ANALYSIS OF BREAST CANCER SCREENING IN DIFFERENT AXES: AN INTEGRATIVE REVIEW STUDY

ANÁLISE SOBRE O RASTREAMENTO DO CÂNCER DE MAMA EM DIFERENTES EIXOS: UM ESTUDO DE REVISÃO INTEGRADORA

Carla Nadja Santos de Sousa¹, Rejane Maria de Oliveira Holanda², Fátima Raquel Rosado Morais³

RESUMO

Objetivo: avaliar as produções científicas provenientes das discussões sobre o rastreamento do câncer de mama a nível mundial e nacional. Método: revisão integrativa, com vistas a responder a questão norteadora << Como o rastreamento do câncer de mama vem sendo discutido na literatura mundial, servindo como base para se discutir o rastreamento organizado do câncer de mama nacional?>> Foi realizada a busca nas bases de dados LILACS, MEDLINE e biblioteca virtual SCIELO empregando os descritores: neoplasias de mama, programas de rastreamento, serviços de saúde. Para a análise dos artigos buscou-se os núcleos de sentido que compõem o corpus de 28 artigos selecionados. Resultados: destacaram-se artigos que enfatizaram estratégias de avaliação sistemática de seus programas de rastreamento garantindo que os benefícios superavam os malefícios. Além disso, os países em desenvolvimento sofreram pressões para iniciar programas de rastreamento organizado. Conclusão: pensar na implementação do rastreamento é antever possibilidades de reprodução em locais diferentes daqueles em que foram produzidas e o equilíbrio entre os riscos e benefícios que qualquer intervenção em saúde produz. Descritores: Neoplasias de mama; Programas de Rastreamento; Serviços de Saúde.

RESUMEN

Objetivo: evaluar las producciones científicas de las discusiones sobre la detección del cáncer de mama a nivel mundial y nacional. Método: revisión integradora, con el fin de responder a la pregunta de guía << Como la detección del cáncer de mama se ha discutido en la literatura, que sirve como base para discutir detección organizado para el cáncer de mama Nacional?>> La búsqueda se realizó en las bases de datos LILACS, MEDLINE y SciELO biblioteca virtual usando las palabras clave: cáncer de mama, los programas de detección, los servicios de salud. Para el análisis de los artículos solicitados a las unidades de significado que constituyen el corpus de 28 artículos seleccionados. Resultados: destacó los artículos que hacían hincapié en las estrategias de evaluación sistemática de sus programas de detección, lo que garantiza que los beneficios superan los daños. Además, la presión de los países en desarrollo tiene que empezar los programas de cribado organizados. Conclusión: pensar en la aplicación de la revisión es de prever posibilidades de reproducción en diferentes lugares que donde se produjeron y el balance de riesgos y beneficios que cualquier intervención de salud producen. Descritores: Neoplasias de la Mama; Los Programas de Detección; Servicios de Salud.
INTRODUCTION

The scientific basis of breast cancer screening worldwide were constructed over 20 years with randomized studies started in five countries and published in the 1970s and 1990s. Although harshly criticized, because they are costly and time-consuming, the randomized studies formed the scientific basis for the implementation of national programs of several countries screening in the decades of 1980 and 1990.1

Thus, the first initiatives in Brazil, although incipient, aiming at the implementation screening of women in cancers suggest in 1984, within the Comprehensive Care Program for Women Health (PAISM) and were directed to basic health services and offered together with the assistance to pregnancy, to birth control and gynecological and reproductive complaints. In 1998 the trace actions of cervical cancer have been expanded to the whole country in the first campaign of the Alive Woman and was in 2002, with the intensification of the program, which were introduced some actions aiming at the control of breast cancer.2

However, according to the historical perspective from 2003, initiated by the National Cancer Institute (INCA) and the Health Technical Area of the Ministry of Health of Women, were consensual recommendations for screening for breast cancer in Brazil based on scientific evidence and experience from other countries.2 These recommendations advocated for asymptomatic women, conducting physical examinations of the breasts from 40 years and biennial mammography between 50 and 60 years. For those with a family history of breast cancer, it was defined that screening should begin at 35 years of age.3

Understand how different health policies determine impacts on the health of a population, at a given time and context, can provide subsidies to improve the process of formulation of policies and programs. In our case study screening programs of breast cancer in different countries and health systems can be an opportunity to better understand the processes of incorporation of scientific evidence in health programs and systems.

