



The European Breast Screening Network

**Implementation and Progress
1989-2000**

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SIGNIFICANCE OF THE LOGO

The logo used on the cover of this report combines the symbol of breast cancer awareness – the pink ribbon – and the circle of twelve gold stars used on the flag of the European Union.

More than awareness, the pink ribbon symbolises the sisterhood that will help women survive - and conquer - this disease. It was invented in 1991 by Evelyn H. Lauder, founder and president of the Breast Cancer Research Foundation in the USA and A. Penney, then-editor of Self Magazine. (www.pinkribbon.com)

Since 1986, the flag used by the European Union consists of a circle of twelve gold stars on a blue background (twelve being a number that represents perfection and completeness). (<http://europa.eu.int>)

TABLE OF CONTENTS

<u>1</u>	<u>INTRODUCTION</u>	1
<u>2</u>	<u>BACKGROUND</u>	1
2.1	<u>BREAST CANCER AND ITS SIGNIFICANCE FOR PUBLIC HEALTH</u>	1
2.2	<u>ACTIONS UNDERTAKEN AT COMMUNITY LEVEL REGARDING CANCER</u>	2
2.3	<u>EUROPE AGAINST CANCER (EAC) PROGRAMME</u>	2
2.4	<u>EUROPEAN BREAST SCREENING NETWORK</u>	3
<u>3</u>	<u>PROJECT INVOLVEMENT WITH THE ‘EUROPE AGAINST CANCER’ PROGRAMME</u>	4
3.1	<u>REASON FOR INVOLVEMENT</u>	6
3.2	<u>EXPECTATIONS</u>	6
3.3	<u>OBJECTIVES</u>	6
<u>4</u>	<u>CHARACTERISTICS OF BREAST CANCER SCREENING PROJECTS</u>	7
4.1	<u>ORGANISATIONAL STRUCTURE</u>	7
4.2	<u>CO-ORDINATING CENTRE</u>	7
4.3	<u>DESCRIPTION OF INVITATION SYSTEM</u>	7
4.4	<u>SCREENING POLICY</u>	8
4.5	<u>SCREENING FACILITIES DEDICATED TO BREAST CANCER SCREENING</u>	10
4.6	<u>ACCESS TO RESULTS FROM ASSESSMENT PROCESS</u>	10
4.7	<u>PROFESSIONAL CONTACTS WITH OTHER SCREENING UNITS</u>	10
4.8	<u>LINKS WITH POLICY-MAKING INSTITUTIONS ON A REGIONAL, NATIONAL AND INTERNATIONAL LEVEL</u>	11
4.9	<u>POSITION OF SCREENING PROGRAMME AT NATIONAL LEVEL</u>	11
<u>5</u>	<u>BREAST CANCER SCREENING IN MEMBER STATES</u>	12
5.1	<u>ACCEPTANCE OF SCREENING ACTIVITIES</u>	12
5.2	<u>FINANCING FOR SCREENING PROGRAMME</u>	13
5.3	<u>PERCENTAGE OF COUNTRY OR REGION COVERED BY AN ORGANISED SCREENING PROGRAMME</u>	13
5.4	<u>NATIONAL BREAST CANCER SCREENING PROGRAMMES</u>	13
5.5	<u>CONTRIBUTION OF SCREENING PROGRAMME TO DECISION-MAKING</u>	13
5.6	<u>INFLUENCE OF EXPERIENCES WITHIN EUROPEAN BREAST SCREENING NETWORK (EBSN) ON DECISION-MAKING</u>	14
5.7	<u>NATIONAL LAW ON SCREENING POLICIES</u>	14
<u>6</u>	<u>HEALTH CARE SYSTEMS OF MEMBER STATES</u>	15
6.1	<u>ORGANISATION OF HEALTH CARE SYSTEMS</u>	15
6.2	<u>POPULATION COVERED BY AN INSURANCE SYSTEM</u>	15
6.2.1	<u>Statutory and compulsory insurance systems</u>	15
6.2.2	<u>Voluntary health insurance systems</u>	16
6.2.3	<u>Complementary health insurance</u>	16
6.3	<u>SPECIAL STRUCTURE FOR SCREENING UNITS</u>	16
6.4	<u>USE OF EXISTING HEALTH CARE SYSTEM</u>	16
6.5	<u>MERITS / DEMERITS WITH IMPLEMENTATION STRUCTURE</u>	16
6.5.1	<u>Merits</u>	16
6.5.2	<u>Demerits</u>	17
6.6	<u>ENTRY INTO HEALTH CARE SYSTEM FOR A DIAGNOSTIC MAMMOGRAM/ INVASIVE ASSESSMENT</u>	17
6.7	<u>PAYMENT FOR SCREENING ACTIVITIES IN PROJECT</u>	19
6.8	<u>PAYMENT FOR EXAMINATION OUTSIDE ORGANISED SCREENING PROGRAMME</u>	19
<u>7</u>	<u>QUALITY ASSURANCE ACTIVITIES</u>	20
7.1	<u>INFLUENCE OF EUROPEAN GUIDELINES IN SCREENING PROJECTS</u>	20
7.2	<u>IMPLEMENTATION OF QUALITY ASSURANCE ACTIVITIES IN PROJECT</u>	21
7.3	<u>CERTIFICATION CRITERIA IMPLEMENTED</u>	21
7.3.1	<u>Programme acts as a reference centre</u>	22

7.4	<u>EXTENT TO WHICH EC GUIDELINES OF USE TO PROJECT IN NATIONAL CONTEXT</u>	22
7.5	<u>TRAINING ACTIVITIES ORGANISED WITHIN OWN SCREENING PROJECT</u>	22
7.6	<u>TRAINING ACTIVITIES FOR OTHER SCREENING PROJECTS</u>	23
7.7	<u>MAJOR PROBLEMS RELATED TO TRAINING OVER THE LAST TEN YEARS</u>	23
7.8	<u>EUROPEAN NETWORK OF REFERENCE CENTRES FOR BREAST CANCER SCREENING (EUREF) APPROACHED FOR TRAINING</u>	24
7.9	<u>REFERENCE ACTIVITIES FOR OTHER SCREENING PROGRAMMES</u>	24
7.9.1	<i>At regional level</i>	24
7.9.2	<i>At national level</i>	25
7.10	<u>EXPERIENCES WITH RESPECT TO SITE VISITS BY 'EUROPE AGAINST CANCER' / EUROPEAN NETWORK OF REFERENCE CENTRES FOR BREAST CANCER SCREENING (EUREF) / OTHERS</u>	25
7.11	<u>EXPERIENCES OR FUTURE PROSPECTS WITH RESPECT TO ACCREDITATION OF SCREENING FACILITIES / PROGRAMMES</u>	25
8	<u>PROGRAMME EVALUATIONS AND FUTURE AMBITIONS</u>	26
8.1	<u>SUCCESS OF PROGRAMME IN CONTEXT OF ORIGINAL NETWORK AIMS</u>	26
8.2	<u>PROGRAMME PRIORITY</u>	27
8.3	<u>EXPECTATIONS FROM 'EUROPE AGAINST CANCER' (EAC) PROGRAMME</u>	27
8.4	<u>AIMS MET WITH RESPECT TO OWN SCREENING PROJECT</u>	27
8.5	<u>EXPANSION OF SCREENING PROJECT</u>	28
8.6	<u>POSITIVE EFFECTS OF PILOT PROJECT AT PROJECT, REGIONAL, AND NATIONAL LEVELS</u>	28
8.6.1	<i>Project level</i>	28
8.6.2	<i>Regional level</i>	28
8.6.3	<i>National level</i>	28
8.7	<u>FUTURE AMBITIONS</u>	29
9	<u>CONCLUSIONS</u>	30
9.1	<u>RESULTS OF THE SURVEY</u>	30
9.2	<u>THE ROLE OF THE EUROPEAN COMMISSION</u>	31
10	<u>BREAST CANCER SCREENING: THE NEXT STEPS</u>	32
ANNEXES		35
ANNEX I	PILOT PROJECTS & THEIR CO-ORDINATING CENTRES	37
ANNEX II	CONTRIBUTORS	39
ANNEX III	ACRONYMS	41
ANNEX IV	SURVEY QUESTIONNAIRE	43
TABLES		55
TABLE I	INVOLVEMENT WITH 'EUROPE AGAINST CANCER' PROGRAMME	57
TABLE II	CHARACTERISTICS OF BREAST CANCER SCREENING (BCS) PROJECTS	59
TABLE III	BREAST CANCER SCREENING (BCS) IN MEMBER STATES	65
TABLE IV	HEALTH CARE SYSTEMS OF MEMBER STATES	69
TABLE V	QUALITY ASSURANCE ACTIVITIES	75
TABLE VI	PROGRAMME EVALUATION & FUTURE AMBITIONS	81

1 INTRODUCTION

In its Resolution of 7 July 1986¹, the Council of the European Communities expressed its political will to implement a European programme of action against cancer. Among the priorities that it identified for attention was the need for the exchange of information and experience, particularly with regards to the preventive and early diagnosis programmes of the Member States. Such initiatives were reinforced with the establishment of the 'Europe Against Cancer' (EAC) programme, which included a branch of secondary prevention, i.e. systematic population-based screening for specific sites of cancer where such interventions had been judged to be effective.² Acknowledging that some Member States were already considering a national breast screening programme, a plan was developed to enable each of the twelve Member States of the European Community to propose a pilot-screening project within its borders.

