Cavanillas, A., & Khan, K. S. (2020). Quality and reporting of clinical guidelines for breast cancer treatment: A systematic review. *Breast*, 53, 201–211. <https://doi.org/10.1016/j.breast.2020.07.011>
- Maes-Carballo, M., Muñoz-Núñez, I., Martin-Diaz, M., Mignini, L., Bueno-Cavanillas, A., & Khan, K. S. (2020). Shared decision making in breast cancer treatment guidelines: Development of a quality assessment tool and a systematic review. *Health Expectations*, 23(5), 1045–1064. <https://doi.org/10.1111/hex.13112>
- Mainiero, M. B., Lourenco, A., Mahoney, M. C., Newell, M. S., Bailey, L., Barke, L. D., D'Orsi, C., Harvey, J. A., Hayes, M. K., Huynh, P. T.,

- Jokich, P. M., Lee, S.-J., Lehman, C. D., Mankoff, D. A., Nepute, J. A., Patel, S. B., Reynolds, H. E., Sutherland, M. L., & Haffty, B. G. (2017). *ACR appropriateness criteria breast cancer screening*. (1558-349X [Electronic]). <https://doi.org/10.1016/j.jacr.2017.08.044>
- Migowski, A., Silva, G. A. E., Dias, M. B. K., Diz, M., DR, S.' A., & Nadanovsky, P. (2018). Guidelines for early detection of breast cancer in Brazil. II—New national recommendations, main evidence, and controversies. *Cadernos de Saúde Pública*, 34(6), e00074817. <https://doi.org/10.1590/0102-311X00074817>
- Migowski, A., Dias, M. B. K., Nadanovsky, P., Silva, G. A. E., Sant'Ana, D. R., & Stein, A. T. (2018). Guidelines for early detection of breast cancer in Brazil. III—Challenges for implementation. *Cadernos de Saúde Pública*, 34(6), e00046317. <https://doi.org/10.1590/0102-311X00046317>
- Migowski, A., Stein, A. T., Ferreira, C. B. T., Ferreira, D., & Nadanovsky, P. (2018). Guidelines for early detection of breast cancer in Brazil. I—Development methods. *Cadernos de Saúde Pública*, 34(6), e00116317. <https://doi.org/10.1590/0102-311X00116317>
- Ministry of Health Malaysia. (2019). *Management of breast cancer* (3rd ed.). <https://www.acadmed.org.my>
- Ministry of Health, Social Services and Equality. (2013). *Cancer care units. Quality and safety standards and recommendations*. Ministry of Health, Social Services and Equality.
- Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & Group P. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *Open Medicine*, 3(3), e123–e130. <https://doi.org/10.1371/journal.pmed.1000097>
- Monticciolo, D. L., Newell, M. S., Moy, L., Niell, B., Monsees, B., Sickles, E. A. (2018). Breast cancer screening in women at higher-than-average risk: Recommendations from the ACR. *Journal of the American College of Radiology*, 15(3), 408–414. <https://doi.org/10.1016/j.jacr.2017.11.034>
- Morris, E., Feig, S. A., Drexler, M., & Lehman, C. (2015). Implications of overdiagnosis: Impact on screening mammography practices. *Population Health Management*, 18(Suppl 1), S3–S11. <https://doi.org/10.1089/pop.2015.29023.mor>
- National Health Commission of the People's Republic of China. (2019). Chinese guidelines for diagnosis and treatment of breast cancer 2018 (English version). *Chinese Journal of Cancer Research*, 31(2), 259–277. <https://doi.org/10.21147/j.issn.1000-9604.2019.02.02>
- NCCN. (2019). *Breast cancer screening and diagnosis. Version 1.2019*. <https://www2.tri-kobe.org/nccn/guideline/breast/english/breast-screening.pdf>
- NHS (National Health Service). (2018). *Breast cancer screening: Overview, benefits and risks, when it's offered, what happens, your results*. <https://www.nhs.uk/conditions/breast-cancer-screening/>
- Oh, M. K., Jo, H., & Lee, Y. K. (2014). Improving the reliability of clinical practice guideline appraisals: Effects of the Korean AGREE II scoring guide. *Journal of Korean Medical Science*, 29(6), 771–775. <https://doi.org/10.3346/jkms.2014.29.6.771>
- Ontario, C. C. Magnetic resonance imaging screening of women at high risk for breast cancer. 2017
- Pentheroudakis, G., Stahel, R., Hansen, H., & Pavlidis, N. (2008). Heterogeneity in cancer guidelines: Should we eradicate or tolerate? *Annals of Oncology*, 19(12), 2067–2078. <https://doi.org/10.1093/annonc/mdn418>
- Pinder, S. E., Shaaban, A., Deb, R., Desai, A., Gandhi, A., Lee, A. H. S., Pain, S., Wilkinson, L., & Sharma, N. (2018). NHS breast screening multidisciplinary working group guidelines for the diagnosis and management of breast lesions of uncertain malignant potential on core biopsy (B3 lesions). *Clinical Radiology*, 73(8), 682–692. <https://doi.org/10.1016/j.crad.2018.04.004>
- Practice Bulletin Number 179. (2017). Breast cancer risk assessment and screening in average-risk women. *Obstetrics and Gynecology*, 130(1), e1–e16. <https://doi.org/10.1097/aog.0000000000002158>