Compare health policies and health systems between countries can broaden our understanding of the formulation and implementation of health policies. The comparison appears as the search for similarities, differences or relationships between phenomena, which may be contemporaneous or not, they occur in distinct spaces or not, in order to meet regulations, causalities and interrelationships.4

OBJECTIVE

- To assess the scientific productions from discussions about screening of breast cancer globally and nationally

METHOD

It selected as a method of the resources of evidence-based practice, integrative review, which allows the search, critical evaluation and synthesis of available evidence on the subject researched.5

For the development of research were followed the 6 steps advocated in the literature, namely: the first was the construction of the guiding question in the second stage were defined the criteria for inclusion and exclusion of articles and media for identification of studies by topic selected, in the third step the databases, listing the files that fit into the criteria for inclusion in the study were elected in the fourth step critical analysis of included studies to ensure the validity of the review was performed, in the fifth step the discussion of results was developed and in the sixth step the review presentation was conducted.6

The guiding question of the study was, as screening for breast cancer has been discussed in the literature, serving as a basis to discuss National organized screening for Breast Cancer? 

For the inclusion of articles in the study were adopted the following criteria: article available in full, with the online version free of charge, national and international productions, published in the languages Portuguese, Spanish or English. The timeline defined were the years of 2003 to 2013, in order to portray the scientific production. The following were excluded from the sample editorials, letters to the editor, theses, dissertations and review articles and that did not meet the object of study proposed, in addition to the publications that have been repeated in the databases.

For this review, the search was carried out by two reviewers, ensuring rigor to the selection process of the articles in databases of Latin American literature and Caribbean Health Sciences (LILACS) and Medical Literature Analysis and Retrieval System Online (MEDLINE) and Virtual Library (Scientific Electronic Library (SciELO), in the spring of 2014, with standardized and available descriptors in the Health Sciences
Descriptors (DeCS): “breast Neoplasms” [and] “screening programs” [and] “health services” as a way to subsidize the construction of the research corpus.

After reading the titles and abstracts, selected studies were analyzed with the aid of an instrument already validated, evaluating data related to the identification of the original article, methodological features of study, assessment of methodological rigor, measured and interventions the results found in articles to the periodical, author, study and level of evidence.7

By theme or category analysis type of content analysis technique, it operated Text break in units (categories), according analog systematic regroupings.8

From this perspective, the analysis is constituted by reading the 28 articles selected, later sought to discover the units of meaning that make up the corpus of the study, in the form of targetable data and similar where they held new analysis and from it emerged three categories respectively:

- Gynecologists and knowledge of breast cancer
- Study of attitude and knowledge of non-oncologist doctors in prevention measures and screening of cancer
- Estimated cost of mammographic screening in women during menopause.

Scientific evidence about the screening programs of breast cancer in the world, limits, possibilities and costs on incorporation of trace programs and screening condition of breast cancer at the national level.

RESULTS

The theme of this study has been discussed over the years, because the acquisition of scientific information about the effectiveness of breast cancer screening began in 1963 with the study “Health Insurance Plan” in New York, USA. From then on, series of randomized trials were conducted to evaluate the efficacy of breast cancer screening in different populations of four countries (USA, Sweden, Canada and United Kingdom). These studies, conducted during the period of 20 years, provided the basis of the evidence in the field of breast cancer screening.9