The European Breast Screening Network (EBSN) thus created has now been in existence for more than a decade. The majority of its screening programmes have progressed through their implementation phases, have introduced continuing quality improvement procedures, and now have entered the phase of programme evaluation.

According to informal reports, most of the EBSN members regard their involvement with the Network and the 'Europe Against Cancer' programme as valuable. But information on what has been the country-specific influence of the EBSN since it came into existence has not been compiled. Therefore, in order to assess the position of the screening programmes within the Network against the original aims of a decade ago, a carefully-designed survey, entitled 'Present status of breast cancer screening within the European Community - Summarising implementation of quality assurance', was distributed in the Spring of 2001 to the sixteen EBSN projects in ten Member States of the European Community.

This report reflects the responses to the survey questionnaire that were provided by the leaders of the participating EBSN projects, and presents an overview of the information that was supplied. It also describes the influence that the EBSN and the 'European Guidelines for Quality Assurance in Mammography Screening' have had on service-based breast cancer screening programmes in the Member States. As individuals may have changed over the period covered by the survey, some activities might be imprecise and might reflect biases of those responding to the survey. The editors have made every effort to accurately report what was provided to them in the framework of the EBSN.

2 BACKGROUND

2.1 Breast cancer and its significance for public health

In spite of the significant contributions that science and technology have made to the prevention, diagnosis and treatment of human diseases, dreaded illnesses continue to deprive people of their health and well being. Breast cancer, which can be debilitating, disfiguring and deadly, is one such disease. In 2000, this form of cancer was estimated to strike more than 1.2 million women world-wide³ and in 1996 was reported to be the leading cause of death among women in the European Union (70,000 annually) notably those aged between 35 and 64⁴. Early detection, at a time when effective treatment can reduce mortality or morbidity to an extent greater than would later therapy, can be facilitated through screening programmes.⁵

While mammography itself does not prevent breast cancer, it has been proven to reduce mortality caused by it. To be effective as a screening test, however, mammography must meet rigorous technical and professional quality requirements that can best be met through comprehensive quality assurance programmes.

2.2 Actions undertaken at Community level regarding cancer

Implementation of a European action programme against cancer first acquired significance in 1985 at meetings of the European Council in Milan and Luxembourg. This interest in cancer prevention led not only to the Council's adoption of its July 1986 Resolution but to its designation* of 1989 as the 'European Cancer Information Year'.

Since the initial Resolution, cancer prevention has figured prominently in the formulation and implementation of the European Community's health policies and programmes. An action plan for an information and public awareness campaign in the context of the 'Europe Against Cancer' programme was adopted in June 1988⁶ for the period 1988 – 1989; a similar action plan for 1990 – 1994 was adopted in May 1990⁷; and following Council's Resolution in December 1993⁸, in which it requested the Commission to submit a draft third action plan, the 1996 – 2000 scheme was adopted⁹.

The European Parliament has also recognised the importance of cancer prevention as a public health issue. In its Resolution of 19 November 1993¹⁰ on public health policy following the adoption of the Maastricht Treaty, the European Parliament requested that activities against cancer be intensified.

The European Commission, which has responsibility for implementing the plans of action adopted by Council and Parliament, have prepared several Communications on the progress that has been made by the 'Europe Against Cancer' programme as well as proposals for future activity.

2.3 Europe Against Cancer (EAC) programme

From its establishment in 1987, the successive action plans (1988 through 2000) of the 'Europe Against Cancer' (EAC) programme have had as their primary objective to develop knowledge about the causes of cancer and possible means of preventing it.

The 1988 – 1989 action plan aimed at reducing by 15% the expected number of deaths due to cancer by the year 2000.¹¹ In its 10th recommendation, the 'European Code Against Cancer' states that 'you should check your breast regularly, and you should participate in organised screening if you are over 50 years of age'. In 1989, a breast screening network (European Breast Screening Network) was established by the first pilot projects for breast cancer screening co-funded by the EAC programme. After the initial launch of this Network, it became clear that a comprehensive quality assurance policy was necessary in order to bring its members to the desired level of competence. In 1992, therefore, the first edition of the 'European Guidelines for Quality Assurance in Mammography Screening'¹² (EC Guidelines) was published. This document formulated minimal and optimal conditions for quality assurance and quality control of a systematic breast screening programme.¹³

In line with these developments, the 1990 – 1994 plan focussed particularly on quality assurance (QA) activities in relation to mammographic screening. Through the use of the EC Guidelines, awareness of the concept of quality assurance was increased. This second action

* December 1986 in London

plan also included the extension and monitoring of the European Breast Screening Network (EBSN) in order to help the Member States determine a general screening policy.

The introduction of a comprehensive QA policy under the second action plan was further supported by the setting-up of EUREF (EUROpean Network of REference Centres for Breast Cancer Screening) in 1993 in Nijmegen, The Netherlands. The 'Europe Against Cancer' Subcommittee on Cancer Screening (EAC Subcommittee) charged EUREF with the responsibility of responding to and co-ordinating a quality-assurance training requirement in the pilot projects. The nature of this response was to facilitate contacts and training activities between the pilot projects concerned and the source of expertise considered most suitable by the EAC Subcommittee. EUREF was also required to monitor the progress of the programme in question to the point where a satisfactory outcome had been achieved.¹⁴ Eventually, it was hoped that the pilot projects would reach a sufficient standard to act as reference centres (with suitable political backing from the relevant Departments of Health) for each of the Member States. It was recognised that the support from EUREF for these projects would vary, according to their requirements, and diminish over time as they became fully established. From the outset, experts from Italy, The Netherlands, Sweden, and the United Kingdom have been involved with EUREF and the EBSN in sharing experiences from earlier studies within their borders.

The third action plan, for the period 1996 – 2000, stressed *inter alia* the importance of multi-centre projects within the EBSN so as to study the potential improvement of early-detection possibilities. Standardised evaluation of the screening programmes within the Network, on the basis of the European Guidelines, should ensure the effectiveness of such screening.

2.4 European Breast Screening Network

Although the 'Europe Against Cancer' programme was initiated in 1987, it was only in 1989 that activities related to breast cancer screening got underway. The European Breast Screening Network (EBSN) had as its primary objectives: to provide Member States that had no breast screening service with experience; to explore methods for implementing screening programmes into the national health systems; to establish contacts for the exchange of information between Member States; and to develop guidelines for best practice related to breast screening. 'The desirable endpoint for each member of the Network is to establish a co-ordination of screening activities in their own country and to operate a service and/or reference centres for these activities.'¹³

From the start of the EBSN, pilot project leaders have met annually to discuss all aspects of population screening for breast cancer. During these annual meetings, presentations have been delivered on opportunities and problem areas concerning the screening projects. The different health care systems in Europe have made it necessary to find alternative solutions to common problems in the various Member States.¹³ Members of the Network also have contributed to the second (1996)¹⁴ and third (2001)¹⁵ revisions of the 'European Guidelines for Quality Assurance in Mammography Screening'. More recently, co-ordinators have presented results from the multi-centre studies that are currently underway. Representatives from countries that have an interest in breast cancer screening, such as Austria, Switzerland as well as Israel, have been invited, on several occasions, as guests to the annual meetings of the Network.

3 PROJECT INVOLVEMENT WITH THE 'EUROPE AGAINST CANCER' PROGRAMME

Of the twelve Member States* that belonged to the European Community in 1989, two – The Netherlands and the United Kingdom – had already decided to implement nation-wide breast cancer screening programmes. For this reason, they did not pursue support from the 'Europe Against Cancer' programme, through the European Commission, for the establishment of pilot projects within the European Breast Screening Network. Nor did Sweden, which also had a highly organised screening programme, when it joined the Community in 1995, along with Austria and Finland.♦

