GENERAL INFORMATION FOR WOMEN

What is screening mammography?

Diagnostic screening consists in performing diagnostic tests on a presumably healthy population on a periodical basis, regardless of the type of test, in order to detect a particular disease (generally, a type of cancer, although there are screening campaigns for other diseases) before it manifests clinically –shows symptoms– which is generally associated with a more advanced stage of the disease.

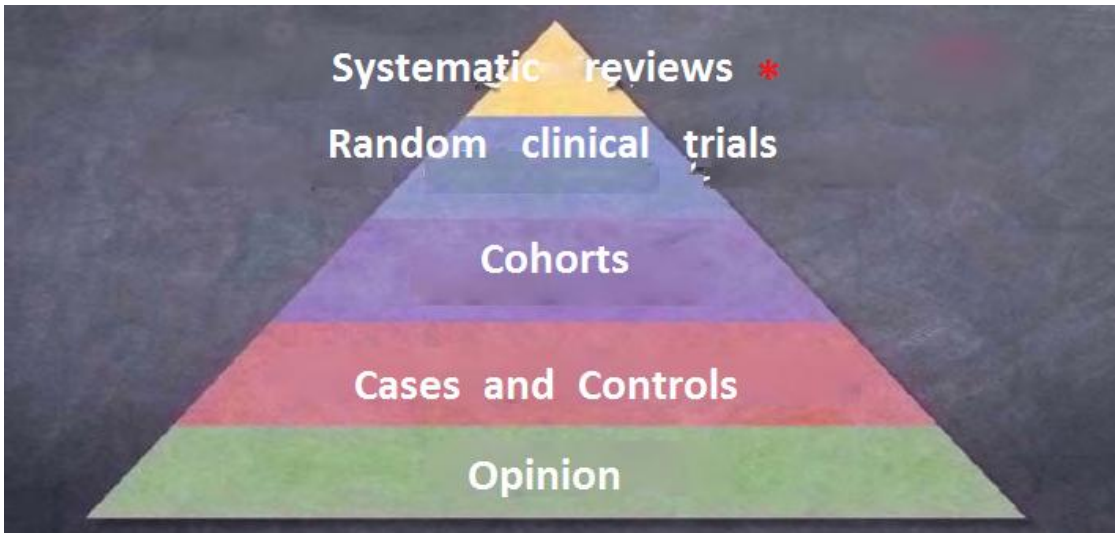
A screening mammography is an x-ray of the mammary glands of a woman who is healthy, rather than a woman who has found a lump or any other alteration in her breasts, and does not appear to have any signs of breast disease. Mammography allows for the detection of certain small lesions that are suggestive of cancer because they are stiffer than the surrounding tissue.

It is a diagnostic method of breast cancer in its earliest stages. The purpose of offering mammographies to healthy women is to diagnose breast cancer before it manifests. By detecting breast cancer in its earliest stages, when the tumour is small, it is logical to believe that less aggressive treatments would be needed, and more healings would be possible.

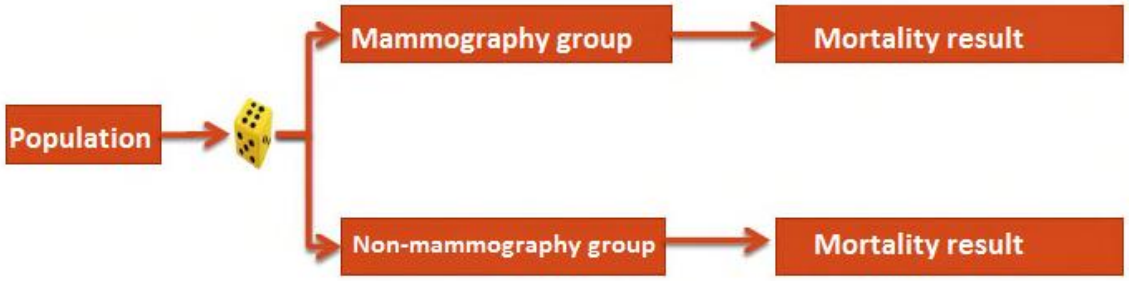
Virtually all Health Systems in western countries have put in place early diagnostic programmes for breast cancer urging the female population aged 50-69 to have a mammography every 2 years (age and frequency differ from country to country or region to region).

Where does the idea that having preventive mammographies is good come from?

Health Systems have put in place mammography-based breast cancer detection programmes on the basis of studies that show that breast cancer mortality is thereby reduced. However, not all tests can be used to suggest that a treatment or preventive method should be definitely adopted. For example, there are medical actions that have been, or are intended to be, adopted only on the basis of expert opinions but without any supporting study. On some other occasions, the tests conducted lack the quality required to support a medical action.