Thus, 28 articles were selected for the study as article code, title, author, method, level of evidence and year of publication, in accordance with Figure 1.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Authors</th>
<th>Method</th>
<th>Level of Evidence</th>
<th>Year of publication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Article 1</td>
<td>Gynecologists and knowledge of breast cancer</td>
<td>Freitas RJ, Oliveira ELC, Marinho ER, Zampronha R AC, Pereira RJ.</td>
<td>a questionnaire was used containing questions on vocational training and on the diagnosis of breast cancer.</td>
<td>VI</td>
<td>2003</td>
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<tr>
<td>Article 2</td>
<td>Study of attitude and knowledge of non-oncologist doctors in prevention measures and screening of cancer</td>
<td>Tucunduva LTCM, Cardoso VHLS, Koshimura ET, Prudente FVB, Santos AF.</td>
<td>The study was conducted by means of a questionnaire entitled: Doctors and cancer prevention.</td>
<td>VI</td>
<td>2004</td>
</tr>
<tr>
<td>Article 3</td>
<td>Interventions to improve follow-up of abnormal findings in cancer screening</td>
<td>Bastani R, Yabroff KR, Myers RE, Glenn B.</td>
<td>Used literature existing on correlates of receipt of appropriate follow-up of detected anomalies.</td>
<td>V</td>
<td>2005</td>
</tr>
<tr>
<td>Article 4</td>
<td>Estimated cost of mammographic screening in women during menopause.</td>
<td>Kemp C, Elias S, Gebrim LH, Nazário ACP, Baracat EC.</td>
<td>A screening was carried out with 1014 women attended at an outpatient menopause clinic. All mammograms were classified according to the categories of the BI-RADS (Breast Imaging Reporting and Data System American College of Radiology).</td>
<td>VI</td>
<td>2006</td>
</tr>
<tr>
<td>Article 5</td>
<td>Toward Optimal Screening Strategies for Older Women</td>
<td>Mandelblatt JS, Schechter CB, Yabroff KR, Lawrence W, Dignam J.</td>
<td>It used a stochastic model with age-dependent biology proxies for evaluating the additional costs and benefits of biennial screening from age 50 to 70 years old.</td>
<td>VI</td>
<td>2005</td>
</tr>
<tr>
<td>Article 6</td>
<td>Breast cancer mammography screening in public and private health services</td>
<td>Marchi AA, Gurgel MSC, Fonsechi GA.</td>
<td>A sectional study was carried out by interviewing 643 women undergoing mammography if in the city of Taubaté, southeastern Brazil.</td>
<td>VI</td>
<td>2006</td>
</tr>
<tr>
<td>Article 7</td>
<td>The NHS breast screening programme (pathology) EQA: experience in recent years relating to issues</td>
<td>Parham DM, Coleman D, Kodikara S, Moss S, Ellis IOS.</td>
<td>A questionnaire was used to examine the performance (score) of pathologists who participated in the regime in recent years. The scheme has</td>
<td>VI</td>
<td>2006</td>
</tr>
</tbody>
</table>
involved in individual performance appraisal.

Article 8  Double reading in mammographic screening
Benveniste APA, Ferreira AHP, Aguilar VLN.

It was held during one year 22,024 screening mammograms in asymptomatic women, submitted to independent double reading by two radiologists specialized in breast imaging.

Article 9  Promoting breast health among women in the U.S. Virgin Islands: a focused study of the needs of caribbean women
Underwood SM, Johnson EMR, Callwood G, Evans EE.

Study to explore the associations between the risk of breast cancer, risk assessment, risk communication, screening and reception for the management of the risk of breast cancer among women in the United States, Virgin Islands.

Article 10  How does age affect baseline screening mammography Performance measures? The decision model
Keen JD, Keen JE.

Building a decision tree to model the possible outcomes of a mammography in women ages 35 to 65.

Article 11  Screening for breast cancer and staging
Gebrim LH.

This is a retrospective study.

Article 12  Social support and cervical and breast cancer among nursing Workers
Silva IT, Grieb RH, Rotenberg L.

Epidemiological study, sectional, held in three public hospitals in Rio de Janeiro, Brazil.

Article 13  Presentation of results of a mammography screening service with an emphasis on epidemiological audit
Camargo Júnior HSA, Camargo MMA, Teixeira SRC, Arruda MS, Azevedo J.

35,041 mammograms were studied patients, during 2 consecutive years and 7 months, between the years 2004 to 2006. They were collected prospectively in screening patients.

Article 14  Women with breast cancer: Knowledge and access to early detection measures
Leila LLC, Lima AV, Brito ES, Oliveira MM, Oliveira LAR.

This is a descriptive-exploratory study of a quantitative approach.

Article 15  Cancer screening in a middle-aged general population: factors associated with practices and attitudes.
Stéphane CS, Bérand AIC, Perneger TV.

Inquiry sent from 30-60 years old inhabitants of Geneva, Switzerland, which included questions about screening for five types of cancer for the past 3 years, attitudes toward screening, use of health care, preventive behaviors and socio-demographic characteristics.

Article 16  A model to optimize public health care and downstage breast cancer in limited-resource populations in southern Brazil
Caleffi M, Ribeiro RA, Duarte Filho DL, Prolla PA, Bedin Junior AJ.

Intervention study in a cohort of women in the South of Brazil.