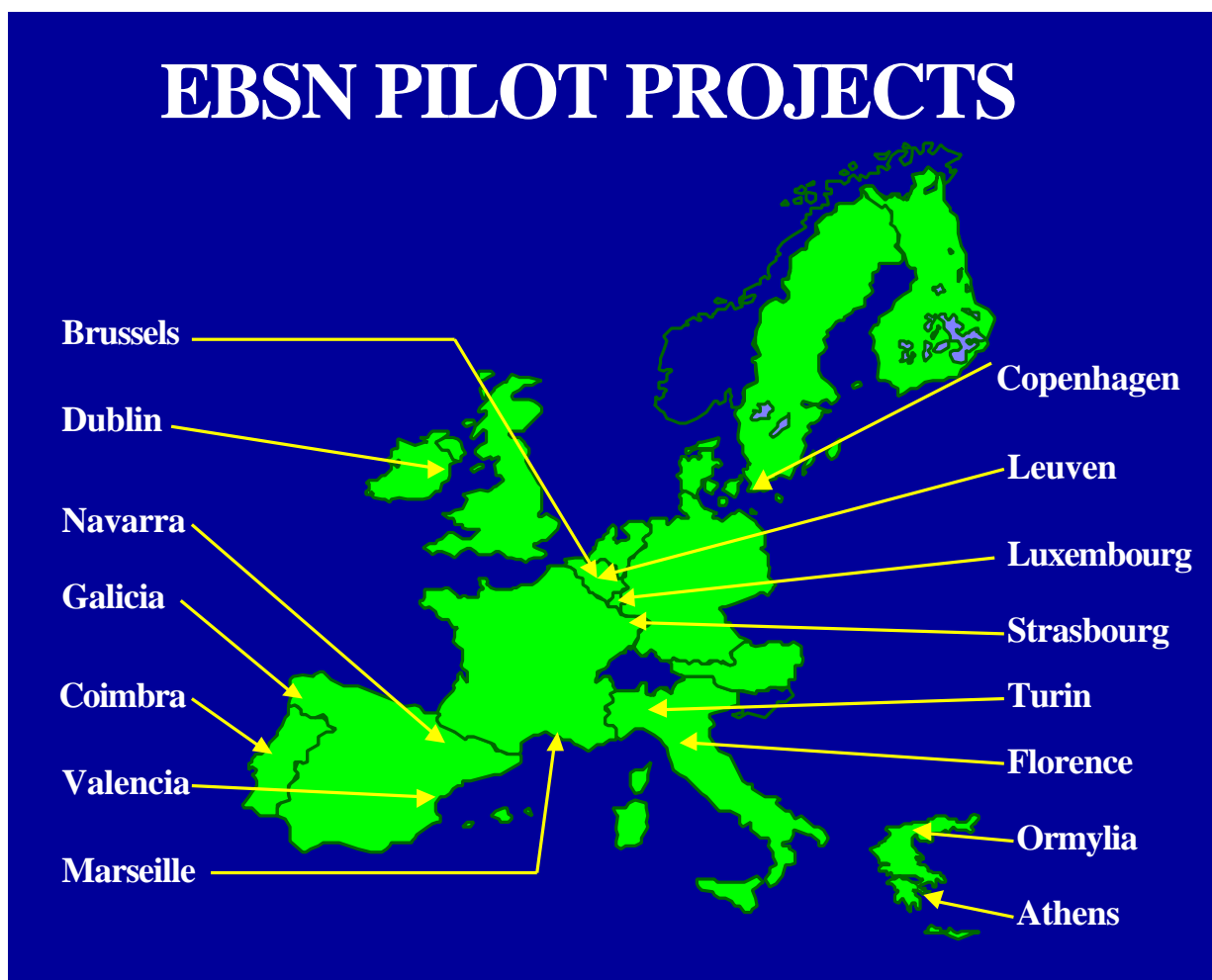


Figure 1: Pilot projects participating in the European Breast Screening Network programme

Greece, Spain, France, and Ireland were the first four Member States to initiate pilot projects in 1989 (Table 1). Portugal, which had set up a breast cancer programme in 1986, established a pilot project within the network in 1990, followed by Italy in 1991, Luxembourg in 1992, and Belgium and Denmark in 1993. The aim of these first pilot projects was not to investigate

* Belgique / Belgie (B), Danmark (DK), Deutschland (D), Greece (EL), España (E), France (F), Ireland (IRL), Italia (I), Luxembourg (L), Nederland, (NL), Portugal (P), United Kingdom (UK).

♦ Osterreich (A), Suomi/Finland (FIN), Sverige (S).

the benefits to be gained from high-quality breast screening, but to explore methods of implementation of this service in the health care systems of each country. In the early phase, emphasis was given to: the methodology and epidemiology of the screening programme i.e. invitations to a large group of women (at least 10,000 women per annum); mandatory double reading of the mammograms to reduce the number of missed cancers; and statistical evaluation and control of the results by epidemiologists. Seven pilot projects reported on the organisational aspects and the results of the initial screening round (1989 – 1992) in a Supplement of the European Journal of Cancer Prevention in 1994.²

The individual projects are identified throughout this report by the city in which the co-ordinating centre is located or the region that the project serves. Of the sixteen projects that are included, one of the first – Dublin – recently made the transition to a national screening programme and the responses included herein mainly reflect the experiences of the original Irish pilot breast screening project (The Eccles project). Portugal established its first pilot project in Coimbra in 1990. Since 1999, Coimbra has supported the setting-up of the screening programmes in Lisbon, Madeira, and Porto but their results are not included in this current report.

Table 1. Affiliation to the EBSN

Year		Project	Region	Country
Screening pre EBSN	Affiliation to EBSN			
1986	1989*, 1999**	—	—	Sweden
1987	1999**	—	—	Finland
1988	1989*	—	—	The Netherlands
	1989*	—	—	UK
	1989	Athens		Greece
		Dublin		Ireland
		Pamplona	Navarra	Spain
		Strasbourg	Bas-Rhin	France
	1990	Coimbra	Central region	Portugal
	1991	Florence	Toscana	Italy
		Ormylia	Chalkidike	Greece
	1992	Luxembourg		Luxembourg
		Turin	Piemonte	Italy
	1993	Leuven [♦]	Brabant	Belgium
	1994	Brussels	Brabant	Belgium
		Cologne		Germany
		Marseille	Bouches-du-Rhone	France
	1996	Santiago de Compostella	Galicia	Spain
	2000	Valencia		Spain

* Provided experts

** Funded for the evaluation of national screening programme

♦ Leuven assumed responsibility for the EBSN project established by Antwerp in 1989, following the death of its project leader.

At the time of this report, two projects did not invite women for screening. Although Germany joined the Network in 1994, it did not undertake screening activities until 2000. The German project focused on establishing comprehensive quality management of up to three population-based mammography screening pilot projects based on the EC Guidelines as the first step in the implementation of a national mammography screening programme. Bremen was the first German city to initiate screening activities in 2001. Since Bremen, however, only

started its screening a few months ago, this report refers to Cologne as the co-ordinating activities for Germany were conducted from this office. The Brussels project is a multi-centre project aimed at establishing a quality assurance programme within the existing health care system without actually performing organised screening activities.

Pilot projects that were to join the Network later were no longer able to obtain funding from the European Commission to set up a screening programme. Their main objectives were related to specific evaluation projects (Denmark, Sweden, and Finland).

3.1 Reason for involvement

By the year 2000, sixteen projects were participating in the Network* (See Annex I for project titles and co-ordinating centres). All anticipated benefiting financially from their involvement with the 'Europe Against Cancer' programme as well as profiting practically through the exchange of experiences with other projects working in cancer prevention (TABLE I). Nine of the sixteen hoped to gain political support, while Navarra already had it having been selected by Spanish authorities to be a pilot project due to its advanced work in breast cancer screening. Initiating a quality assurance programme in mammography screening, joining the fight against breast and cervical cancer, obtaining needed support for systematic registration and evaluation of their programme, and the possibility of conducting a multi-centre research project on screening organisation and implementation, were other reasons given by the projects for their participation in the Network.

3.2 Expectations

Fifteen of the sixteen projects hoped to gain international support as a result of their participation with the EAC programme. Marseille hoped to obtain more information about screening in different countries, and Florence anticipated standardising procedures in screening activities.

3.3 Objectives

At their outset, the objective for nine of the sixteen projects was to establish a regional screening programme. For Luxembourg, this was not a goal as a national one had been planned from the beginning. Both Galicia and Valencia were already running a regional programme when they joined the EBSN. Germany had as its objective to set up a national rather than a regional programme. The second objective, that of setting up a national programme, was a goal for Ormylia and the two Italian projects (Florence, Turin). Only Cologne did not have the introduction of a quality assurance (QA) programme as an initial objective. But thirteen projects reported that gaining access to training programmes on a European level was another of their objectives.

Additional goals included: the exchange of experiences with other screening programmes (Navarra); the improvement of its quality-assurance activities (Valencia); the establishment of a French-language training programme, adapted to the liberal health care system (Strasbourg); and the laying of the foundation for quality-controlled mammography that would eventually lead to a national breast cancer screening programme (Dublin).

Today, having established regional programmes, Belgium, France, and Ireland are in the process of establishing national programmes, while Germany is planning to do so in 2003.

* Athens, Brussels, Coimbra, Cologne, Copenhagen, Dublin, Florence, Galicia, Leuven, Luxembourg, Marseille, Navarra, Ormylia, Strasbourg, Turin, Valencia.

Setting up a national programme continues to be an objective of the projects in Greece as well as in Italy. In Spain, a national programme is not feasible due to its regional health care system but all regions have implemented their own screening activities.

The introduction of a QA programme continues to be an objective for ten projects, while others stated that this has already been accomplished. For eight projects, gaining access to European training programmes is of importance, even though this has been accomplished in several projects (France, Italy)

According to Turin, European training activities are needed less today because instruction at regional / national levels has been set up within the Italian breast cancer screening network (GISMa), also as a result of European support. Luxembourg, however, considers that training programmes in French should be set up at the European level.

For Copenhagen, none of the three objectives was an issue because it joined the network to evaluate its screening activities.

4 CHARACTERISTICS OF BREAST CANCER SCREENING PROJECTS

4.1 Organisational structure

The organisational structures of the breast cancer screening projects differ (TABLE II). Eleven of the sixteen function within a centralised structure with Brussels, Luxembourg, Marseille, and Strasbourg operating within a decentralised one. Leuven has a mixed system with dedicated and non-dedicated but certified screening units.

4.2 Co-ordinating centre

All projects have a co-ordinating centre (Annex I). Of the sixteen, Brussels, Cologne and Valencia neither prepare nor send out invitations to women to participate in their breast cancer screening programmes. Strasbourg only carries out these activities for subsequent screenings.

