



Provision of follow-up care for women with a history of breast cancer following the 2016 position paper by the Italian Group for Mammographic Screening and the Italian College of Breast Radiologists by SIRM: a survey of Senonetwork Italian breast centres

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Abstract

Introduction In 2016, the Italian Group for Mammography Screening and the Italian College of Breast Radiologists by the Italian Society of Medical and Interventional Radiology recommended that screening programmes and specialist breast centres actively invite women with a history of breast cancer to follow-up imaging.

Objective A survey of breast centres associated with Senonetwork, the Italian network of breast cancer services, has offered the opportunity to assess the implementation of this recommendation.

Methods A national, cross-sectional, voluntary, online survey was developed, pre-tested, and administered during the months July–October 2020. Five of the 73 questionnaire items concerned breast cancer follow-up.

Results The response rate was 82/128 (65%). Of the 82 respondent centres, 69 (84%) were involved in a screening programme. Fifty-six (68%) reported the presence of a programme of active invitation to breast cancer follow-up targeted at patients living in their catchment area, with a significant north-to-south gradient. Four centres (5%) reported that the screening programme was responsible for actively initiating follow-up during the 10-year period since diagnosis. Only after 10 years did the proportion increase moderately.

Conclusion Screening programmes have still a marginal role in active breast cancer follow-up.

Keywords Breast cancer · Follow-up · Mammography · Survivorship care · Screening · Breast centre · Survey

Abbreviations

AOU Azienda Ospedaliero-Universitaria (University Hospital)
BC Breast cancer

BCCert European Society of Breast Cancer Specialists' Breast Centres Certification
EUSOMA European Society of Breast Cancer Specialists

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FU	Follow-up
GISMa	Gruppo Italiano per lo Screening Mammografico (Italian Group for Mammography Screening)
ICBR-SIRM	Italian College of Breast Radiologists by the Italian Society of Medical and Interventional Radiology
IRCCS	Istituto di Ricovero e Cura a Carattere Scientifico (Non-University Research Hospital)
UTAUT	Unified theory of acceptance and use of technology

Introduction

In Italy, the prevalence of breast cancer (BC) has reached an estimate of 834,154 in 2020 [1]. The management of follow-up of this broadening population is placing a critical burden on healthcare services, including breast imaging services. Also, a high degree of variation in practice patterns has been reported [2], reflecting the fact that international guidelines [3, 4] are conflicting about important issues concerning the follow-up of patients treated for BC.

In 2016, the Italian Group for Mammography Screening (GISMa), the scientific society representing the local screening programmes, and the Italian College of Breast Radiologists by the Italian Society of Medical and Interventional Radiology (ICBR-SIRM) proposed a new model of BC follow-up provision [5]. The central idea was that screening programmes should be integrated, together with diagnostic imaging services, into specialist breast centres and, using their call and recall system, they should actively invite BC patients to get a mammogram in special, dedicated screening sessions. This model of BC follow-up adhered to the EUSOMA guidelines for specialist breast centres [6–9].

The GISMa and Senonetwork (the Italian network of BC services), partnered by Europa Donna Italia (the Italian section of Europa Donna), have recently carried out a national, cross-sectional, voluntary, online survey of Italian breast centres to determine whether and how mammography screening programmes are integrated into their services. This has offered the opportunity to assess, as a secondary objective and as anticipated in the original paper [5], the degree of implementation of the recommendations issued by the GISMa and the ICBR-SIRM in 2016.

Materials and methods

The GISMa/ICBR-SIRM model of BC follow-up

The model proposed by the GISMa and the ICBR-SIRM can be summarised as follows:

- The breast centre, in which the organised screening activity for the general female population in the target age range at average risk of BC and the diagnostic imaging services must be integrated, should define a dedicated follow-up protocol for women already treated for BC;
- This protocol should describe responsibilities, facilities, invitation modalities, and radiological and clinical procedures (including periodicity);
- Women already treated for BC should be invited to have a mammogram in dedicated screening sessions starting from the year after the end of treatment;
- The duration of follow-up should be at least 10 years and should be further planned on the basis of patient age and preferences and taking organisational matters into consideration;
- The screening sessions should include the evaluation of familial/personal history (if previously not done) in order to identify high-risk conditions indicating a different surveillance strategy, the immediate evaluation of mammograms by one or (when possible) two breast radiologists, the addition of supplemental imaging examinations (if needed), and the timely planning of diagnostic workup (if indicated);
- The outcomes of follow-up should be presented separately from those of the population-based screening programme;
- If women have their follow-up planned at other qualified centres, an agreement with these should be established; and
- Research should particularly target two main issues, that is, risk-stratification strategies with evaluation of effectiveness of different follow-up protocols based on BC pathologic and molecular subtyping, and evaluation of different models of survivorship care with due attention being paid to cost-effectiveness analysis. More exhaustive details are given in the original article [5].