The type of study that provides the safety and reliability that the new medical action should be definitive is controlled clinical trial. It may be defined as an experimental evaluation of a product, substance, medicine, diagnostic or therapeutic technique which, when applied to human beings, intends to assess its efficiency and safety. In the case of mammography as a method for early detection of breast cancer, 9 clinical trials were conducted, mostly in the 70's and 80's of the last century. These trials compared two populations: one in which women had mammographies, and the other in which they did not. It was shown that in the population where women had mammographies, the breast cancer mortality rate decreased relative to the population of women who did not. Women were allocated to the groups (mammography or non-mammography) using a procedure that was similar to rolling a dice, making sure that both groups were similar in all aspects –hence comparable– except for the fact that the women in one group had mammographies while the women in the other did not. Accordingly, any difference found in the groups (for example, mortality) could be attributed to the use of mammographies.



Systematic reviews are scientific research studies where analysis units consist of the primary original studies (in the case of mammographies, the 9 clinical trials mentioned above). They are an essential tool to summarize the scientific information available, increase the validity of findings from individual studies, and identify uncertainty areas that need further research.

When you are presented arguments for and against screening mammographies by experts, you will be presented with the results from clinical trials and systematic reviews.

Benefits of screening mammography and presentation

The main benefit of a screening mammography is to reduce the risk of death from breast cancer (reduction in breast cancer mortality), reducing treatment aggressiveness (less extensive surgery, less radiation therapy, less chemotherapy). The ideal objective would be to reduce global mortality, that is, all-cause mortality, because mammographies may reduce breast cancer mortality, but increase mortality due to other causes. However, it is accepted that breast cancer mortality reduction is a proper target.

When you debate about whether voting for or against screening mammography, you should bear in mind whether this test performed in the population at large does indeed reduce breast cancer mortality.

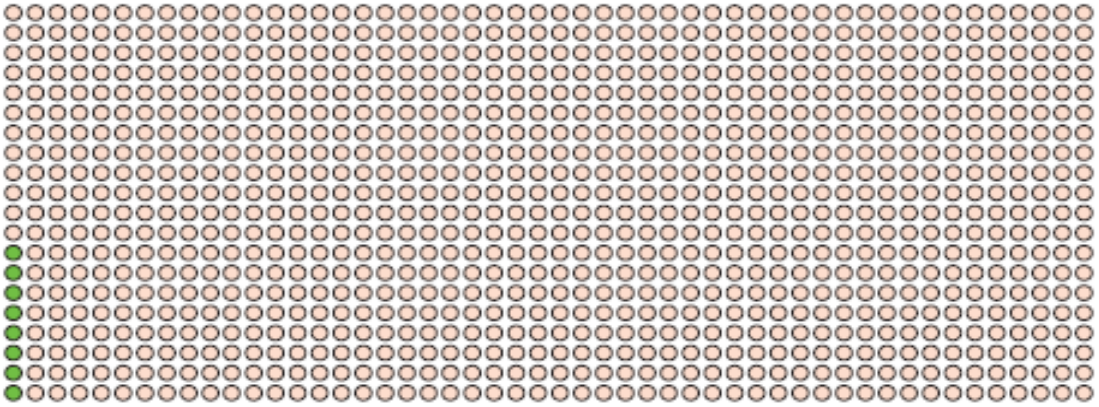
Early mammography-based diagnosis allows for an earlier detection of breast cancer relative to women who do not have mammographies, who are diagnosed later. Accordingly, women's survival rate is higher because time starts to run before, in other words, women are considered ill before. The real benefit would be attained by increasing women's survival but delaying death.

How will the benefit in terms of mortality be presented to you? The reduction of the risk of death from breast cancer in women who participate in screening mammography relative to women who do not is typically presented as a relative risk (RR). For example, if the risk of dying of breast cancer is 5 women out of 1,000 if they **do not** have a mammography, the risk will be 0.5% (5 out of 1,000 equals 0.5 out of 100). Likewise, if women **do** have mammographies, this risk reduces to 4 women out of 1,000, or 0.4%. Absolute risk will reduce to 0.5-0.4=0.1. But it is relative risk that will be presented to you more frequently, which is obtained by dividing the risk of death in women who **do** have mammographies by the risk of death in women who **do not** have mammographies. In our example above: 0.4/0.5=0.80, and it provides the same information as the relative risk reduction expressed as a percentage. Let us think that a relative risk of 1 means that both groups of women (those who **do** have and those who **do not** have mammographies) have the same risk of dying, and a relative risk of 0.80 means that women who **do** have mammographies have a 20% lower risk (0.80 is 20% lower than 1). You will receive information such as the following:

