Breast Cancer: Early Detection and Screening, How and Why? Main Issues and Implementation

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Objectives

- ☺ It is only recently that we started talking about mass screening for early detection of breast cancer in Syria.

- ☻ It is therefore necessary to correct some received ideas, and this by putting in practice and developing the results of 46 years of international research and expertise in the breast cancer screening and most of all by the European referential.

Breast Cancer: Early Detection and Screening

SCHEDULE

1- Introduction. Proven benefit of screening mammography.

2- Controversy.

3- The French Experience.

4- The Tunisian Experience.

5- Important Facts.

6- Other technologies for breast cancer.

7- Closing. Current State and Perspectives in Syria.

I) Breast Cancer: Early Detection and Screening

☺Goal: find cancers before
- they start to cause symptoms
- they have the potential to give metastases and prevent women to die from breast cancer.

☺Screening refers to tests and exams used to find a disease, such as cancer, in people who do not have any symptom.

☺Early detection = approach that allows earlier diagnosis of breast cancer.

Breast Cancer: Early Detection and Screening

- Most frequently diagnosed malignancy among women.
- Second leading cause of cancer death among women of all ages.
- Leading cause of cancer death among women between 50 and 72 years old.
- Mammography has been shown to be efficient in detecting breast cancer before it becomes clinically evident.
- Screening of asymptomatic women has become widespread as a means of achieving early detection.

Breast Cancer: Early Detection and Screening

- Breast cancers causing symptoms tend to be larger and are more likely to have already spread beyond the breast.

- Breast cancers found during screening exams are more likely to be smaller and still confined to the breast. The size of a breast cancer and how far it has spread are some of the most important factors in predicting the prognosis.

Proven benefit of screening mammography

- The use of mammograms, clinical breast exams, and finding and reporting early breast changes , offers women the best chance to reduce their risk of dying from breast cancer. This approach is clearly better than any one exam or test alone.

- The critical question now concerns the current and future availability of those who perform and interpret these life-saving examinations.

Proven benefit of screening mammography

- ☺Auditing and Benchmarks in Screening and Diagnostic Mammography

Stephen A. Feig, MD, FACRab

Volume 45, Issue 5, Pages 791-800 (September 2007)

Radiologic Clinics Of North America

- ☺Mammography: will adequate manpower exist?

Carl J. D'Orsi, MD

Volume 42, Issue 5, Pages 975-978 (September 2004)

Radiologic Clinics Of North America

Proven benefit of screening mammography

- **Mammography screening reduces breast cancer mortality for women aged 39 to 69 years; data are insufficient for older women. False-positive mammography results and additional imaging are common. No benefit has been shown for clinical breast examination or breast self examination only.**

☺ Screening for Breast Cancer: An Update for the U.S. Preventive Services Task Force

Heidi D. Nelson, MD, MPH; Kari Tyne, MD; Arpana Naik, MD; Christina Bougatsos, BS; Benjamin K. Chan, MS; andLinda Humphrey, MD, MPH

Ann Intern Med. 2009;151:727-737.

II) Controversy

1) Does screening mammography decrease breast cancer mortality?

Existing data demonstrate clearly the dominant role of screening mammography in breast cancer mortality reduction with an ever-increasing population of women who are eligible to receive the benefits of screening.

Controversy

☺The randomized trials of breast cancer screening: what have we learned?

Robert A. Smith, PhDa, Stephen W. Duffy, MScb, Rhian Gabe, MPhilb, Laszlo Tabar, MDc, Amy M.F. Yen, MScb, Tony H.H. Chen, PhDd

Radiologic Clinics Of North AmericaVolume 42, Issue 5, Pages 793-806 (September 2004)

☺Cancer du sein: les illusions du dépistage.

Sophie Coisne et Fabienne Lemarchand

Article paru en 2009 sur www.larecherche.fr

www.larecherche.fr/content/homepage/article?id=9111

Controversy

2) A greater proportion of non-lethal cancers. It is not possible to perfectly identify which cancers are lethal.

- Many breast cancers detected by mammography will not kill the women or even produce symptoms if left untreated.