Survey development and process

The survey questions were developed based on topics proposed by the national stakeholders (GISMa, Senonetwork, and Europa Donna Italia) and the Sant'Anna School of Advanced Studies of Pisa. The relevant national legislation, the international literature pertaining the requirements of breast centres [6–9], the domain of health service integration [10], and the unified theory of acceptance and use of technology (UTAUT) [11] were taken into account. Since the GISMa, Senonetwork and Europa Donna Italia endorse the adoption of the European Society of Breast Cancer Specialists (EUSOMA) requirements for specialist breast centres [6–9], the EUSOMA Breast Centres Certification (BCCert) scheme [12] was considered to be the reference certification scheme in a dedicated question.

The final version of the questionnaire consisted of 73 questions, five of which specifically concerning BC follow-up. A.pdf version (in Italian) is available from the website of the GISMa [13]. The survey was pretested on a sample of three breast centre clinical leads. Ambiguous and problematic questions were clarified. The survey was loaded onto an online survey platform (SurveyMonkey, available from <https://it.surveymonkey.com/>), and successfully piloted by one volunteer breast centre for technical functionality.

An invitation to participate was sent via e-mail to the clinical leads of breast centres or the main contact persons. The e-mail contained a link to the online instrument. The survey was conducted between July 2020 and October 2020. A reminder e-mail was sent. No financial incentives were offered.

For the present analysis, the results were summarised using standard descriptive statistics. Proportions were compared with the chi-square test and, when appropriate, the Cochran-Armitage test for trend. The α level or the level of statistical significance was set at 0.10 (10%) and, thus, two-sided p values < 0.10 were considered significant.

Results

At the end of 2020, when the survey was closed, the breast centres associated with Senonetwork were 128. Of these, 74 (58%) were located in Northern Italy and 25 (20%) were certified by the EUSOMA through the BCCert scheme.

Eighty-two (65%) centres responded to the questionnaire, 53 (65%) of which were located in northern Italy. The response rate was 53/74 (72%) in the north versus 29/54 (54%) in Central-Southern Italy ($p = 0.057$). The certified centres were 24 (29%). Respondents reported a median of 345 new BC cases seen per year (interquartile range, 250–484), 5 breast radiologists (3–7), 21 staff in the multi-disciplinary team (14–30), and a median mammogram volume of 15,000 (9000–24,750).

The 82 respondents reported that 69 centres (84%) had some kind of involvement in a screening programme, with a larger proportion being observed among certified centres (96% versus 79%, $p = 0.095$) and among those with a mammogram volume greater than the median (93% versus 76%, $p = 0.067$). However, only 9 (11%) centres were part of the same unit as the screening programme. All of the 82 breast centres had an internal breast radiology service.

As shown in Table 1, 56 (68%) respondents reported the presence of a programme of active invitation to BC follow-up, targeted at patients living in the catchment area, for 10 years after treatment. At a level of significance of $\alpha = 0.10$, there was a north-to-south gradient in the provision of this service in all three time intervals since diagnosis (< 5 years, 5–10 years, > 10 years), a positive association

with mammographic volume in the first as well as in the third interval, and a positive association with BCCert certification in the first two intervals.

As also is shown in Table 1, only four centres (5%) reported that the screening programme was responsible for actively initiating follow-up within 10 years since diagnosis. Only after 10 years did the proportion increase moderately ($n = 14$ or 17%).

Table 2 shows that the responsibility for active follow-up care was most often assigned to breast centres for 10 years since diagnosis. After this time interval, an increased role of general practitioners and screening programmes was reported.