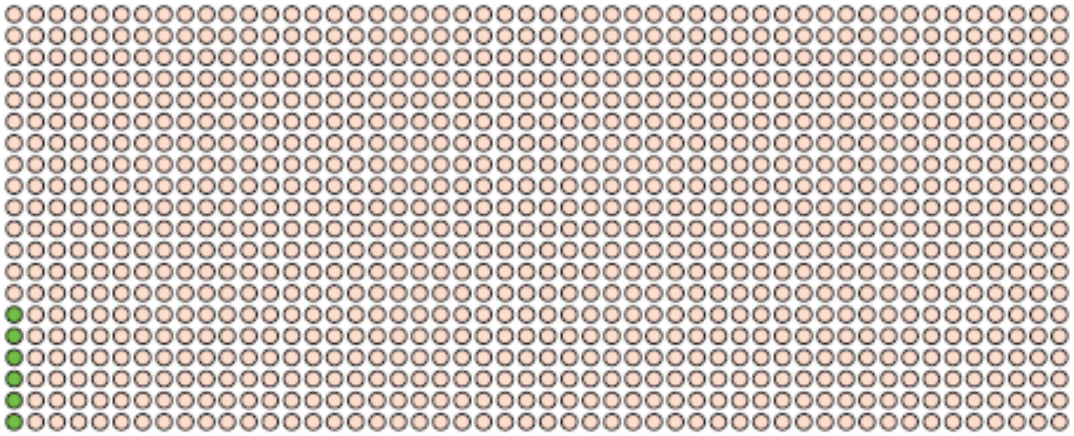
"Screening mammography reduces the risk of death by 20%, with a relative risk of 0.80".

This form of presenting the reduction in breast cancer mortality is, in fact, barely informative. It is much more informative to present the number of women who should have a mammography in order to prevent death from breast cancer. It is the concept of “Number Needed to Treat” or, in our case, “to Screen”. It is known as NNT and indicates whether the benefit offered by mammography pays for the implementation efforts and costs. For example, a 20% reduction in the risk of death may look impressive, but says little about the real benefit. However, if we say that 2,000 women should have mammographies in order to avoid death from breast cancer (NNT: 2,000), we have a more accurate idea of its real benefit. Likewise, if the NNT is 500, it means that 500 women should have a mammography in order to prevent 1 death from breast cancer.

Therefore, you will also receive information about the reduction in breast cancer mortality through the NNT and its graphical representation:



In this example, which is different from the example above, 8 women out of 1,000 who do not have a mammography die.



Furthermore, in this representation, 6 out of 1,000 women who do have a mammography die. Accordingly, 2 deaths out of 1,000 people are prevented (NNT: 500).

Risks of screening mammography. False positives

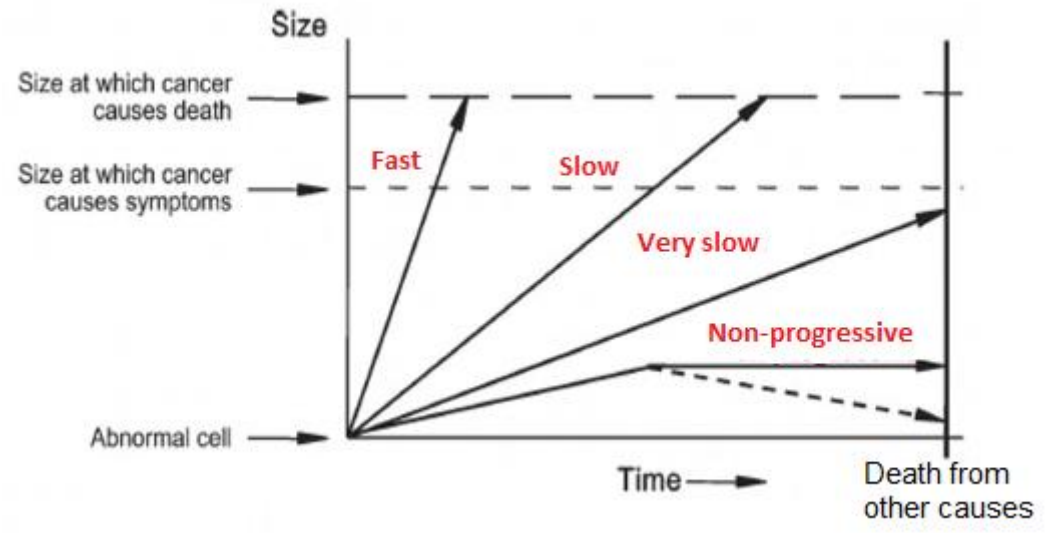
As any other diagnostic test, the result of a mammography may be positive or negative. But both possibilities may be true or false. A false-negative result means that the mammography has not detected cancer although cancer is present. However, mammographies have a high degree of sensitivity because they are able to detect almost all types of cancer that are present at the time of the test. The problem lies in the false positives, which presuppose an error, that is, the result determines that cancer is present when actually it is not.