- One in three breast cancers correspond to that category (*).

Controversy

3) Screening leads to overdiagnosis and excessive treatment :

- referring to surgery, radiation, hormonal therapy, and chemotherapy that some women could have avoided without risking their health.

- Women have been led to believe the opposite—that mammography leads to less drastic treatment.

Controversy

(*) Overdiagnosis in publicly organised mammography screening programmes: systematic review of incidence trends

K.J Jorgensen and al, BMJ 2009 ; 339: b2587

Overdiagnosis and mammography screening

H Gilbert Welch, BMJ 2009; 339: 1425

S. Zackrisson and al, BMJ 2006 ; doi :10.1136/bmj.38764.572569.7c

Controversy

4) Risks and other adverse consequences:

- Pain and discomfort from breast compression.
- patient recall for additional imaging.
- false-positive biopsies.
- Anxiety before screening or resulting from supplementary imaging work-up
- Radiation even for multiple screenings: the risk is negligible at current mammography doses.

the risks are less consequential than the life-sparing benefits.

Controversy

5) A clear ethical obligation to provide balanced information to women:

- To make a choice for themselves about whether they want to be screened or not
- Inform women rather than confuse them endlessly with various statistics.

- Implement a quality insurance program.

Controversy

Adverse effects of screening mammography

Stephen A. Feig, MD, FACR

Radiologic Clinics Of North America

Volume 42, Issue 5, Pages 807-819 (September 2004).

Maximising benfit and Minimising Harm of Screening

Muir Gray J A, Patrick J, Blanks R G

BMJ 2008;336: 480-483.

Bmj.com Rapid Responses for JO…

Bmj.com/cgi/eletters/339/…/b2587

http://www.statistics.cancerinstitute.org.au/prodout/trends/trends_mort_C50_extall_2.htm

Controversy

- **“The misplaced propaganda battle seems to now rest on the ratio of the risks of saving a life compared with the risk of overdiagnosis”**

Should we screen for breast cancer?
Klim McPherson, MD
BMJ 2010;340:c3106

Controversy

- The recommendation statement by the U.S. Preventive ServicesTask Force (USPSTF) sensibly concludes that the decision about mammography should be an individual one, reflecting the patient's values regarding specific benefits and harms.

U.S. Preventive Services Task Force. Screening forbreast cancer: U.S. Preventive Services Task Force recommendation statement.
Ann Intern Med. 2009;151:716-26, W-236. [PMID: 19920272]

Controversy

- Other factors to consider are the psychological stress of treatment and the reassurance of having done everything possible by being screened. Women are entitled to know the chances that Mammography will uncover a treatable cancer and the chances that screening will lead to useless, risky treatment.

Comments and Response on the USPSTF Recommendation on Screening for Breast Cancer
Ann Intern Med. 2010; 152: 237-44.

III) The French experience

☺Gorza M, Salines E, Bloch J. **Dépistage Organisé du Cancer du Sein. Evaluation Epidémiologique- Données 2005** Saint-Maurice (Fra) : Institut de veille sanitaire, décembre 2008, 366 p. (5 février 2009).

☻Séradour B, Ancelle-Parc R. **Dépistage organisé du cancer du sein: Peut-on Comparer les résultats du programme français aux résultats internationaux?** J Radiol 2006;87:1009-14

The French Experience

- The French experience distinguish itself by the coexistence of the organised screening program with individual screening on the initiative of the woman herself and her physician (generalist, gynaecologist or radiologist).

- The French breast cancer screening programme with the new protocol published in 2001 achieved national coverage in 2004 (except for French Guyana in 2005).

- 1,871,497 women screened in 2005 (98 districts out of 99) . Participation rate reached 44.8% in 2005 versus 40.2% in 2004. (In VS)

The French Experience

- The national breast cancer screening program is proposed each two years to every woman between 50 and 74 years old, in other words a population of more than 8 million women.
- In 2008, more than half of them have participated to the program (52.4%).
- This program receives a coaching aiming for ensuring security and quality.

The French Experience

- In the scope of the French program, 12500 cancers have been diagnosed in 2005 among a total population of 2 millions of women who undertook the mammography screening organised (INVS).