Article 17  Effectiveness of early detection on breast cancer mortality reduction in Catalonia (Spain)
Rue M, Vilaprinyo E, Lee S, Alonso MM, Carles M, Gragera RM, Espinat JA.

The model was used by Lee and Velten (LZ) to estimate the cumulative probability of death for a group exposed to different screening strategies after years of follow-up.

Article 18  Factors Associated with Annual-Interval Mammography for Women in Their 40s
Giertsch JM, Neill SC, Rimer BK, Frank JT, Bowling JM.

It used the screening status between insured 596 blacks and non-Hispanic white women ages 43 to 49.

Article 19  MammoGraphy FastTrack: An Intervention to Facilitate Reminders for Breast Cancer Screening across the...
| Article | Adherence to opportunistic screening mammography in public and private health services | Marchi AA, Gurgel MSC. | Prospective study which accompanied 460 women in the city of Taubaté, São Paulo, Brazil. | 2010 |
| Article | Adherence to cancer screening guidelines across Canadian provinces: an observational study | Strumpf EC, Chai Z, Kadiyala S. | Nationally representative, cross-sectional study of health status, health care utilization and health determinants in the Canadian population. | VI 2010 |
| Article | A Simulation Model Investigating the Impact of Tumor Volume Doubling Time and Mammographic Tumor Detectability on Screening Outcomes in Women Aged 40-49 | Bailey SL, Sigal BM, Plevritis SK. | It used a Monte Carlo simulation model of breast cancer screening by age to estimate the average tumor size detectable on a mammogram and the average volume of the tumor doubling time. | VI 2010 |
| Article | Breast MRI in Community Practice: Equipment and Imaging Techniques at Facilities in the Breast Cancer Surveillance Consortium (BCSC) | Martini W.B, Ichikawa L, Yankaskas B.C. | It used the survey of breast magnetic resonance equipment and technical parameters. | VI 2010 |
| Article | Modeling the cumulative risk of a false-positive screening test | Hubbard RB, Miglioretti DL, Smith RA. | Current statistical methods were used to estimate the cumulative risk false positives (FP) censored data followed by two distinct approaches. We used the five major regions of the country for the association between the socio-economic conditions and examination. | VI 2010 |
| Article | The increase of access to mammography and the challenges for policy control of breast cancer in Brazil | Silva GA, Novaes HMD, Gadelha MIP. | The periodic analysis showed the presence of 28 (100%) national and international journals, as evidenced, Figure 2. | VI 2011 |
| Article | Breast cancer screening in the Czech Republic: time trends in performance indicators during the first seven years of the organized programme | Majek O, Danes J, Skovajsova M, Bartonkova H, Buresova L. | It used an information system that consists of three main components: 1) the national cancer registry, 2) a record of screening data collection about every screening and 3) administrative health databases payers. | VI 2011 |
| Article | Introduction of organized mammography screening in tyrol: results of a one-year pilot phase | Oberaigner W, Buchberger W, Frede T, Daniaux M, Knapp R. | It was an organized system by introducing a system of personal invitation, a training program for quality assurance, by creating a screening database. | VI 2011 |
| Article | Breast cancer screening: evidence of benefit depends on the method used | Autier P, Boniol N. | Case-control studies usually find substantial effectiveness. | IV 2012 |

Figure 1. Item code, title, author, method, level of evidence and year of publication.

The periodic analysis showed the presence of 28 (100%) national and international journals, as evidenced, Figure 2.
In addition, you can catch a glimpse of the themes addressed in the research productions, in order to make more explicit the purpose of articles analyzed in this study, as shown in Figure 3.