Types of diagnoses		**Cancer**	
		absent	present
Mammography	negative	True negative (negative diagnosis, cancer is absent)	False negative (negative diagnosis, cancer is present)
	positive	**False positive** (positive diagnosis, cancer is absent)	True positive (positive diagnosis, cancer is present)

The detection of a false-positive mammography result presupposes harm for a woman because, despite being healthy, she will be followed-up and have further testing some time later in order to check whether the mammography readings have changed or not, and learn if they are more or less likely to be breast cancer. On other occasions, additional imaging tests are used to find whether they are more or less likely to be breast cancer. These may also be imaging tests such as spot compression mammography, ultrasound or magnetic resonance and, sometimes, needle biopsy to obtain a sample of the mammographic finding for analysis. Sometimes the woman will undergo surgery to have the detected lesion removed. If after all this, the doctor concludes it is not cancer, the woman will feel relieved, but the psychological impact and physical and mental suffering she has gone through, and sometimes will continue going through, are evident.

Risks of screening mammography. Overdiagnosis and overtreatment

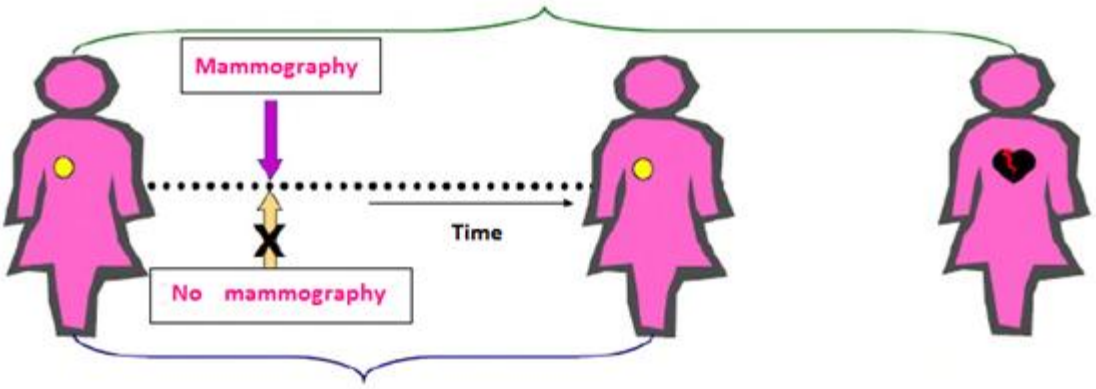
Can breast cancer detected by screening mammography actually remit without treatment or progress so slowly so as not to compromise the woman's health? The answer is *yes*. This is known as overdiagnosis because cancer would have remitted spontaneously or would have never manifested over the woman's life. As a result, all the therapeutic actions applied on the basis of this mammography result would be overtreatment, since they would have been unnecessary and would not have been beneficial for the woman's health –actually, they would be harmful–. This may sound odd to a person who becomes aware of this for the first time, as we see cancer as a disease that may inexorably threaten –if not end– a person's life. But the proportion of overdiagnosis is not at all insignificant, and is one of the main sources of harm to women who participate in screening mammographies, as sometimes they are unnecessarily subjected to surgery, radiation therapy and, on several occasions, systemic treatment (hormone therapy, chemotherapy), turning them into sick women for life when the opposite may have been true.



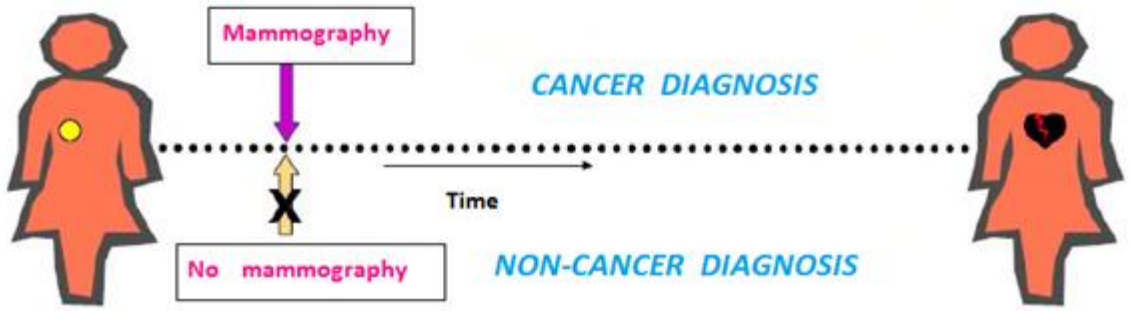
Types of tumour growth. Source: Gilbert Welch. Should I Be Tested for Cancer?: Maybe Not and Here's Why. University of California Press. 2006. ISBN 0520248369, 9780520248366

Let us introduce you to Carmen. She is 64 years old and has developed a small breast cancer (Source: Jolyn Hersch. Use of a decision aid including information on overdetection to support informed choice about breast cancer screening: a randomised controlled trial. The Lancet 2015; 385 (9978): 1642-52).