The majority of projects conduct media campaigns and publish information leaflets. With the exception of Cologne, all organise technical quality assurance and carry out epidemiological evaluations.

Within the co-ordination centres, Dublin and Cologne are the only projects that do not organise second and third readings nor co-ordinate training for radiographers and radiologists. Moreover, they, as well as Valencia, do not transmit screening results to the medical doctors and women concerned. These tasks are carried out by other institutions.

4.3 Description of invitation system

The invitation systems used to invite women to attend screening are of two types – open and personal. For the most part, the co-ordination centres issue the invitations. In the case of Copenhagen, however, a private data-management company issues them; the Portuguese League Against Cancer sends them for Coimbra; and the Sickness Fund carries out this activity in Luxembourg. Six of the sixteen projects send a personal invitation letter both for the initial and subsequent mammographies to each woman in the target population. Dublin, Florence, Turin, and Valencia provide a pre-fixed date for attendance at the screening test,

which can be rescheduled. Strasbourg issues an open invitation for the initial screening and then a personal invitation to attendees for subsequent screenings. Ormylia issues an open invitation where the population registries are not accurate and a personal letter to verified township citizens. Leuven uses a mixed system, which entails either referral by a physician or personal invitation.

4.4 Screening policy

The screening policies adopted by the projects include the age group targeted, the screening interval, the number of views taken at initial and subsequent screening examinations (Table 2), and the resolution of discrepancies between readers (Table 3). Many projects changed their targeted age group over the years covered by the survey period. From the outset of their screening until today, the number of projects targeting the 50-69 age group increased from six to seven; Coimbra, Navarra, and Valencia, which originally had focused on the 45-65 age group, expanded their coverage to those ages 65-69 (50-69); and Florence extended its coverage to the 70-74 (50-74) age group but only for subsequent screenings.

Fourteen of sixteen projects established and still maintain their screening interval at 24 months. Marseille reduced its cycle from the 36 months at the outset to 30 months today. On the other hand, Ormylia extended its interval from 12-24 months to 12-36 months.

Table 2. Changes in screening policy during the study period

	Project	Age group		Screening interval		Initial screening: number of views		Subsequent screening: number of views		Double reading	
		At outset	Today (2001)	At outset	Today (2001)	At outset	Today (2001)	At outset	Today (2001)	At outset	Today (2001)
B	Brussels	50-69		24		2		2		N/A	
	Leuven	50-69		24		2		2		100%	
DK	Copenhagen	50-69		24		2		1 or 2		100%	
D	Cologne	50-69		24		2		2		100%	
EL	Athens	40-64		24		2		1		100%	
	Ormylia	45-70		12-24	12-36	2		2		5%	20%
E	Navarra	45-65	45-69	24		1	2	1		0%	50-70%
	Santiago	50-64		24		2		2		100%	
	Valencia	45-65	45-69	24		2		1		100%	
F	Marseille	50-72		36	30	1		1		100%	
	Strasbourg	50-65	50-69	24		1	2	1	2	100%	
IRL	Dublin	50-64		24		2		1	2	30%	100%
I	Florence	50-69	50-74	24		2		1	2	20%	90%
	Turin	50-69		24		2		1 or 2	2	100%	95%
L	Luxembourg	50-64	50-69	24		2		2		100%	
P	Coimbra	45-65	45-69	24		1	2	1	2	100%	

Note: Coloured cells indicate a change in policy

With respect to the views taken at initial and subsequent screening examinations, diversity continues to exist among the projects. From their outset, six of sixteen have taken two views at both the initial and subsequent screenings. Today, an additional four projects have changed their policy also to include the taking of two views at subsequent screenings. Florence, however, takes two views at subsequent examinations for only 40% of the women screened. Marseille is the only project that has maintained one view at each screening but this will change to two views in 2002 (policy of the national plan). Navarra initially took one view at each examination but today takes two views for the initial screening and one for the

subsequent screening examinations. Since the outset, Athens and Valencia both have retained the practice of only one view for subsequent examinations, while Copenhagen allows one or two views.

The policy of double reading 100% of the mammograms has now been adopted by twelve of the sixteen projects. By the year 2001, Florence had increased its double readings from 20% to 90%, Navarra from zero to 50%-70%, and Ormylia from 5% to 20%.

The policies used by the projects to resolve discrepancies between the readers of the mammograms are heterogeneous. Navarra and Turin have always recalled women while Galicia only introduced this practice in 1998. Florence changed its policy in 1995 and included a review by different readers or a consensus panel. Ormylia applies all policies except that a woman who has been screened is recalled only if 2 out of 3 readers agree. Leuven permits consensus between the first and second, or review by a third reader or a consensus panel. Strasbourg changed its policy from the review by a consensus panel to review by a third reader.

Table 3. Policy to resolve discrepancies between readers

	Project	Woman recalled		Discussion between readers		Consensus between 1 st & 2 nd reader		Review by 3 rd reader		Review by consensus panel & committee	
		At outset	Today	At outset	Today	At outset	Today	At outset	Today	At outset	Today
B	Brussels							Yes	Yes		
	Leuven					Yes	Yes	Yes	Yes	Yes	Yes
DK	Copenhagen			Yes	Yes	Yes	Yes				
D	Cologne			Yes	Yes			Yes	Yes		
EL	Athens									Yes	Yes
	Ormylia	No	Yes [§]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
E	Navarra	Yes	Yes								
	Galicia	No	Yes			Yes	No	Yes	No		
	Valencia					Yes	Yes	Yes	Yes		
F	Marseille	Yes ♦	Yes ♦			Yes ♥	Yes ♥				
	Strasbourg							No	Yes	Yes	No
IRL	Dublin			Yes	Yes	Yes	Yes	No	Yes		
I	Florence	Yes	No	Yes	Yes			No	Yes	No	Yes
	Turin	Yes	Yes								
L	Luxembourg					Yes	Yes				
P	Coimbra									Yes	Yes

§ If 2 out of 3 reviewers agree with discrepancy

♦ Initial screening examination

♥ Subsequent screening examination

Note: Coloured cells indicate a change in policy

Changes in screening practises of the individual projects between their outset and the present were attributed primarily to: adherence to the European Guidelines, or to the ‘Europe Against Cancer’ recommendations and national guidelines; low coverage of women in the original age group; or a desire to reduce the number of recalls. Insufficient personnel and less experienced radiologists were also contributing factors to the introduction of changes for double reading and for resolving discrepancies between readers. In Ireland, the lessons that were learned during the pilot project in order to decrease the number of biopsies, resulted in the introduction of best practice recommendations. The fact that radiologists had acquired more experience in reading mammograms over the years was an additional reason for a policy change (Strasbourg).

4.5 Screening facilities dedicated to breast cancer screening

Facilities dedicated to breast cancer screening available to the projects vary both in accessibility and number. The number of mammography machines fully dedicated to breast cancer screening in ten of the projects varies from one to ten. For the French projects, as well as for Coimbra, Luxembourg, however, access to these machines for breast screening is restricted because the same equipment is used for diagnostic screening.

Nine projects have only static units, six have both static and mobile units, and Florence uses static and mobile units as well as a semi-mobile one. Independent of their set-up, the activities of nine of the sixteen projects are 100% dedicated to screening. Coimbra and Leuven have mobile units that are 100% dedicated because their static units are not fully committed to screening. For its screening activities, Valencia makes 100% use of 18 of its static units and 50% use of 3 of them. In Brussels, Marseille, Strasbourg, and Luxembourg none of the static units used are dedicated to screening. This may be explained by the fact that these projects use the existing health care systems and screening activities are carried out in their radiological units. Brussels, Marseille, Strasbourg, and Luxembourg deal with from 10 to 120 mammographic machines in static units.

Invasive investigations are carried out in centralised assessment facilities for eight of sixteen projects. Galicia, however, has fifteen facilities rather than one centralised one, while Navarra has two hospitals assigned for invasive assessment referrals. Leuven has one multidisciplinary breast centre in the UZ Leuven hospital, but it uses existing assessment facilities, as do five other projects (Brussels, Luxembourg, Marseille, Strasbourg, and Valencia).

The number of assessment centres linked to each project varies depending on the country. Nine projects have from one to three assessment centres that are 100% dedicated with the exception of Florence, which is 30% committed.

4.6 Access to results from assessment process

All sixteen projects have access to the results from the assessment process. Some are received directly by mail, or through forms completed by treating physicians and radiologists, and others following a telephone request. Some projects consult with hospital cancer committees, take advantage of weekly meetings with assessment centres, or obtain the relevant data from diagnostic units, cancer registries and hospital records. Radiologists, pathologists, general practitioners, gynaecologists as well as patients themselves make assessment results available to the projects. Databases, both centralised and decentralised, are also a source for obtaining this information.

For several projects, assessment results from another national region or from outside their Member State are obtained directly, by phone or mail to the hospital in charge, which in some cases requires the woman's prior permission, or they are acquired from the woman herself. For a couple of projects, this information is only available if the woman is treated in its own country, while others receive a copy of the clinical record upon request to the hospital concerned, if the location of the investigation is known. Copenhagen obtains them by record linkage.