<table>
<thead>
<tr>
<th>Code</th>
<th>Objective:</th>
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<tbody>
<tr>
<td>1</td>
<td>Assess the level of knowledge about the screening and diagnosis of breast cancer among the Gynecologists of the State of Goiás, Brazil.</td>
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<tr>
<td>2</td>
<td>Assess the level of information and preventive actions in current use by doctors linked to the School of Medicine of ABC, Santo André, SP.</td>
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<tr>
<td>3</td>
<td>Examine critically the existing literature on receiving appropriate screening related care to detected abnormalities.</td>
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<tr>
<td>4</td>
<td>Analyze the costs of a mammography screening cycle of breast cancer in the population of 1014 women in the climacteric and compare with the costs of breast cancer treatment in more advanced stages.</td>
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<tr>
<td>5</td>
<td>Evaluate screening policies based on age and quartiles of life expectancy (LE).</td>
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<tr>
<td>6</td>
<td>Evaluate the use of mammography in breast cancer screening in public and private health services.</td>
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<tr>
<td>7</td>
<td>Assess the consistency of the breast disease pathology reports in the United Kingdom.</td>
</tr>
<tr>
<td>8</td>
<td>Evaluate the effectiveness of double reading of mammograms for breast cancer screening, private environment.</td>
</tr>
<tr>
<td>9</td>
<td>Highlight the results of a study to explore the associations between the risk of breast cancer, risk assessment, risk communication, screening and reception for the management of the risk of breast cancer among women in the United States, Virgin Islands.</td>
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<tr>
<td>10</td>
<td>Promote discussion for the consumer informed medical decision making about mammography.</td>
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<tr>
<td>11</td>
<td>Assess the distribution of the cases of breast cancer in different clinical stages of 1989 to 2003.</td>
</tr>
<tr>
<td>12</td>
<td>Analyze the association between social support and practices of early detection of uterine cancer and breast among nursing workers.</td>
</tr>
<tr>
<td>13</td>
<td>Determine the epidemiological data of a breast Diagnostic Clinic. This study provides epidemiological data of importance to the audit of mammographic screening, which are rare in our country.</td>
</tr>
<tr>
<td>14</td>
<td>Evaluate access to early detection measures and knowledge of women who had undergone chemotherapy for breast cancer.</td>
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<tr>
<td>15</td>
<td>Working with the hypothesis that screening practices would be associated with more positive attitudes and positive attitudes could explain, in part, the differences in screening practices among subgroups of the population.</td>
</tr>
<tr>
<td>16</td>
<td>Test a model diagnosis and early treatment and assess its cost-effectiveness in a developing environment, where the mortality associated with this disease is very high.</td>
</tr>
<tr>
<td>17</td>
<td>To evaluate the effect of different strategies of early detection of breast cancer in Catalonia (Spain), in terms of reduction in breast cancer mortality (MR) and the years of life gains (YLG), using stochastic models developed by Lee and Velzen (LZ).</td>
</tr>
<tr>
<td>18</td>
<td>Assess whether there is evidence that annual mammography for women ages 40 years can be the ideal time to reduce morbidity and mortality from breast cancer.</td>
</tr>
<tr>
<td>19</td>
<td>Address as application of technology fits into the workflow of the provider and the existing systems is unlikely to achieve the goals for improvement.</td>
</tr>
<tr>
<td>20</td>
<td>Evaluate the adherence to recommendations for opportunistic mammography screening of breast cancer.</td>
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</table>
Among the 28 (twenty-eight) articles and papers included in integrative review, the subject of this investigation had greater prominence in periodicals published from 2004. This aspect is connected with publications that questioned in the early 2000 the validity of several randomized clinical trials that formed the basis of the national programs.10

With that, only after the beginning of 2000, some systematic reviews of the literature have been published in different journals and made available on the internet, on websites of organizations with interest in the topic of breast cancer, or evidence-based medicine.11

With that in mind, we chose to analyze what has been discussed in recent national and world literature 10 (ten) years serving as grants to the discussion of the trace organized in Brazil, once the scientific evidence related to the screening can be analyzed discussed in different axes or dimensions.

**DISCUSSION**

The discussion will be presented by means of analytical categories that emerged after the precise reading of articles and descriptive analysis of the results.

- **Scientific evidence about the screening programs of breast cancer in the world**

For about 20 years, many developed countries have deployed screening programs for breast cancer and today present important reductions of their mortality. Screening programs are complex interventions that require well-structured healthcare systems in epidemiological contexts, demographic, social, political, economic and technological singular.11

It is observed that some articles report the correlation between early introduction of screening programs and reduction in morbidity and mortality rates for breast cancer in the population: “Breast cancer mortality should decrease more quickly in areas with early introduction of screening than in areas with late introduction” (Article 28); “We have achieved a measure of the effect of breast cancer screening in terms of mortality and the years of life earned” (Article 17); “Tracking progress of breast cancer after the insertion of the organized screening” (Article 26).