- Among those cancers, 13 to 14% were ductal carcinoma in situ cases. One third of those cases were estimated to be indolent. Among invasive cancers, 71% didn't affect ganglions and 37% measured less than 10mm.

The French Experience

- First reading radiologists identified 10.1% of all mammograms as positive and 42.5% were confirmed positive by immediate assessment, giving a 4.3% positive rate among screened women.

- Immediate assessment cleared 57.5% of abnormal mammograms and so, reduced recall. It also allows implementation of immediate care when an abnormality is confirmed.

- Second readers read 95.2% of all mammograms and the recall rate was 1.6%. Early recall was prescribed for 3.6% of screened women. A mean biopsy rate of 0.7% was observed and the positive predictive value of biopsy was 79.5%.

The French Experience

- Screening programme implementation matching the new protocol is improving.
- Activity and quality performance indicators are also improving.
- They are in agreement with the European recommendations.
- Still, local disparities remain such as the percentage of positives mammograms at first reading before assessment rating 15% or even more in 13 districts or the biopsy rate ranging from 0.07% to 1.58%.
- Quality and standardisation of the data produced at the local level for national evaluation are improving.

IV) The Tunisian Experience

☻Implemented by the ONFP (National office for family and population).

☺women of Ariana Governorate.

☻Between April 2004 and December 2008.

☺Pilot experience.

The Tunisian Experience

Objectives / Evaluation

- Cost
- Quality control
- Provide information for national strategy
- Women screening adhesion
- Therapy

The Tunisian Experience

Evaluation of the project

- Multidisciplinary team (MDT): management→analysis→evaluation of the project
- Information bank (DATA)
- Evaluation of the project (impact, quality, efficiency, organization)
- Quality Indicators CE

The Tunisian Experience

Methodology

- 40-69 years old, Arniana district, without known antecedent of cancer.
- Awareness of the target population
- Screening test
- Support of the screened women
- Field team, ONFP
- Mammography: Mammo unit Ariana /each two years
- Maternity of Rabta

The Tunisian Experience

Main results: April 1st 2004 – December 30th 2008

- Total screened women: 10259
- Total mammography: 14002
- Total screened cancer: 71
- Total saved women: 63 *TTT conservator 75%*
- Femmes refusing the treatment: 8 (11%)

The Tunisian Experience

First round: program efficiency indicators

Indicators	Study	Norms CE 2001
• Participation rate	9.6%	>70%
• Recall rate	19.1%	< 7%
• Biopsy rate	0.6%	<1.5%
• VVP Chirurgical biopsy	45.3%	>50%
• Cancers rate	5.3%	>5 %
• In situ cancers	7.0%	10-20%
• Invasive cancers <10mm	27.8%	>20%
• Invasive cancers without lymph nodes invasion	50.0%	>70%

The Tunisian Experience

First round: Screened cancers

- 61 cancers, including 10 intervals cancer
- TTT conservator 73.4%
- TTT radical 26.6%
- Medium age 50.0 Y

The Tunisian Experience

Positive aspects of the project

- The decision makers: awareness of the breast cancer problematic.
- The women: awareness, information (screening, TTT), cancer demystification, initiation to the screening culture.
- The service providers: awareness, training, public and private providers; implication of the gynaecologist in the breast cancer total support.
- Women NGOs: awareness, mobilisation.