4.7 Professional contacts with other screening units

Most projects have had professional contacts with different screening units at the regional level except in those cases where no other organised screening units exist (Galicia, Navarra, Ormylia, and Valencia). Athens reported that it has not had contacts at the national level,

while Ormylia said it had. At the international level, all projects have had contacts with other screening programmes and their professionals. Access to their assessment results frequently comes about: during joint meetings and multi-centre projects, such as the EAC programme, where information exchanges occur; by way of reports and publications; and on an individual basis.

Professional contacts have also been maintained by several projects with symptomatic units, on a regional level among different screening programmes. Eight projects have had such contacts outside their screening programme, but still at a regional level. Navarra has had contacts with diagnostic evaluation units both inside and outside its region. For Valencia, this is at the regional level and for Florence with the woman's permission, if necessary.

4.8 Links with policy-making institutions on a regional, national and international level

The establishment of links with policy and decision-making bodies can have a positive impact on project implementation and development. The key institutions with which the projects have instituted such links are the national parliaments, as well as national and regional health ministries, either directly or through public health councils or health insurance schemes. Obviously, the European Commission is also a major policy-making body with which the projects have established contact. In addition, connections have been maintained with national and regional committees of cancer experts. With the exception of Athens, all projects have had links with their relevant Ministry of Health. Nine projects have had contacts with the Parliament in their Member State although one specified that it was at the regional level. Seven projects have interacted with country delegates at the European Commission.

These contacts with legislators, regulatory agencies, and screening authorities have helped to facilitate both political and financial support for the implementation of regional or national breast cancer screening programmes, and have enabled projects to provide input to policy-making, and to share their experiences. In France, Marseille pursued its links in order to facilitate the co-ordination of a national programme, and Strasbourg collaborated with the relevant committees in the development of the national guidelines and in the implementation of the national protocol.

4.9 Position of screening programme at national level

Many of the projects have attained respected positions at the national level. Luxembourg's national programme has been well received. In Spain, Navarra, which was the first population-based screening project, has progressed to a regional programme co-ordinating with other regional programmes. Valencia, which presently has the largest target population, has collaborated in providing training and establishing other regional programmes. In Portugal, Coimbra has helped to implement the Madeira programme and to co-ordinate those in Lisbon and Porto. In Belgium and France, the experiences gained in the pilot projects have been taken into consideration when preparing the national guidelines. Athens provides coverage to 10% of the female Greek population while Ormylia is the only breast cancer screening programme in the north of the country. The Irish national programme, which began in February 2000 after four years of pilot activities, includes coverage for 50% of women ages 50-64 and will be extended to the other 50% of the target population following an evaluation in 2002. Turin together with Florence are today the main projects co-ordinating the evaluation, training, and network activities at the national level. Copenhagen is one of two regional programmes in Denmark. In Germany, two of the four planned pilot projects are

currently underway (2001), and the expansion of the pilot projects to training and reference centres will take place in 2002, with nation-wide programme implementation scheduled to begin in 2003.

5 BREAST CANCER SCREENING IN MEMBER STATES

5.1 Acceptance of screening activities

At the outset, the female population, the medical community, politicians, and the media, for the most part perceived the breast cancer screening projects positively (TABLE III). The Dublin pilot project had a very positive effect on changing attitudes towards mammography and early cancer detection, and helped to garner support from politicians, the media, general practitioners, and the public for the Irish national screening programme. In Marseille, some negative reactions from the female population were forthcoming with women disliking the idea of being ‘told’ when to attend an organised programme. The less than positive reactions from women, as reported by Luxembourg, Marseille, Ormylia (attributed to taboos and fear), and Strasbourg, were also shared in some cases by the medical community. There were also some mixed reactions, including negative ones, from politicians in Brussels, Copenhagen, and Strasbourg, which was the first pilot project in France (Table 4).

Table 4. Acceptance of programme screening activities

	Project	Female population	Medical community	Media	Politicians
		<i>At outset / Today</i>	<i>At outset / Today</i>	<i>At outset / Today</i>	<i>At outset / Today</i>
B	Brussels	Mixture of positive and negative attitudes			
	Leuven	Positive / Positive			
DK	Copenhagen	Positive / Negative	—	—	—
D	Cologne	Mixture of positive and negative attitudes			
	Athens	Positive / Positive			
EL	Ormylia	Negative / Positive		Positive / Positive	
	Navarra	Positive / Positive			
E	Galicia	Positive / Undetermined			
	Valencia	Positive / Positive			
	Marseille	Negative / Positive		Positive / Undetermined	
F	Strasbourg	Negative / Positive		Positive / Positive	Negative / Positive
	Dublin	Positive / Undetermined			
I	Florence	Positive / Positive			
	Turin	Positive / Positive			
L	Luxembourg	Positive / Undetermined		Positive / Positive	
P	Coimbra	Positive / Positive	Negative / Positive		Positive / Positive

Note: Coloured cells indicate changes in acceptance of screening activities

Today, the perception of women, the medical community, politicians, and the media toward screening activities is generally positive, or has significantly improved. Twelve projects based their responses primarily on questionnaires and acceptance / satisfaction evaluation surveys of female attendees, as well as on statistics. Opinion polls among users, surveys on the impact of a mass media campaign, an evaluation of the opportunistic screening rate (France) and discussions with politicians (Spain) were other methods used as a baseline to underline these perceptions. Only in Copenhagen did statistics illustrate a reduction in the positive perception of the female population.

5.2 Financing for screening programme

An important aspect for the success of any programme is its financial stability. The majority of the screening projects are funded by national or regional governments, within their health services budgets, which may adjust their support when project activities change. The cost of Cologne's programme is covered by statutory insurance, while in Luxembourg the Sickness Fund and the Ministry of Health provide financial support. Athens, Ormylia, and Coimbra receive money from other sources such as the anticancer institutes and private donations.

Future funding for all projects has been assured as of 2001 with the exception of Ormylia, which does not have guarantees of financial support for its screening programme.

5.3 Percentage of country or region covered by an organised screening programme

Coverage of the female target population by an organised screening programme in each of the ten Member States involved in the European Breast Screening Network varies considerably. The most notable, in addition to Luxembourg that has had 98% coverage since its outset in 1992, is Spain, which progressed from 0% coverage in 1990 to 80% in 2000, and Leuven, which increased from 5% to 100% between 1993 and the start of its national programme in 2001.

In France, coverage improved progressively from 0% in 1988 to 47% in 2001. It doubled in Denmark from 9% to 18% between 1991 and 2001, and in Portugal from 0% in 1986 to 30% in 2000.

In Italy, over the ten years between 1990 and 2000, coverage increased from 5% to 30%, although it was noted that the 2000 survey might have underestimated the real coverage.

In Greece, Athens reported an increase in coverage by its screening programme from 2% in 1989 to 10% in 2001. For the Chalkidike and northern region of the greater Thessaloniki area served by Ormylia, coverage increased from 0% in 1993 to 80% in 2001. The national coverage in Greece is estimated to be about 20%.

In Ireland, 50% of the target population was covered by the national programme in 2000, with extension to the other 50% planned following an evaluation of the ongoing activities in 2002.

5.4 National breast cancer screening programmes

Of the ten Member States that have an EBSN project, currently only Luxembourg has a fully-implemented national breast cancer screening programme. Implementation of the national Irish programme is scheduled to be completed by 2002. Belgium and France are in the process of implementing national programmes, with Germany planning to implement one in 2003. Although planned in Denmark, a national programme has not yet been implemented. In Italy and Spain, due to the structure of their health-care systems, only networks of regional programmes are possible in order that high national coverage can be attained. Greece has no specific plans in this direction.

5.5 Contribution of screening programme to decision-making

Perhaps the most significant impact that any of the screening projects has had on decision-making was in Ireland. The Dublin pilot project that ran for four years proved to be essential in convincing the Irish government in 1995 that a national screening programme would be successful, with the EUROpean Network of REference Centres for Breast Cancer Screening

(EUREF) proving to be of considerable support. In Italy, Florence indicated that the screening programme had contributed significantly. Turin reported that as its health services were managed regionally, a national programme would be comprised of a network of regional programmes.

As the first population-based programme in Spain, Navarra assisted other regions to start their own programme. Galicia stated that it was also a pioneer and its screening programme continues to serve as a reference centre for others. Ormylia has been sensitising Greek officials about its work. For Belgium, the Brussels project led to the implementation of a quality assurance programme and the experiences it acquired as a pilot, along with those of the Leuven project, served as the baseline for the realisation of a national programme.

While the contribution of the Marseille and Strasbourg projects to political decision-making was difficult to estimate, it is anticipated that the experiences of these two French pilot projects will certainly be taken into consideration during implementation of the national programme. The national laws adopted in France in 2001 include screening policies for breast, cervical, and colorectal cancer, with the QA criteria for breast cancer screening adapted specifically in accordance with the EC Guidelines. Implementation of the pilot projects co-ordinated by Cologne was a prerequisite for a decision in Germany to implement nation-wide screening.

5.6 Influence of experiences within European Breast Screening Network (EBSN) on decision-making

The experiences of the sixteen projects within the framework of the European Breast Screening Network (EBSN) influenced decision-making in various ways. The EBSN and its key decisions were fundamental to Navarra in the implementation of its own and other regional programmes. Galicia improved its technical quality, professional training, and evaluation procedures in accordance with the EC Guidelines, which were also implemented by Leuven. Turin, Florence, Strasbourg, and Marseille all provided positive responses, with the latter adding that the EBSN had contributed to it realising a quality assurance programme and data collection of the results. Luxembourg's decision to extend its screening coverage in 2001 beyond the 50-64 age group to include those ages 65-69, was based on other projects' experiences in the EBSN. Cologne considered that the EBSN had had a substantial positive impact, while Athens and Ormylia expressed hope that it would influence the final decision of the Greek Ministry of Health in the same way.