In contrast, other European studies raise serious questions about the balance between the benefits and risks of breast cancer screening based on studies of this type of cancer mortality between countries with different levels of screening and the same ability to offer treatment. To the authors, the participation of the trace in reducing breast cancer mortality is overrated.12

Many developed countries have implemented monitoring strategies and systematic assessment of their screening programs to ensure that the benefits of screening outweighed the possible harm. However, to observe the relationship between limiting factors and enablers is critical to meet the reality of each context.

Thus, an article discusses how evil the question of inadequacy of studies that address the topic under study, resulting as difficulties to trace comparison analysis between countries: “The lack of information available on the effectiveness of the Ombudsman’s interventions, practice or policy level. Standard Definitions of what constitutes an appropriate follow-up are scarce, which severely limits the comparability of results between studies” (Article 3).

In this perspective, the discussion of an article emphasizes the increase in mortality rates related to lack of organized screening
programs: "mortality rates continue to increase in some developing countries, as can be seen in Brazil. Among the reasons for this phenomenon we observed the lack of structured screening programs, a long waiting period between diagnosis and treatment, and the lack of access to health services for a large proportion of the Brazilian population population (Article 16). Thus, developing countries, pressures to start screening programs, but lack of evidence that the benefits will be greater than the harm and hasn't improved their health systems in order to deploy effective screening programs and insurance.

lems, possibilities and costs on incorporation of screening programs

Some studies present considerations in relation to the introduction of programs for early detection of breast cancer in low and medium income countries per capita. The possibility of adopting a "stepped" approach, according to who recommendations. Start with early diagnosis, decreasing the percentage of advanced cases and organizing the healthcare system. After structured early diagnosis, if there has been success, evaluate the introduction of the screening. Depending on the resources available (human and technical), start with a trace with clinical examination of breasts and reserve mammography for the diagnosis of suspicious lesions. Finally, if all initiatives to this point demonstrate success, and in the event of having resources, introduce the mammography screening and evaluate the results. From this point of view, those recommendations of the who allows to evaluate which factors interact in the implementation of the screening program, as well as stimulates participation in favor of professionals involved in this program for the early detection of breast cancer. With that, some articles report the knowledge of adverse health professionals over the screening programs: "The difficult access to early detection measures and the lack of orientation of health professionals may compromise the healing rate in women with breast cancer" (Article 14); "Preventive practices used by doctors interviewed are heterogeneous, mostly not recommended by consensus of the preventive conduct advocated" (Article 2).

In this sense, it is necessary the incorporation of strategic measures that will benefit the screening so you can evaluate with accuracy a population and be able to correlate their results with morbidity and mortality rates: "The need to expand the systems that are responsible for monitoring and reporting the trends of breast cancer; forums to discuss the concerns of women regarding breast health; forums to discuss the communication with health care providers, and research efforts that address the breast cancer detection and control among women (Article 9). It is noteworthy that the participation of managers is key to encouraging compliance with the guidelines imposed by the screening: "Screening program for breast cancer suggests a role for policy in improving compliance with screening guideline" (Article 21).

It is not uncommon to listen to or read to identify breast cancer early is important to decrease mortality. However, it is not often that we hear or read about the financial impact of finding breast cancer in its early stages. We know that the advanced stages of breast cancer are more complex, difficult and costly to treat. In this dimension, it is observed that an article discusses the question of how much you spend with a patient with breast cancer: "Whereas the total cost of treating a single case of breast cancer in stage II or more can reach R$ 75,000 .00, we concluded that mammography screening programs can be included among the healthcare policies" (Article 4).

In the US, where there is universal access to health care, studies have estimated increases of around 30% in spending on cancer between 2010-2020, only taking into account the projection of the population of 65 years or older. These increases were not included the current incidence rates, standards of care and survival. Chemotherapy costs have been higher than the average of healthcare inflation. Separating costs into three categories (initial costs-after the diagnosis, ongoing costs and costs at the end of life - last year), the authors found that the breast cancer (32%) and prostate (42%) would be the cancers with greater spending increase. For this reason, several authors consider it important to analyze the cost-effectiveness of early detection of breast cancer, comparing them with the related costs to the clinical disease.

3 articles were selected for discussing the issue of cost-effectiveness of screening: "It will allow us to test a model diagnosis and early treatment and assess its cost-effectiveness in a developing country, where the mortality associated with this disease is very high" (Article 16); "Guidelines for breast cancer screening reflect the costs and benefits of population-based screening, based
on evidence from clinical trials” (Article 21); “The benefits of screening should be weighed against the potential damage, such as false-positive (FP) results, which can lead to increased health costs” (Article 24).