The Tunisian Experience

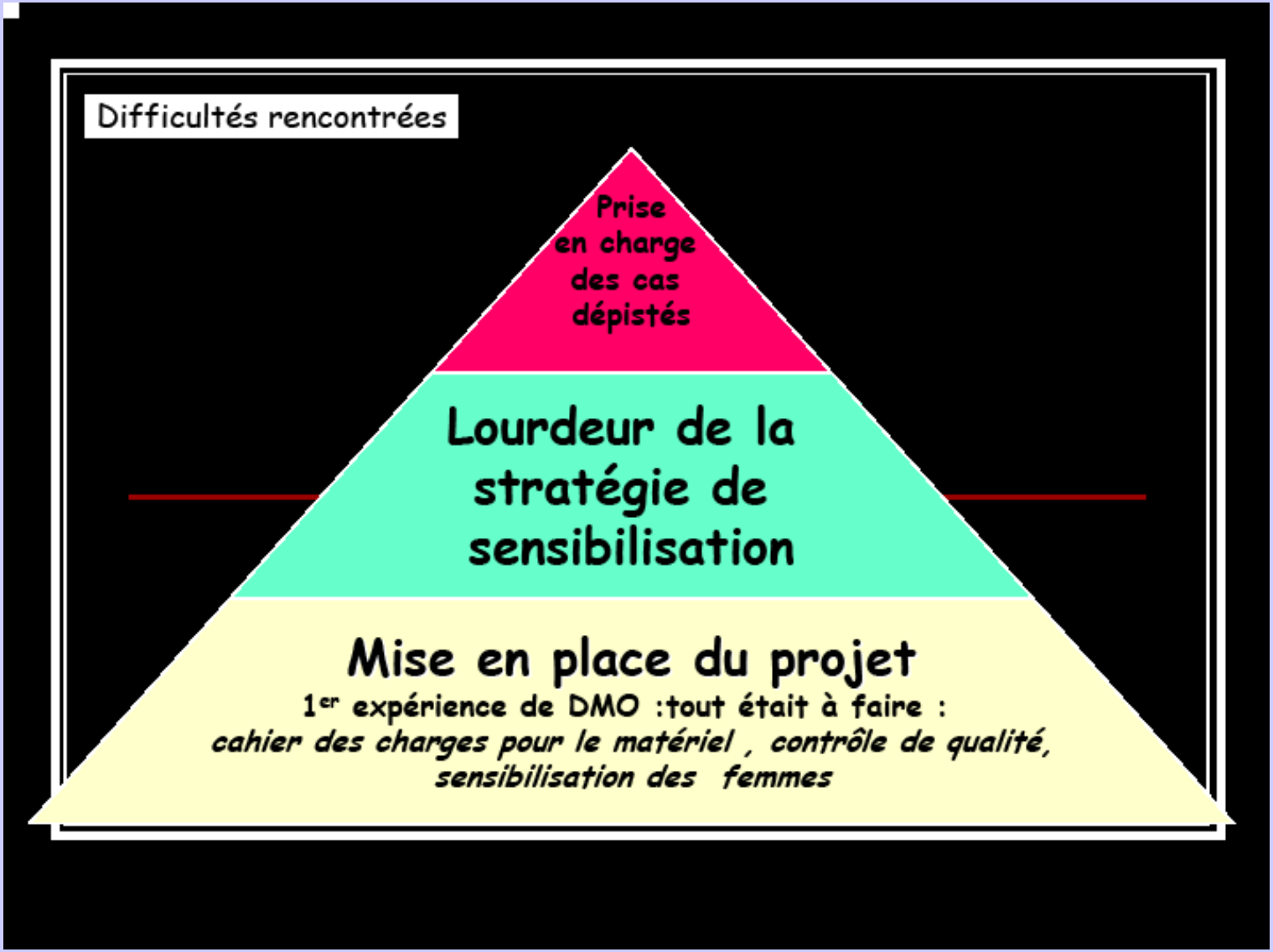
Encountered difficulties

- Total cost covering of the screened cases
- Heavy strategy of awareness
- Project implementation

1st experience of the DMO: everything remained to do: - equipment and human resources specifications,

- quality control,
- women awareness

The Tunisian Experience



The Tunisian Experience
A pilot experience

- The results analysis and the literature browsing enable to prove the feasibility of organised breast cancer screening on regional level in Tunisia.

- It also underlines the advantages and lacking in this pilot experience in terms of orienting the decisions on a national level.

The Tunisian Experience

☻www.observateurtunisie.com/index2.php?option=com_content&do_pdf=1&id=1606

Le cancer du sein: L'indispensable dépistage précoce.