On the other hand, the EBSN had no influence on decision-making for Coimbra and Copenhagen. In addition, the impact of Dublin's association with the EBSN was minimal, although it was strongly influenced by EUREF, as well as by the screening programmes in the Netherlands, Sweden, and the United Kingdom.

5.7 National law on screening policies

Laws setting out national screening policies are non-existent in five Member States (Greece, Ireland, Luxembourg, Portugal, and Spain). In spite of having national breast screening programmes, neither Ireland nor Luxembourg has a relevant national law. Nor is there a national law in Spain where responsibility is at the regional level because competencies in the area of public health have been transferred to each Autonomous Community. In the community of Valencia, for example, regional laws have been in place since 1995. Public health competence is a regional activity in several other countries: regional laws may exist, therefore, but may not necessarily be fully implemented. In Denmark, a national law exists

but only two regions have implemented it. Italy and France both have national recommendations, while in Belgium, a national law on screening policies was introduced in 2001. Germany has had a national opportunistic breast cancer screening programme since 1971, which includes clinical breast examination and training in breast self-examination by gynaecologists. Portugal has a national oncologic plan with goals set out by cancer experts. The European Guidelines¹⁵, however, include for reference purposes in Annex VI the Dutch population screening act of 1992.

6 HEALTH CARE SYSTEMS OF MEMBER STATES

6.1 Organisation of health care systems

The ten Member States in which the projects are located have health care systems that can be classified as centralised or decentralised. In a decentralised or liberal system (as in Belgium, France, and Luxembourg), screening is implemented mainly through the use of existing health care system facilities. This implies the involvement of many units and numerous professionals (radiologists, radiographers, etc.) many of whom are less committed to screening. Consequently, the co-ordinating centre in a liberal health care system must assume a more active role in order to ensure a successful screening programme. This involves organising and supervising all screening activities, particularly double reading, since first readings are often carried out by less-experienced radiologists who only read low-volumes of mammograms.

Navarra, Galicia, Turin, and Valencia function within centralised systems although, according to Florence, the Italian system is regionally centralised. On the other hand, the national systems in which eight of the projects operate – Brussels, Cologne, Dublin, Leuven, Luxembourg, Marseille, Ormylia, and Strasbourg – are decentralised, with Copenhagen regionally decentralised. Coimbra reports that the Portuguese health care system, which covers the entire population, co-exists with private and public sub-systems, any of which can be accessed by an individual. Athens regards its system as being both centralised and decentralised.

Within the health-care systems of nine of the sixteen projects, general practitioners (GPs) do not have a gate-keeping role. They do in Spain and Italy. In Denmark, GPs' gate-keeping role does not always extend to screening activities. In Ireland, they are pivotal due to the Irish decentralised health-care structure. In Greece, where the health-care system depends on medical specialists, the role of the general practitioner needs to be better developed and evaluated.

Although GPs may control access to specialists in some countries, generally patients have direct access to medical specialists in Belgium, Ireland, Germany, Greece, France, and Luxembourg, but usually not in Italy.

6.2 Population covered by an insurance system

6.2.1 Statutory and compulsory insurance systems

Health coverage of the population in the Member States can be through statutory and compulsory insurance systems, voluntary health insurance systems, and / or complementary health insurance. Twelve of sixteen projects reported coverage from 90% to 100% through a statutory compulsory health-insurance system. According to Coimbra, each individual in Portugal may enter any of the aforementioned systems.

6.2.2 Voluntary health insurance systems

Five projects reported coverage of their populations by voluntary health-insurance systems at between 2% and 46% (Ireland).

6.2.3 Complementary health insurance

Coverage by complementary health insurance is highest in Luxembourg at 66%; in Italy, and Ormylia it is 10%; and Germany 5%. For Leuven, Copenhagen, Marseille, Strasbourg, and Athens the percentage is unknown.

6.3 Special structure for screening units

At the beginning of their activities, twelve of the sixteen projects introduced special structures for their mammography screening units. Arrangements included the introduction of static, mobile and semi-mobile units, and the establishment of local or central co-ordination offices. Ormylia, starting from 'ground zero', introduced a special structure for itself, and Navarra established an independent unit that is part of the regional public-health structure. Brussels, Luxembourg, Marseille, and Strasbourg did not set-up a special structure.

6.4 Use of existing health care system

Twelve projects also made use of the existing health care system for their screening activities. Leuven gradually established collaboration with non-dedicated screening units that, by the year 2001, required government certification to carry out their functions. While Dublin used the existing system, the hospital made three beds available for the pilot BCS programme so there was no delay in admitting patients for investigation. In Spain, Navarra indicated that screening is integrated into the existing system; Valencia used it for assessment in all public hospitals and for screening (using mammography machines part-time) in four facilities. Although Athens used the health-care system for further assessment, information and sensitisation of the target population, Ormylia commented that they did not use the existing health care system because it was in disarray at the outset. Turin set up dedicated units for screening. Luxembourg has worked with the ten clinics that have radiological units where screening and diagnostic mammograms are performed. Coimbra interacted, at that time, with the system on occasion. Cologne reported the use of office-based diagnostic radiologists who read the screening mammograms part-time in dedicated units.

6.5 Merits / demerits with implementation structure

As with all activities there are positive and negative aspects. The implementation of the pilot projects was not distinct in this regard.

6.5.1 Merits

Significant accomplishments were effected through the realisation of the breast cancer screening projects. Most notable were those in Spain and Greece that achieved better co-ordination of all screening activities, including media campaigns; better integration of these activities into the health care systems; and guaranteed and free access for all eligible women to screening. In France, Marseille implemented its screening activities in a public hospital, which helped it to gain acceptability by private medical doctors. In Strasbourg, the value emerged through the use of the existing health-care structure and the enhancement of quality

control both in screening and diagnostic mammography. In Ireland, the epidemiological evaluation showed that results from the Dublin pilot-project exceeded expectations. In Italy, Florence improved its quality control and became more cost-effective, while Turin introduced common protocols, quality assurance, and evaluation procedures. Leuven increased the quality of diagnostic mammograms and noted greater acceptability by the medical community. In Germany, the need for dedicated units to be effective in quality management was a key issue. The major advantage in working towards this goal was the involvement of diagnostic radiologists performing symptomatic mammography, part-time in high volume screening, because this enables them to become experts in reading screening mammograms after some years.

Being a small country, Luxembourg is in an enviable position of having been able to set up a national programme with one co-ordinating centre, one national pathology register, and one second reader. It has obtained excellent epidemiological results in a decentralised health care system, and has been able to provide better supervision in the implementation of European Community guidelines. Coimbra stated that without having any financial dependence, and independent of health politics, they have been able to maintain strict control over the entire screening process in a centralised set-up.

6.5.2 Demerits

In spite of all the achievements, the projects identified several shortcomings. One drawback mentioned by five projects was the high cost of running screening activities, with Ormylia specifying the lack of financial support from the government. The message of adopting a pure screening mentality (i.e. not to perform an immediate ultrasound or other diagnostic interventions) was very difficult for Brussels to convey to radiologists involved in screening. Because of the heterogeneity of so many units involved in screening in a decentralised health care system, Luxembourg and Strasbourg mentioned, as a negative point, the major effort required to maintain high quality standards over time throughout the entire screening process. Some projects, such as Galicia and Turin, acknowledged the heavy challenge of co-ordinating a programme, sometimes at different levels in the health-care systems. Having responsibility only for administrative co-ordination without seeing patients, enabled Marseille to organise training activities for radiographers. Although the inability to classify interval cancers in Ireland because x-rays were not always taken prior to surgery was negative, it proved to have a beneficial effect for the national screening programme as this now has to be carried out in all hospitals. According to Florence, screening was often separated from clinical activity and improvements gained in screening were not transferred to this area. Cologne experienced resistance from some vested interests to new health care structures.

6.6 Entry into health care system for a diagnostic mammogram / invasive assessment

In order to obtain a diagnostic mammogram, a woman presenting with symptoms can enter the health-care system in five projects through either general practitioners, the gynaecologist, or the radiologist (Table 5). In ten of the sixteen projects, a woman cannot consult a radiologist directly. According to Copenhagen, Dublin, Navarra, and Turin, the woman must be seen by a general practitioner before she can have a mammogram. In four projects, almost any medical doctor can prescribe a mammogram. In Turin access to private specialist facilities is possible.