From these excerpts it can be seen that investing in cancer control actions are essential elements in any national program of cancer control. In some countries, health spending and with cancer, in particular, are high, and end up occupying a considerable portion of the budget of Governments (or individual). For example, the spending in the u.s. in 2010 cancer represented 5% of health spending and the United Kingdom (2009-2010) 5.6%. Data from Europe, Canada, Australia, New Zealand and other countries in 2004, show that cancer costs vary between 4% to 7% of total health spending. The cost of breast cancer treatment in the United Kingdom had 10% increase in the last 4 years.18

Screening for breast cancer at the national level

The National Cancer Institute José Alencar Gomes da Silva (INCA) recommends, for the fight against breast cancer in Brazil, three secondary prevention strategies for early detection: Breast Self-examination (AEM), the clinical examination of the breast (ECM) and Bilateral mammography (MMG). The latter is considered the method of choice in population programs by screening their impact on mortality.19

In this perspective, the screening can be performed either by the opportunistic and the organized methods. The first screening test is offered to women who arrive at health units in due course, while organized model is directed to eligible women of a given population are formally invited to perform the periodic exams.20

It is noteworthy that the organized screening is the most effective method, because many countries (Norway, United States, Canada) using screening programs organized present satisfactory results in relation to morbidity and mortality rates for breast cancer in women.21

With this, some articles report the question of the effectiveness of organized screening at the expense of opportunistic for early detection of breast cancer: “Low adherence to recommendations of opportunistic mammography screening of breast cancer in public and private services in a city of Brazil” (Article 20); “The experience of other countries that have organized in an orderly fashion screening has shown that mammography reduced breast cancer mortality is between 15 and 20%” (Article 25); “Efficiency and effectiveness of organized screening mammography programs were proven in large randomized trials” (Article 27).

In Brazil, except for the city of Curitiba, which implemented organized screening in November 2009, Brazilian municipalities held a greater or lesser extent (and different degrees of adherence to technical guidelines of the Ministry of Health) opportunistic screening for breast cancer with clinical breast exam and mammography. In this sense, an article addresses the issue of implementation and expansion of services related to screening in the country: “It is essential to structure the healthcare network in Brazil so that, along with the expansion of the offer of quality mammograms, will expand the supply of diagnostic procedures and treatment for all women who need follow-up” (Article 25).

Therefore, to make possible the screening of breast cancer it is necessary that the assistance network, whose basic care is the gateway to health services, is organized around the family health Strategy (FHS), model primary care-oriented health (APS). As well as the locale must have in their service, installed capacity for conducting mammograms.22

CONCLUSION

Although it is an integrative review, the breast cancer screening theme provokes debate and discussions in the scientific world, and there are the supporters that identifies limits and possibilities regarding the execution of the trace in a variety of sizes, with different arguments and modes of producing and interpreting the evidence. Between 2003 and 2013, the experiences of the screening programs were consolidated enough to produce thousands of reports and scientific publications with a satisfactory evidence level.

It is imperative that a trace analysis of breast cancer in developing countries, including Brazil. In recent years the incidence rates and mortality are increasing in these countries; Different factors contribute to this increase and, therefore, the pressures for introduction of screening programs is very high. Thus, it is essential to note that the opportunistic screening could reduce mortality, but would be less likely and more costly than deploying organized programs.

On the other hand, organized programs should only be deployed when the proposed intervention showed to be effective, efficient,
safe, economically viable and necessary to analyze each element on a local perspective, since a country like Brazil, which has great economic, cultural, social, technological, human resources and organization of health services in its territory, would have different answers to the introduction of screening programs for breast cancer, leading to the increase in existing inequalities.

Finally, thinking about the implementation of screening is to foresee possibilities of reproduction in different places than where they were produced and the balance of risks and benefits that any health intervention produces, in addition to the costs involved in its consolidation. If that evidence were rigorously examined and evaluated, the incorporation of screening by health systems require a dynamic that includes different social actors in action and in different areas, such as the production of information, values and institutional structure.

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Corresponding Address
Fátima Raquel Rosado Morais
Rua Dionísio Filgueira, 383,
Bairro Centro
CEP 59610-090 – Mossorô-RN, Brazil