Soumis par Dossier réalisé Par: Azza Ben Chagra 13-02-2009

☻http://www.onfp.tn

☻**Le dépistage mammographique du cancer du sein en Tunisie. Etude de faisabilité : l'expérience de l'Office National de la Famille et de la Population**

Dr. Rim BEN AISSA, Gynécologue,

Directeur médical au Centre de Recherche en Santé

V)Important facts

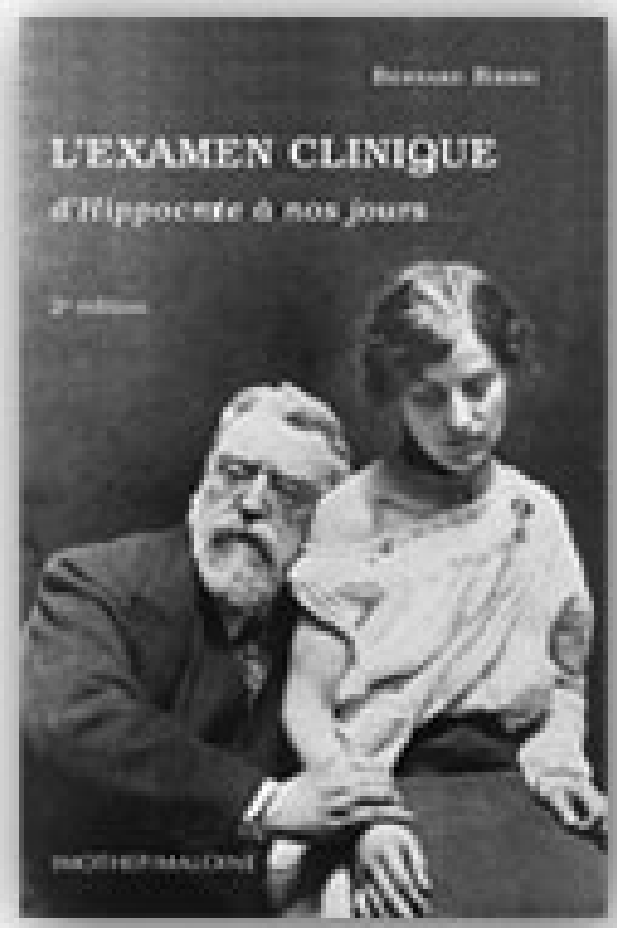
- The early breast cancer detection by mammography changes for good the natural history by diminishing the risks of metastasis.

Important facts

- A screening program guarantees the equity of care.

- It should be from high quality, as a public health action inviting women without any clinical signs to test herself with a mammography.

Important facts



Important facts

Implementation of breast cancer screening strategy at infraclinical stage

A delicate and complex intervention which needs to be adapted to the specific society and population of the country.

Important facts

No screening program should take place in those situations:

- **No insurance quality program has been implemented.**

- **No written, precise and detailed protocol mentioned the screening.**

- **No precise mean of active participation regarding the population was foreseen.**

- **No permanent evaluation and feedback was foreseen within its creation.**

- **No downstream system was organized for therapeutic coverage Of the screened cases.**

Important facts

A screening program is the result of a long thinking and brainstorming within (the) multidisciplinary teams, including public health specialists, different physicians'categories representatives, health economist and public power representatives.

Important facts

A breast cancer screening program protocol must include:

1) The targeted populations (most of all the age), the terms and optimal period between the two mammography examinations, the recruiting mod for the potential screened persons (screening coupon, volunteering…).

Important facts

A breast cancer screening program protocol must include:

2) The information and awareness campaign modes of the targeted populations, adapted to the age, socio-cultural, economic and geographic aspects. The individual contact with the physician, the midwife and paramedic staff of the clinic shall be favored during the medical care of the target population and their children or relatives.

Important facts

A breast cancer screening program protocol must include:

3) The information storing and management modes, necessary to the evaluation and coordination of the screening campaign as well as the campaign financing plan (it should reveal the fact that the screening is a continuous action and not transitory in time).

Important facts

The economic breast cancer screening evaluation: the screening cost is difficult to define and fluctuate in function of various factors:

1- Screening system mode,
2- Periodicity of the screening,
3- Age bracket of the target population,
4- Number of incidences,
5- Magnitude of the mammographic costs,
6- Treatment modes of the screened cancers,
7- Epidemiological features in the country where the screening takes place.