Table 5. Entry into health care system for mammogram / invasive assessment

	Project	Through general practitioner	Direct access to radiologist	Through gynaecologist	Other
B	Brussels				
	Leuven				
DK	Copenhagen				
D	Cologne				
EL	Athens				Directly to anticancer, or general hospital, or any public or private doctor
	Ormylia	Mostly through rural doctors			Entrance only for symptomatic diagnosis
E	Navarra				Access to gynaecologists, radiologists always through GPs
	Galicia				
	Valencia				Through surgeon
F	Marseille				Every medical doctor can prescribe a mammogram
	Strasbourg				Every medical doctor can prescribe a mammogram
IRL	Dublin				
I	Florence			Sometimes	
	Turin				Direct access to private specialist facilities is possible
L	Luxembourg				Radiologists do not prescribe examinations, they are paid on fee-for service basis
P	Coimbra				Or through any other doctor

Note: Coloured cells indicate an affirmative response

Table 6. Payment for screening activities

	Project	Paid by woman At outset		Paid by woman Today		Today Fee covered by	Organisation of payment
		%	Euro	%	Euro		
B	Brussels	25%	12	By end 2001	0	Health insurance system	Reimbursement system
	Leuven	20%	12	0	0	National health insurance	Reimbursement system
DK	Copenhagen	0	0	0	0	Regional health care system	Directly to screening units
D	Cologne	0	0	0	0	Statutory / private health insurance	Directly to screening units
EL	Athens	0	0	0	0		Service free of charge
	Ormylia	0	0	0	0	Private funds located by Centre	Service free of charge
E	Navarra	0	0	0	0	Health department	—
	Galicia	0	0	0	0	Regional public health system	—
	Valencia	0	0	0	0	Regional health services	—
F	Marseille	0	0	0	0	Health insurance system	—
	Strasbourg	0	0	0	0	Health insurance system	Directly to screening units
IRL	Dublin	0	0	0	0	—	Service free of charge
I	Florence	0	0	0	0	Regional health service	Through local health units
	Turin	0	0	0	0	Regional health service	Through local health units
L	Luxembourg	0	0	0	0	Health insurance	Through voucher
P	Coimbra	0	0	0	0	Contract with government	Reimbursement system

— No response provided

Note: Coloured cells indicate changes in payments

6.7 Payment for screening activities in project

Today, in all sixteen projects, screening mammograms are free-of-charge for the target population. The fees are covered either by health insurance (5), regional or national health care systems (5), or by the municipality or government (2). In Ormylia, the fees are paid by private funds and in Florence, by the local health unit.

Table 7. Payment for examination outside screening programme

	Project	Paid by woman At outset		Paid by woman Today		Today Fee covered by	Organisation of payment
		%	Euro	%	Euro		
B	Brussels	25	12	25	12	Health insurance system	Through reimbursement system
	Leuven	—	—	—	—	—	—
DK	Copenhagen	0	0	—	—	Regional health care	—
D	Cologne	0	0	0%	0	De facto Statutory / private health insurance	—
EL	Athens	—	—	—	—	—	—
	Ormylia	100	120	100	140	Perhaps by private insurance	Directly to screening units if public insurance used
E	Navarra	0 * 100 **	**	0 * 100 **	**	—	—
	Galicia	0 * 100 **	**	0 * 100 **	**	100% if through regional public health system	Regional health system
	Valencia	0 * 100 **	20	0 * 100 **	20.33	—	Depends on private insurance company for each woman
F	Marseille	25	—	25	—	—	—
	Strasbourg	30	20	30	20	—	Through reimbursement system
IRL	Dublin	—	—	—	—	—	—
I	Florence	100	35	0	0	Local health unit	Directly to screening units
	Turin	0	0	0%	0	National health service	—
L	Luxembourg	0	0	100% without medical indication (1994)	34	—	Directly to screening units
P	Coimbra	—	—	—	—	—	—

— No response provided

* If examination done within public system

** If examination done through private doctor, costs established by him / her

Note: Coloured cells indicate changes in payments

6.8 Payment for examination outside organised screening programme

Particular circumstances may require some women to seek a mammography outside an organised screening programme. The distinction has to be made here between the public health-care system and private health-care providers. In the private sector in Spain and Greece, a woman has to pay 100% for a mammogram (Table 7). In five projects, the fee for a symptomatic mammogram will be reimbursed by the health-care system or health insurance if performed in the public sector. In Italy, a national law (2001) exists for a free mammography every two years for women ages 45-69. This is carried out in regions where an organised programme exists. Women outside this age range and having a prescription from the general practitioner, pay 35 Euro within the national health system.

In order to reduce opportunistic screening in Luxembourg, a convention between the Sickness Fund and the Ministry of Health was adopted in 1994 stating that a woman has to pay 100% for a diagnostic mammogram without a medical indication. For Coimbra, payment depends on the type of entry into the health service.

In Brussels, Marseille, and Strasbourg a woman has to pay between 20%-30% of the fee.

7 QUALITY ASSURANCE ACTIVITIES

The EUROpean Network of REference Centres for Breast Cancer Screening (EUREF) is responsible for responding to and co-ordinating a quality assurance training requirement in a given programme. It aims to facilitate contacts and training activities between the pilot projects and the most appropriate expertise, and if requested offers similar advice to other breast cancer screening programmes.¹⁴

7.1 Influence of European Guidelines in screening projects

The 'European Guidelines for Quality Assurance in Mammography Screening' (EC Guidelines)¹⁵ have had an impact on the screening practices in each of the sixteen projects. The dominant issue was the implementation of quality assurance throughout the entire screening process into the existing or beginning screening programmes. In Ireland, they were a major influence in establishing the Irish quality assurance guidelines and the national screening programme was based on the fact that it extends from diagnosis to treatment and follow-up. Florence adopted the 1992 version of the EC Guidelines with minimal changes at the national level, while most Italian screening programmes adopted the 1996 version. Turin strictly established evaluation and quality assurance protocols from the EC and Italian Guidelines. The latter were useful when establishing the regional programme and its protocols. Copenhagen used them for inspiration.

In Brussels, the EC Guidelines were used also to launch a training programme in pathology, and helped to establish the future reimbursement policy of not accepting additional examinations at the time of screening. Leuven gradually implemented them for the pilot project which began in 1993; for the regional programme that started in 1997; and has been using them for the national programme since June 2001. They helped Luxembourg to set up training activities for radiographers, as well as to raise awareness about breast cancer and screening among the target population. They made it easier for Athens to improve its quality assurance and to decrease its recall rate. Ormylia implemented outreach invitations to women. Coimbra reported that some quality-assurance/quality-control activities had been implemented prior to the Guidelines. Nevertheless, they provided a structured quality assurance and quality control protocol to be followed. For Cologne, full adherence to the EC Guidelines was the 'remit' for the German pilot projects. In Strasbourg, they have contributed to the implementation of QA in mammography.

All quality-assurance processes have been implemented in Navarra. Galicia has improved physicist and epidemiological quality control. Valencia's QA and evaluation system was based on the second edition of the EC Guidelines.

Responsibility for the implementation of the EC Guidelines rests either with the co-ordination centre; specialists working in the screening teams as pathologists or physicists; a screening steering committee; or different partners affiliated to the screening programmes.

7.2 Implementation of quality assurance activities in project

The quality assurance activities carried out in the projects focus on epidemiological, physical-technical, and pathological issues (Table 8). Sixteen projects have implemented activities in the epidemiological and physical-technical areas and fifteen in the pathological area. Cologne and Ormylia have activities planned in all areas, and Florence and Galicia have pathological activities planned. All have used the EC Guidelines as a basis except Copenhagen, which stated that it had not really implemented quality assurance activities, although they were a good inspiration. Four projects are using national guidelines/recommendations or international ones.

Table 8. Implementation of quality assurance activities in project

	Project	Epidemiological		Physical-technical		Pathological		EC Guidelines used	Other guidelines used
		Present	Planned	Present	Planned	Present	Planned		
B	Brussels	2001		2001		2001		Yes	
	Leuven	1993		1993		1993		Yes	
DK	Copenhagen								
D	Cologne	2001	2001	2001	2001	2001	2001	Yes	
EL	Athens							Yes	Archives of Hellenic Pathology
	Ormylia	1993-2001	1993-2001					Yes	FDA, American College of Radiology guidelines
E	Navarra							Yes	
	Galicia	1997		1993			2002	Yes	
	Valencia	2001		2001		2001		Yes	
F	Marseille							Yes	
	Strasbourg	1989		1990		1990		Yes	
IRL	Dublin	2000		2000		2000		Yes	Breast Check, National Irish Breast Screening Programme
I	Florence					Only in Florence	For rest of Toscana	Yes	GISMa (Italian BC Screening Network) Guidelines
	Turin	1992		1992		1992		Yes	GISMa
L	Luxembourg	1994		1994-1995		1996		Yes	
P	Coimbra							Yes	

Note: Coloured cells indicate an affirmative response

7.3 Certification criteria implemented

Five projects indicated that they had implemented certification, one (Strasbourg) is doing this progressively, while ten responded negatively. Certification in Marseille is only for technical control, while in Strasbourg this is being done by a private company. According to Brussels, the Regional Ministries of Health implement certification, while Leuven reports that the federal government delegates this task to specialists of working groups or recognised institutions. Turin reports that a form of certification is carried out by the Screening Steering Committee and CPO-Piemonte. In Ireland, it is the Dublin Institute of Radiological Sciences / School of Diagnostic Radiography, University College, Dublin. The EBSN experts advise the German co-ordination office in Cologne.

7.3.1 Programme acts as a reference centre

Seven projects currently act as reference centres (Coimbra, Dublin, Florence, Galicia, Leuven, Ormylia, and Turin) and seven, including Ormylia which already provides reference services, plan to become one. Nine (Athens, Cologne, Dublin, Leuven, Marseille, Ormylia, Strasbourg, Turin, and Valencia) indicated that their certification criteria are based on the EC Guidelines, with Strasbourg stating that it was via the French national authorities. Florence reported that regular site visits and data monitoring according to established defined procedures are conducted, but definitive certification protocols have not been adopted.