Discussion

A systematic review, published in 2018, considered 21 BC follow-up guidelines issued by 18 bodies (seven governmental institutions, nine medical societies and two mixed collaborations) [14]. Seventeen bodies (94%) recommended annual bilateral mammography after breast-conserving treatment and 13 (72%) recommended annual contralateral mammography after mastectomy. Routine digital breast tomosynthesis was recommended by a single body (6%). Routine breast ultrasound was recommended by 2 bodies (11%), considered as optional by 4 (22%), and not supported by 8 (44%). Sixteen bodies (89%) did not recommend routine breast magnetic resonance imaging, although 6 (33%) identified subgroups of patients eligible for systematic magnetic resonance imaging surveillance. The authors concluded, first, that annual mammography is currently the standard-of-care to be used for breast imaging surveillance and, second, that the role of digital breast tomosynthesis needs to be further investigated.

The recommendations issued by the GISMa and the ICBR-SIRM in 2016 [5] were included in this systematic review. The model proposed by the two societies is a constructive solution adhering to the EUSOMA guidelines for specialist breast centres [6, 9], in particular to the guideline that suggests the integration or a close collaboration between the organised screening programmes and breast centres. Based on the data collected, it appears that this model is still largely not applied. The proportion of Italian breast centres reporting some kind of involvement in the local screening programme was as high as 84%, and the larger proportion (96%) was observed among those centres that are certified by the BCCert scheme [12], which reflects one of the requirements put forth by the EUSOMA [6, 9]. Despite this favourable condition, however, only a negligible proportion of breast centres reported an active role of the screening programme in the first 10 years of follow-up.

Table 1 Characteristics and proportion of breast centres reporting the provision of active follow-up to breast cancer patients in their catchment area and, specifically, of a screening-led active follow-up ($n=82$)

Breast centre characteristic	Total no.	Time interval since diagnosis					
		< 5 years		5–10 years		> 10 years	
		Active FU, no. (%) ^a	Screening-led active FU, no. (%) ^a	Active FU, no. (%)	Screening-led active FU, no. (%)	Active FU, no. (%)	Screening-led active FU, no. (%)
<i>Geographic area</i>							
North	53	40 (75)	2 (4)	40 (75)	4 (8)	35 (66)	9 (17)
Centre	19	11 (58)	0 (0)	11 (58)	0 (0)	11 (58)	4 (21)
South	10	5 (50)	0 (0)	5 (50)	0 (0)	3 (30)	1 (10)
<i>Hospital classification</i>							
Public hospital	52	37 (71)	2 (4)	36 (69)	3 (6)	33 (63)	10 (19)
Private accredited hospital	5	4 (80)	0 (0)	4 (80)	1 (20)	4 (80)	1 (20)
IRCCS and AOU	14	7 (50)	0 (0)	7 (50)	0 (0)	7 (50)	3 (21)
Private accredited IRCCS	11	8 (73)	0 (0)	9 (82)	0 (0)	5 (45)	0 (0)
<i>No. of new BC cases per year^b</i>							
< 345	41	29 (71)	2 (5)	30 (73)	3 (7)	28 (68)	7 (17)
≥ 345	41	27 (66)	0 (0)	26 (63)	1 (2)	21 (51)	7 (17)
<i>No. of mammograms per year^b</i>							
< 15,000	42	25 (60)	0 (0)	26 (62)	2 (5)	21 (50)	5 (12)
≥ 15,000	40	31 (78)	2 (5)	30 (75)	2 (5)	28 (70)	9 (23)
<i>BCCert certification</i>							
No	58	36 (62)	2 (3)	36 (62)	3 (5)	33 (57)	12 (21)
Yes	24	20 (83)	0 (0)	20 (83)	1 (4)	16 (67)	2 (8)

BC Breast cancer, BCCert European Society of Breast Cancer Specialists' Breast Centres Certification, FU follow-up, IRCCS Istituto di Ricovero e Cura a Carattere Scientifico (non-University Research Hospital), AOU Azienda Ospedaliero-Universitaria (University Hospital)

^aNon-responses on the presence of active follow-up and on the role of the screening programme were pooled with negative responses

^bDichotomised by the median value

Table 2 Distribution of breast centres according to the healthcare provider responsible for active follow-up of breast cancer patients in their catchment area ($n=82$)