Carmen has a mammography exam. Her cancer is found and she undergoes treatment. Carmen lives until she turns 86, and then dies of a heart condition. Alternatively, Carmen does not have a mammography exam. Her cancer grows, is detected, but treated later. Carmen dies at the age of 70 from breast cancer.



Yet Carmen may not have a mammography exam, but her cancer does not grow or progress and is never detected. Nonetheless, Carmen lives until turning 86 and dies of a heart condition.



This represents the concept of overdiagnosis and, unfortunately, when cancer is found in a screening mammography, there is no way of knowing whether it is harmful or not. Therefore, all cancers should be equally treated (as if they were harmful). This means that screening mammography causes some women to be treated when such treatment is not necessary (overtreatment).

Risks of screening mammography. Other risks

Slight discomfort or pain during the mammographic screening, a bit of anxiety for some women while waiting for the results, a small possibility of developing cancer induced by the radiation from mammographies are also risks associated with mammography.

Finally, another risk of mammography is a woman's false sensation of security after learning of a negative result for cancer, which leads her to disregard symptoms or signs in the breasts and not to make consultations upon their occurrence ("I've just found a lump in my breast, but I've just had a mammography and was normal, so there's nothing to worry about").

SCREENING MAMMOGRAPHY. ARGUMENTS FOR

Diagnostic screening consists in performing diagnostic tests on a healthy population in order to detect a particular disease (generally, a type of cancer, although there are screening campaigns for other diseases) before it manifests clinically showing symptoms.

The main benefit of screening of female population is the earlier detection of cancer, reducing treatment aggressiveness and increasing healings. Based on this compelling and attractive hypothesis, all western countries have put in place mammography-based breast cancer early detection programmes. But, has this hypothesis proved to be true? And, if so, are the negative effects outnumbered by the benefits?

Women have mammographies to reduce death from breast cancer and, if diagnosed with breast cancer, to receive less aggressive treatments, even though they are usually unaware of the risks or side effects associated with this type of procedure, such as false positives, overdiagnosis and overtreatment, pain, and exposure to radiation.

Breast cancer is the malignant tumour most frequently diagnosed in female population. In Europe, it represents 30% of all the diagnosed tumours and it is the first cause of death from cancer among women. In Spain, the incidence and mortality rates are similar to the European rates, with 26,000 new cases being diagnosed in 2014.

The most common risk factors which are related to breast cancer cannot be modified and account for less than half of the detected cases. On the other hand, controlling the risk factors that can be modified would not cause a significant reduction in the incidence rate, therefore, there is no clear possibility of preventing them from occurring. Hence, we can conclude that we do not have effective strategies of primary prevention, which makes secondary prevention by screening mammography a key instrument to control the disease nowadays. Currently, the Andalusian Health System includes within its basic services the screening of female population for breast cancer, which, in general terms, consists in performing a mammography every two years among female population aged 50-69.

Evidence that screening mammography reduces breast cancer mortality

As previously explained, the most reliable evidence showing that a mammography reduces breast cancer mortality comes from two types of tests: high-quality clinical trials and systematic reviews. Since the 60's of last century, 9 randomized clinical trials have been conducted on around 600,000 women. These trials compared two populations: one in which women had mammographies, and the other in which they did not. Furthermore, 4 systematic reviews have been conducted: Cochrane, American, Canadian, and British. The American and British reviews considered that all the trials had an acceptable standard of quality; however, the Cochrane and Canadian reviews stated that 4 trials did not have any inconsistencies regarding the number of recruited women and guaranteed an adequate random assignment (that is, the group of women who had a mammography and the group of women who did not have the mammography had similar characteristics). Nevertheless, 5 trials could not assert that the two groups of women could be compared or had inconsistencies in the number of women assigned to one or the other group. Therefore, should any differences be found in mortality in both groups, it may not be assured that such results are derived from performing a mammography, but they could have derived from other differences between the groups instead.

In general, most systematic reviews agree that performing a mammography reduces breast cancer mortality by 20%, with a relative risk (RR) of 0.80. Many experts do not agree with differentiating clinical trials according to their methodological quality and also propose, as a key parameter in the assessment, the reduction in breast cancer mortality instead of overall mortality.