- Public Health England. (2017). *NHS breast screening programme. Guidance for breast screening mammographers*. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/819410/NHS_Breast_Screening_Programme_Guidance_for_mammographers_final.pdf
- Public Health England. (2019). *NHS breast screening programme. Failsafe batch guidance*. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/780225/NHS_Breast_Screening_Programme_Failsafe_Batch_Guidance.pdf
- Qaseem, A., Lin, J. S., Mustafa, R. A., Horwitch, C. A., Wilt, T. J., & Clinical Guidelines Committee of the American College of P. (2019). Screening for breast cancer in average-risk women: A guidance statement from the American College of Physicians. *Annals of Internal Medicine*, 170(8), 547–560. <https://doi.org/10.7326/M18-2147>
- Secretaría de Salud de México. *Consenso Mexicano sobre diagnóstico y tratamiento del cáncer mamario*. 2019. http://consensocancermamario.com/documentos/FOLLETO_CONSENSO_DE_CANCER_DE_MAMA_8aRev2019a.PDF
- SEGO, SEOR, SEAP, SESPM, SEDIM, SEMNIM. (2017). *Oncoguía SEGO: Cáncer infiltrante de mama. Guías de práctica clínica en cáncer ginecológico y mamario*. <https://www.semnim.es/wp-content/uploads/2019/07/349.pdf>
- Sicsic, J., Pelletier-Fleury, N., & Moumjid, N. (2018). Women's benefits and harms trade-offs in breast cancer screening: Results from a discrete-choice experiment. *Value in Health*, 21(1), 78–88. <https://doi.org/10.1016/j.jval.2017.07.003>
- Sociedad Española de Senología y Patología Mamaria. (2019). *Manual de Práctica Clínica en Senología*. (4ª Edición ed.). [Manual of Clinical Practice in Senology. 4th Edition. 2019]. 2019. <https://www.sespm.es/wp-content/uploads/2020/02/MANUAL-SESPM-2019-web-prottegido.pdf>
- The American Society of Breast Surgeons. (2019). *Position statement on screening mammography*. <https://www.breastsurgeons.org/docs/statements/Position-Statement-on-Screening-Mammography.pdf>
- Uematsu, T., Nakashima, K., Kikuchi, M., Kubota, K., Suzuki, A., Nakano, S., Hirokaga, K., Yamaguchi, K., Saji, S., & Iwata, H. (2018). The Japanese Breast Cancer Society Clinical Practice Guidelines for Breast Cancer Screening and Diagnosis, 2018 Edition. *Breast Cancer*, 27(1), 17–24. <https://doi.org/10.1007/s12282-019-01025-7>
- UHO, W. The screening, diagnosis, treatment, and follow-up of breast cancer. 2018
- Urban, L., Chala, L. F., Bauab, S. D. P., Schaefer, M., Santos, R., Maranhão, N., Kefalas, A., Kalaf, J., Ferreira, C., Canella, E., Peixoto, J., Amorim, H., & Camargo, H. Jr. (2017). Breast cancer screening: Updated recommendations of the Brazilian College of Radiology and Diagnostic Imaging, Brazilian Breast Disease Society, and Brazilian Federation of Gynecological and Obstetrical Associations. *Revista Brasileira de Ginecologia e Obstetrícia*, 39(10), 569–575. <https://doi.org/10.1055/s-0037-1606348>
- Vernooij, R. W., Sanabria, A. J., Sola, I., Alonso-Coello, P., & Martinez, G. L. (2014). Guidance for updating clinical practice guidelines: A systematic review of methodological handbooks. *Implementation Science*, 9, 3. <https://doi.org/10.1186/1748-5908-9-3>
- Welch, H. G., & Black, W. C. (2010). Overdiagnosis in cancer. *Journal of the National Cancer Institute*, 102(9), 605–613. <https://doi.org/10.1093/jnci/djq099>
- Woolf, S. H., Grol, R., Hutchinson, A., Eccles, M., & Grimshaw, J. (1999). Clinical guidelines: Potential benefits, limitations, and harms of clinical guidelines. *BMJ*, 318(7182), 527–530. <https://doi.org/10.1136/bmj.318.7182.527>
- World Health Organization. (2019). who.int/gho/database/en/. *Global health observatory*. World Health Organization. Accessed December 3, 2019.
- Wouters, M. W., Jansen-Landheer, M. L., & van de Velde, C. J. (2010). The Quality of Cancer Care initiative in the Netherlands. *European Journal of Surgical Oncology*, 36(Suppl 1), S3–S13. <https://doi.org/10.1016/j.ejso.2010.06.004>

Yao, X., Ma, J., Wang, Q., Kanters, D., Ali, M. U., & Florez, I. D. (2020). A comparison of AGREE and RIGHT: Which clinical practice guideline reporting checklist should be followed by guideline developers? *Journal of General Internal Medicine*, 35(3), 894–898. <https://doi.org/10.1007/s11606-019-05508-3>

SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

How to cite this article: Maes-Carballo, M., Mignini, L., Martín-Díaz, M., Bueno-Cavanillas, A., & Khan, K. S. (2021). Clinical practice guidelines and consensus for the screening of breast cancer: A systematic appraisal of their quality and reporting. *European Journal of Cancer Care*, e13540. <https://doi.org/10.1111/ecc.13540>