Healthcare provider	Time interval since diagnosis		
	< 5 years, no. (%)	5–10 years, no. (%)	> 10 years no. (%)
None (no active follow-up)	7 (8)	7 (8)	14 (17)
Screening programme	2 (2)	4 (5)	14 (17)
General practitioners	2 (2)	13 (16)	23 (28)
Breast centre	52 (63)	39 (48)	12 (15)
Not reported	19 (23)	19 (23)	19 (23)

The numbers in parentheses are column percentages

The high percentage of breast centres reporting the presence of some kind of active follow-up in this time interval is anyway good news, because this approach allows to decrease the risk of discontinuation of surveillance programmes. The prominent role of breast centres in the provision of this service does probably indicate that a hospital-led management of patients in the first period after diagnosis is considered more convenient than a management entrusted to primary care or community services like screening activities. An

important contributing cause, however, is that only a small minority of breast centres (11%) are part of the same unit as the screening programme, which is the ideal condition for the implementation of the model proposed by the GISMA and ICBR/SIRM. Without this condition, a functional integration has to face more administrative and practical hurdles.

The authors of the recommendations by the GISMA and the ICBR-SIRM were aware of the difficulties that might be encountered during their implementation, due to

the previous common practice of excluding BC survivors from screening programmes coupled with the obvious relationships that exist between the patients and the hospital or cancer centre where they were treated [5]. However, also thanks to the success of screening and treatment of BC, the increasingly huge number of BC survivors coupled with an underlying trend toward prolonged life expectancy for the female population represents a workload that only a model based on a “screening organisation” will be able to manage with a good cost-effectiveness ratio. Otherwise, it is anticipated that following-up the growing population of BC survivors will translate into fewer visits available at specialised breast centres for newly diagnosed patients and in delays in treatment [15].

Which strategy can be pursued to face this upcoming crisis with the key contribution of screening programmes? First, it is essential that the many scientific societies gathering breast care professionals and the advocacy organisations continue to convey to policy-makers, including the Ministry of Health and the Regional Administrations (largely responsible for healthcare provision in Italy), the great importance of merging the organised screening imaging activities for the general population and the diagnostic imaging services into a single breast centre under a single responsibility and direction [6, 9]. Second, as many as 96% of EUSOMA-certified breast centres reported some degree of involvement in a screening programme, reflecting one of the EUSOMA requirements for specialist breast centres. This finding reinforces the need that breast centres undergo one of the many voluntary certification processes at the national or European level [9, 16]. And third, those committed to follow-up of BC patients should be able to take advantage of the scientific development. Important progresses can be achieved, for example, through predictive models enabling risk-stratification, possibly supported by artificial intelligence algorithms [17].

Some methodological aspects of the survey need to be addressed. Given the good response rate, we are confident in the representativeness of the subset of participating centres. Our main concern was the level of participation of centres located in Southern Italy. The prevalence of active and efficient local screening programmes is lower in the south of the country, with approximately 40% of 50–69 year-old women being regularly invited to mammography versus > 85% in Central and Northern Italy [18]. This was expected to be related with an equally low interest by the clinical leads of breast centres in a survey addressing the integration between these and the screening programmes. In fact, although the response rate was less in Southern Italy, the difference was not critical. Probably, the major reason for caution in considering the results presented here is in the difficulties caused by the COVID-19 pandemic, which led to a considerable delay both in the

roll-out of the survey and in the discussion of the findings before publication.

In conclusion, this survey of Italian breast centres showed that local mammography screening programmes have still a marginal role in active follow-up of women with a history of BC. In the next future, the main results of the survey will be presented. They will include the correlates of integration of screening programmes into breast centres versus non-integration as well as the correlates of different levels of integration. This qualitative information may provide further insights into the potential role of screening programmes in the provision of BC follow-up care.

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Data availability Data are available from the corresponding author upon request.

Declarations

Conflict of interest The authors state that they have no conflict of interest.

Ethical approval This article does not contain any studies with human participants or animals performed by any of the authors. The study protocol was approved by the Ethics Committee at the Romagna Cancer Institute (ID: IRST100.37; IRST Identifier Codes: LIP1594, wfn. 81L1).

Informed consent For this type of study, formal consent is not required.

Consent for publication For this type of study, consent for publication is not required.

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