Even though the same data has been analysed and a similar reduction in breast cancer mortality has been

achieved (reduction of 20% and RR of 0.80), NNT estimates (number of women aged 50-69 who should have a mammography over a 10-year period in order to prevent death from breast cancer) show many differences. According to the British review, 1 death from breast cancer was prevented out of 235 women who participated in the procedure, whereas to other institutions such as the Nordic Cochrane Centre, at least 2,000 women need to participate in the procedure to obtain the same benefit. If we apply such data to the overall population, we can understand the importance of this benefit: 10 deaths out of 2,350 women are prevented, 100 deaths out of 23,500 women are prevented, 1,000 deaths out of 235,000 are prevented… Likewise, the Cochrane review shows the following data: 10 deaths out of 20,000 women are prevented, 100 deaths out of 200,000 women are prevented, 1,000 deaths out of 2,000,000 women are prevented…

Evidence that screening mammography allows women to receive less aggressive treatments

The fact that women receive less aggressive treatments has not been sufficiently studied. Only the Cochrane review described that the early detection of breast cancer by a screening mammography was most frequently associated with any type of surgery (RR 1.20) and increased use of radiation therapy (RR 1.24), but on the contrary, the need to administer other complementary and aggressive treatments such as chemotherapy (RR 0.63) and hormone therapy was reduced.

Most of the tumours detected in screening mammography programmes were at an early stage of the disease, reducing the need for chemotherapy as complementary treatment.

Evidence that screening mammography causes overdiagnosis and overtreatment

The best approach to measure overdiagnosis is to analyse the clinical trials with adequate random assignment and which did not offer the screening mammography to the control group at the end of the test. Three clinical trials meet these requirements (Malmö I and the 2 Canadian trials) and two reviews (the British and Cochrane reviews) have assessed the percentage of overdiagnosis based on those trials. The assessed data offers variable results. According to the Cochrane review, the percentage of overdiagnosis is 30% or 10 overdiagnosed cases out of 2,000 screened women over a 10-year period. Nonetheless, the British review estimates that 11% of all cancers would be overdiagnosed, and if a woman is diagnosed as a result of a screening mammography, the likelihood of being overdiagnosed is 19%, with an estimated NNT of 1 overdiagnosed case out of 77 screened women.

However, these are estimated figures and the true measure and impact of overdiagnosis are unknown.

Evidence that mammography causes false positives

Despite the variable estimates of false positive results according to the different reviews, the obtained results show a low likelihood of suffering this side effect based on the volume of women who participate in this type of procedure. In accordance with the British review, the percentage of false positives is 3.36% and according to the Cochrane review, the percentage is 10%. As a consequence, further diagnostic tests will be needed, which will cause psychological impact on the individual. 70% of these cases will require other imaging tests and 30% of the cases will require a biopsy.

The discomfort and psychological impact suffered until the diagnosis are discarded and for some time thereafter are inevitable. In spite of all these consequences as well as the anxiety and psychological discomfort that can be associated with the need to run further tests, several studies show that most women believe that the benefits they expect to obtain from their participation in the screening programme are greater than the possibility of suffering from such negative effects.

Evidence that mammography can cause other side effects

Although some women suffer pain during a mammography, for most of them the pain is only mild. The sensation of relief and security derived from receiving a non-pathological result in the test is significantly greater than the discomfort it may cause.

A study estimates a rate of 3-6 cancers out of every 10,000 screened women aged 47-73 every 3 years due to exposure to radiation from mammographies. In addition to this low rate, currently, the digital mammography, which is frequently used in screening strategies replacing the classic analogue mammography device, exposes women to a lower degree of radiation and thus the percentage of tumours associated with this risk factor would be reduced.

Controversy on the screening mammography programme

There are discrepancies regarding the methodological aspects used to estimate benefits and risks: different degrees of importance are given to the quality of the original clinical trials (randomization, other biases) and different degrees of importance are given to the role played by studies other than the clinical trials (observational studies).

There are also discrepancies regarding the validity given to the clinical trials conducted in the 60's, 70's and 80's with old radiologic technology. It is likely that the improvement of breast cancer treatments and healthcare services in general has made mammography screening less important.

Even though estimates on Relative Risks frequently match, the different systematic reviews provide different estimates regarding the required number of women to be screened in order to prevent death or to be overdiagnosed.

The assessment of the benefits and risks is different depending on the review and it is subject to different interpretations, therefore, recommendations are also different.

Recommendations for discussion

The key measure of the benefit of the screening mammography programme is the reduction in breast cancer mortality. As it has been described, despite the various results obtained according to the reviews analysed, overall, most of the systematic reviews agree that performing a mammography reduces breast cancer mortality by 20%, with relative risk (RR) of 0.80.

Regarding the assessment on mortality reduction as opposed to overdiagnosis, there is no conclusive evidence that the number of overdiagnosed cases is significant, therefore, such negative effect should not be considered to be greater than the expected benefit of mortality reduction. In this respect, other less serious side effects, despite causing some harm on women, are counterbalanced with the benefit of mortality reduction that women expect to obtain by participating in the screening mammography programme.

Even after receiving such positive data in favour of mammography screening, some women may prefer not to have a mammography. It is essential to improve the type of information women receive so that they can make informed decisions. It is also essential that research be conducted in order to select which women may benefit from having a mammography and which women may suffer from its negative effects.