VI) Other technologies for breast cancer

- Mammography screening: progressive mortality reduction from breast cancer observed over the past decade.

- Advances in both ultrasound and MR imaging : effective adjuncts to mammography.

- Interventional breast imaging, particularly those involving percutaneous biopsy techniques.

- The breast imager now assumes the principal role among all the players on the breast health care team.

Magnetic resonance imaging

☺For certain women at high risk for breast cancer, screening magnetic resonance imaging (MRI) is recommended along with a yearly mammogram.

☻Exception in the case of women with a proven mutation, MRI is not generally recommended as a screening tool by itself, because although it is a sensitive test, it may still miss some cancers that mammograms would detect.

Magnetic resonance imaging

- Suspicious areas found by a mammogram.
- Women who have already been diagnosed with breast cancer to better determine the actual size of the cancer and to look for any other cancers in the breast.

Breast ultrasound

☺Sometimes used to evaluate breast problems that are found during a screening or diagnostic mammogram or on physical exam.

☻Ultrasound may be a helpful addition to mammography when screening women with dense breast tissue (which is hard to evaluate with a mammogram).

☺The use of ultrasound instead of mammograms for breast cancer screening is not recommended.

High risk of breast cancer

- Such as those with BRCA gene mutations or a strong family history.

- Both US/MRI and mammogram exams of the breast are recommended.

Digital mammograms

☺More accurate in finding cancers in women younger than 50 and in women with dense breast tissue.

☻Similar rates of inconclusive results between FFDM and film mammograms.

☺ A standard film mammogram is effective for these groups of women, and that they should not miss their regular mammogram if digital mammography is not available.

Digital mammograms

☺Issues to Consider in Converting to Digital Mammography

Etta D. Pisano, MDabcd, Margarita Zuley, MDe, Janet K. Baum, MDfg, Helga S. Marques, Msh
Volume 45, Issue 5, Pages 813-830 (September 2007)
Radiologic Clinics Of North America

☻Performance de la mammographie numérique versus analogique dans le dépistage du cancer du sein: éléments d'une analyse méthodologique critique des études et conséquences

C Colin, V Prince, P Heid
J Radiol 2009;90:174-8

Computer-aided detection and diagnosis CAD

☺It's not yet clear how useful CAD is.

☻A recent large study found it did not significantly improve the accuracy of breast cancer detection.

☺IT Increases the number of women who need(s) to have breast biopsies.

☻Further research of this approach is needed.

Scintimammography-molecular breast imaging-electromagnetic spectrum Perfusion/Diffusion RMI

☻Considered as experimental.

☺Current research has the aim to improve the technology and evaluate its use in specific situations such as in the dense breasts of younger women.

Tomosynthesis (3D mammography) Angiotomosynthesis

☻Allows the breast to be seen as many thin slices, which can be combined into a 3-dimensional picture.

☺May allow to detect smaller lesions or ones that would otherwise be hidden with standard mammograms.

☻This technology is still considered experimental and is not yet commercially available.


SYRIA

Perspectives in Syria

- In the absence of a stratifying analysis of breast cancer in Syria, **less powerful methods** than mass screening through mammography can be very useful as:

☺**Women risk awareness**,

☺High quality **individual mammographic Screening,**

☺Practice of self-examination,

☺Regular breast clinical examination by a skilled practitioner.

Perspectives in Syria

- We are still very far from a national well-organized screening.
- Strict Regulations and measures imposing quality on both human and technological plans should be implemented in parallel with a national strategy on the short, medium and long term.
- On the way to a national cause.
- The decision makers: awareness of the breast cancer problematic.

Signature of the scientific cooperation agreement in Aleppo with CLCC François Baclesse/ Caen France, on the 27th of October 2006

Reception by Exc. The Prime Minister de of Syria in Aleppo on the 27th october 2006

Signature of the agreement concerning the implementation of the Francophon Inter-university Diploma of Senology at Aleppo University on the 27th of October 2007

Meeting with the First Lady in Damascus on the 29th of October 2007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