Should the Andalusian public health system offer a screening mammography to women aged 50-69?

Yes.

SCREENING MAMMOGRAPHY. ARGUMENTS AGAINST

Diagnostic screening consists in performing diagnostic tests on a healthy population in order to detect a particular disease (generally, a type of cancer, although there are screening campaigns for other diseases) before it manifests clinically showing symptoms.

The main benefit of a mammography-based screening is the earlier detection of breast cancer, reducing treatment aggressiveness and increasing healings. Based on this compelling and attractive hypothesis, all western countries have put in place mammography-based breast cancer early detection programmes. But, might this hypothesis be wrong? Or, even if it were true, could it have a negative impact?

Women have mammographies to reduce death from breast cancer and, if diagnosed with breast cancer, to receive less aggressive treatments. However, they are usually unaware of the risks or side effects associated with screening mammographies. We have provided information about such negative effects: false positives, overdiagnosis and overtreatment, false sensation of security, pain and radiation.

Evidence that screening mammography reduces breast cancer mortality

As previously explained, the most reliable evidence showing that a mammography reduces breast cancer mortality comes from two types of tests: high-quality clinical trials and systematic reviews. Since the 60's of last century, 9 controlled clinical trials have been conducted on around 600,000 women. These trials compared two populations: one in which women had mammographies, and the other in which they did not. Furthermore, 4 systematic reviews have been conducted: Cochrane, American, Canadian, and British collaboration. The American and British reviews considered that all the trials had an acceptable standard of quality; however, the Cochrane and Canadian reviews stated as follows:

- 4 trials did not have any inconsistencies regarding the number of recruited women and guaranteed an adequate random assignment (that is, the group of women who had a mammography and the group of women who did not have a mammography had similar characteristics).
- Nevertheless, 5 trials were unable to assert that the two groups of women could be compared or had inconsistencies in the number of women assigned to one or the other group. Therefore, should any difference be found, it could not be assured that such results derived from performing a mammography, but they could have derived from other differences between the groups instead.

In general, systematic reviews agree that performing a mammography reduces breast cancer mortality by 20%, with a relative risk (RR) of 0.80. But when the analysis narrows down to methodologically appropriate trials, in statistical terms, no significant reduction of death from breast cancer is found, with RR around 1 (without any difference between the screened and non-screened women). Furthermore, the Canadian and Cochrane reviews find no reduction in global mortality between women who have the screening mammography relative to those who do not.

Even though the same data has been analysed and a similar reduction in breast cancer mortality has been achieved (reduction of 20% and RR of 0.80), NNT estimates (number of women aged 50-69 who should have a mammography over a period of 20 years in order to prevent death from breast cancer) show many differences, ranging from 235 according to the British review, and 1,000 according to the Cochrane review.

Evidence that screening mammography allows women to receive less aggressive treatments

According to the Cochrane review, not only are more aggressive treatments not reduced, but also more

women undergo a mastectomy instead of breast-conserving surgery if they participate in screening (RR of undergoing a mastectomy of 1.20) and the use of radiation therapy is higher (RR 1.24).

The number of mastectomies peaked immediately after the implementation of the screening programme in Copenhagen and Funen, while this is not the case in some regions of Denmark, where screening mammography was not implemented.

Evidence that screening mammography causes overdiagnosis and overtreatment

The best approach to measure overdiagnosis is to analyse the clinical trials with adequate random assignment, for they compare similar groups in terms of the risk to develop breast cancer. These trials are also required to have never offered mammographies to the control group and that sufficient follow-up is pursued for 5 years (5-10 years). In this way, we would be able to count how many breast cancers were overdiagnosed in women who have mammographies relative to those who do not. Three clinical trials meet these requirements (Malmö I and the 2 Canadian trials) and two reviews (the British and Cochrane reviews) have assessed the percentage of overdiagnosis based on these 3 contrasted quality trials which did not offer mammographies to the control group at the end of the test: 11% of all cancers would be overdiagnosed and, if a woman is diagnosed as a result of a screening mammography, the likelihood of being overdiagnosed is 19%, with an NNT of 1 overdiagnosed case out of 77 screened women, according to the British review, and 30% or 10 overdiagnosed cases out of 2,000 screened women, according to the Cochrane review.

Evidence that mammography causes false positives

In accordance with the British review, the percentage of false positives is 3.36%, and according to the Cochrane review, the percentage is 10%. As a consequence, further diagnostic tests will be needed, which will cause psychological impact on the individual. 70% of these cases will require other imaging tests and 30% of the cases will require a biopsy.

The discomfort and psychological impact suffered until the diagnosis are discarded and for some time thereafter are inevitable. Many tests have been conducted on the psychological impact of false positives, with diverse results, although it would seem that it may be significant on many occasions. It has also been proved that being well-informed can work as material mitigation of anxiety and psychological discomfort.

Evidence that mammography can cause other side effects

Some women suffer pain during a mammography and, in some cases, this causes them to avoid returning to screening rounds. Obtaining a negative result in the test creates a sensation of relief and false security that may lead them to not see a doctor if they find a symptom or sign in their breasts. The exposure to the radiation from mammographies may cause breast cancer. A study estimates a rate of 3-6 cancers out of every 10,000 screened women aged 47-73 every 3 years. Currently, the digital mammography exposes women to a lower degree of radiation.

Controversies on screening mammography programmes

There are discrepancies regarding the methodological aspects used to estimate benefits and risks: different degrees of importance are given to the quality of the original clinical trials (randomization, other biases) and different degrees of importance are given to the role played by studies other than the clinical trials (observational studies).
There are also discrepancies regarding the validity given to the clinical trials conducted in the 60's, 70's, and 80's with old radiologic technology. It is likely that the improvement of breast cancer treatments and healthcare services in general has made screening less important.

Even though estimates on Relative Risks frequently match, the different systematic reviews provide different estimates regarding the required number of women to be screened in order to prevent death or to be overdiagnosed.

The assessment of the benefits and risks is different depending on the review and it is subject to different interpretations, therefore, recommendations are also different.

Recommendations for discussion

The key measure of the benefit of screening mammography is mortality reduction, not only derived from breast cancer but also total mortality (from any cause). As it has been described, breast cancer mortality is not favourable in methodologically appropriate trials and mortality from any cause is not favourable for mammography either. Regarding the assessment on mortality reduction as opposed to overdiagnosis, evidence suggests that the number of overdiagnosed cases is significant and greater than the benefit of mortality reduction. Other side effects are not as serious, but they also cause harm on women which harm is not counterbalanced with the benefit of mortality reduction.

Even after receiving this negative data against screening mammography, some women may still prefer to have a mammography. It is essential to improve the type of information women receive so that they can make informed decisions. It is also essential that research be conducted in order to select which women may benefit from having a mammography and which women may suffer from its negative effects.

Should the Andalusian public health system offer a screening mammography to women aged 50-69?

No.

CITIZENS' JURY
Schedule of proceedings
Day 1:

- **4.00-4.30 p.m.**
  - Arrival of research team (JMBC, VLR, AQC, PRV, JRB) and of image and sound technician
  - Preparation of conference room
  - Preparation of computing equipment and projector
  - Preparation of recording equipment
- **4.30-5.00 p.m.**
  - Arrival and reception of jury members
- **5.00-5.30 p.m.**
  - Presentation of research team (JMBC)
  - Presentation of jury members
  - Explanation by the moderator of features and objectives of the citizens' jury study (JMBC)
  - Compliance by the jury members with the participants' features sheet and with the informed consent document
- **5.30-7.30 p.m. (6.30-6.45 p.m., coffee break).**
  - Oral presentation supported by PowerPoint presentations by the moderator on screening mammography (JMBC):
    - What is screening mammography?
    - Benefits and risks of screening mammography
- **7.30-8.30 p.m.**
  - Questions and debate
- **8.30-9.00 p.m.**
  - Closure

Day 2:

- **4.00-4.30 p.m.**
  - Arrival of research team (JMBC, VLR, AQC, PRV, JRB), expert witnesses (EBR, SMC), and image and sound technician
  - Preparation of conference room
  - Preparation of computing equipment and projector
  - Preparation of recording equipment
- **4.30-5.00 p.m.**
  - Arrival and reception of jury members
- **5.00-5.15 p.m.**

- Presentation of expert witnesses

- **5.15-6.15 p.m.**
  - Oral presentation supported by PowerPoint presentations by the expert positioning for screening mammography (EBR)
- **6.15-6.30 p.m.**
  - Coffee break
- **6.30-7.30 p.m.**
  - Oral presentation supported by PowerPoint presentations by the expert positioning against screening mammography (SMC)
- **7.30-8.30 p.m.**
  - Questions and debate
- **8.30-9.00 p.m.**
  - Closure

<u>Day 3:</u>

- **4.00-4.30 p.m.**
  - Arrival of research team (JMBC, VLR, AQC, PRV, JRB) and of image and sound technician
  - Preparation of conference room and placing of ballot box
  - Preparation of computing equipment and projector
  - Preparation of recording equipment
- **4.30-5.00 p.m.**
  - Arrival and reception of jury members
- **5.00-5.30 p.m.**
  - Recommendations for deliberation by the moderator (JMBC)
- **5.30-7.00 p.m.**
  - Deliberation by jury members
  - Recommendations to political authorities
- **7.00 p.m.**
  - Voting
- **7.10-7.30 p.m.**
  - Coffee break
- **7.30-7.45 p.m.**
  - Ballot box opening
- **7.45-8.00 p.m.**
  - Thanks and closure.