7.4 Extent to which EC Guidelines of use to project in national context

The EC Guidelines have been of use in different ways to each of the projects in their national context. At the level of political decision-making, they have proven to be not only inspiring but also influential in establishing quality assurance parameters in screening and symptomatic mammography. In Brussels, they have been used to change the reimbursement policy turning down additional examinations at the time of screening. They have aided in the expansion of national activities already underway in Belgium, as well as the initiatives towards the implementation of nation-wide screening in Germany scheduled for 2003. The EC Guidelines have been the basis for the national screening protocol in France, and have been adopted in Italy as a reference document in its national and regional screening laws and recommendations. They have also assisted the national programme in Luxembourg to publish its epidemiological results and to increase the acceptance of screening by the public and medical community. The EC Guidelines helped the Marseille project in the monitoring and evaluation of data on the follow-up of women. They assisted Navarra to start screening and manage the organisational aspects, and Galicia to implement technical quality control.

7.5 Training activities organised within own screening project

Fifteen projects have organised training activities within their own screening undertaking (Table 9). Copenhagen only provides training for radiographers. Different professional groups were involved in training activities for radiographers and radiologists for the fifteen; for gynaecologists (7); for physicists (9); for general practitioners (8); for nurses (4); for secretaries (10); and for focus groups (7). Other professional groups were mentioned such as pathologists, documentation/epidemiologists, media personnel, surgeons, oncologists, radiotherapists, administrators, and students at schools of public health. Many projects are providing training courses periodically, annually or biennially. Only Brussels organised practical training for pathologists through slides exchange in line with the EC pathology guidelines. Navarra integrated training in screening centres and held sessions in other programmes at the national or international level.

Ireland is the only country where a training course for radiographers is organised to the Certificate of Competence level and to the University Diploma level. A rotation scheme to train radiologists, who have passed a fellowship in radiology, for 6-12 months in national screening programmes, has been underway since July 2001.

**Table 9. Training activities within screening projects
Professionals involved**

	Project	Radiographers	Radiologists	Gynaecologists	Physicists	General practitioners	Nurses	Secretaries	Focus groups	Other
B	Brussels									Pathologists
	Leuven					Yes				
DK	Copenhagen									
D	Cologne									Documentation / epidemiologists
EL	Athens									
	Ormylia									Media
E	Navarra									
	Galicia									
	Valencia									Pathologists, surgeons, oncologists, radiotherapists
F	Marseille									Pathologists, surgeons
	Strasbourg									Pathologists, Administrators
IRL	Dublin									Surgeons, oncologists, radiotherapists, public health doctors
I	Florence									Epidemiologists, project managers
	Turin									Pathologists, surgeons, doctors involved in screening implementation & co-ordination
L	Luxembourg									
P	Coimbra									

Note: Coloured cells indicate an affirmative response

7.6 Training activities for other screening projects

Eleven projects have organised training activities for other screening programmes incorporating different health professional groups (Table 10). The Greek projects are planning training sessions in 2002.

7.7 Major problems related to training over the last ten years

Although eight projects did not encounter any language problems in relation to training, four did. Luxembourg expressed concern that there was no Francophone training reference centre in Europe. Seven of thirteen projects indicated that too many professionals were involved in training. As Marseille is organising national training for radiologists, radiographers and physicists the high number of professionals to be enrolled and the high number of sessions to organise is a tremendous burden. Three of nine projects said that the training was too expensive. For Leuven, the lack of time allocated by trainers for training was a problem. Ormylia referred to lack of support for this kind of work at the national level and from the European Community. Navarra views the major problem to be the lack of personnel to cover absences. Valencia referred to the heterogeneity of mammography classification criteria, and Florence to the waiting list for on-site courses for radiologists.

**Table 10. Training activities for other screening projects
Professionals involved**

	Project	Radiographers	Radiologists	Gynaecologists	Physicists	General practitioners	Nurses	Secretaries	Focus groups	Other
B	Brussels									
	Leuven									
DK	Copenhagen									
D	Cologne									Documentation / epidemiologists
EL	Athens									
	Ormylia									Media, clergy, politicians, educators
E	Navarra									Data managers
	Galicia									
	Valencia									
F	Marseille									
	Strasbourg									Data managers
IRL	Dublin									
I	Florence									Epidemiologists, project managers
	Turin									Surgeons, pathologists
L	Luxembourg									
P	Coimbra									Epidemiologists

Note: Coloured cells indicate an affirmative response

7.8 European Network of REFERENCE Centres for Breast Cancer Screening (EUREF) approached for training

With one exception, all the projects had received training for their personnel from the EUROpean Network of REFERENCE Centres for Breast Cancer Screening (EUREF) over the last ten years. The courses have been extended primarily to radiographers, radiologists, and physicists with Marseille and Strasbourg focusing on second readers. The Danish radiographers, in particular, appreciated the training received. Navarra described their participation in EUREF training activities as a positive experience in spite of the language difficulties. Florence also invited EUREF to give some courses at its site.

7.9 Reference activities for other screening programmes

7.9.1 At regional level

At the regional level, ten of the sixteen projects carry out reference activities for other screening programmes, whereas Athens, and Copenhagen do not perform such services. Subjects covered include radiological, physical-technical, pathological, and epidemiological aspects of screening. Cologne has gained experience in setting-up population-based breast cancer screening, which has been used to plan colorectal, cervical, and skin-cancer screening. Navarra is a reference centre for all aspects related to screening. Dublin offered its site for visits from Europeans involved in breast cancer screening, while Florence is offering its site for visits, radiological consulting, second reading for some programmes, data collection, and the preparation of the annual report for Regional Authorities. Turin, CPO-Piemonte, serves as reference centre for training, quality assurance, and evaluation.

7.9.2 At national level

At the national level, eleven of the sixteen projects provide reference services for other screening programmes, such as activities on radiological, physical-technical, and pathological aspects. Luxembourg co-ordinates all activities related to breast cancer screening in the ten clinics involved in its programme. Coimbra provides reference activities for Madeira, and the North and South programmes. The Navarra professional team acts as a reference source and takes part in several activities. Galicia collaborates as speakers in national courses and meetings; has translated the European guidelines into Spanish; and participates at interregional meetings of breast cancer-screening programme managers in Spain and Portugal. Valencia organises meetings for regional-level programmes about the detriments of radiology in screening caused by x-rays. Florence and Turin participate in the national oncological board; organises training courses at the national level; and co-ordinates national multi-centre projects on quality assurance.

7.10 Experiences with respect to site visits by ‘Europe Against Cancer’ / EUROpean Network of REference Centres for Breast Cancer Screening (EUREF) / others

Project experiences with site-visits by teams from the ‘Europe Against Cancer’ programme, the EUROpean Network of REference Centres for Breast Cancer Screening (EUREF), and others ranged from highly complementary to quite negative. For Dublin, the site-visits from EUREF were of immense value and importance in enabling its pilot breast cancer screening project to progress to a national screening programme.

For Leuven, the objective analyses carried out were useful, and facilitated the implementation of quality assurance when it was a pilot-project. For the Greek projects, the site visits helped to improve screening activities. Galicia and Navarra both had site-visits from EUREF. In Marseille, site-visits were useful during the first years of the screening programme and a great exchange of experiences.

According to the Strasbourg pilot project, the site-visits by EAC personnel resulted in a favourable report about its decentralised system with some points identified for improvement. On the other hand, the same criteria to evaluate centralised and decentralised programmes were used during EUREF visits without taking into account the specificities of a decentralised system in their very critical report. Luxembourg had the same negative experience as Strasbourg with two EUREF site-visits, because the specificities of a decentralised health-care system were not taken into account in reporting on their screening activities. The site-visits to the two Italian projects were perceived as very positive. In Turin, areas for improvement were identified and new site-visits in order to become a reference centre were planned. Coimbra considered the site-visit as an audit to provide key points to improve its programme.

7.11 Experiences or future prospects with respect to accreditation of screening facilities / programmes

Several projects are striving to receive accreditation for their screening facilities from EUREF. In Belgium, the accreditation of screening units falls under the authority of the federal government, but Leuven has submitted a request to EUREF for certification of its reference centres. Copenhagen has had no experience, but such a system is being developed at present for the Copenhagen Hospital System. Strasbourg noted that the issue is under discussion and Marseille pointed out that accreditation would only be national.

In Greece, the Athens project hopes to become a reference centre, but Ormylia does not foresee such a request in the near future. In Spain, Navarra and Galicia would like to have norms and criteria, which could be certified by any accreditation entity, established by consensus at the national or international level. For Ireland, accreditation is mandatory in relation to quality-assurance parameters and will become a pivotal part of the national programme. In Italy, Florence states that formal accreditation will be implemented slowly. In Turin, certification / accreditation is carried out partially for the regional programme, but the project anticipates that it will play an important role at the regional and national levels.

In Luxembourg, accreditation is carried out only on the physical-technical aspect, because there is no political support to add other indicators. In Coimbra, the activities on this issue depend on political decisions. Germany is currently implementing a nation-wide certification programme for symptomatic mammography based on the experience setting-up screening pilots based on the EC Guidelines and EUREF.

8 PROGRAMME EVALUATIONS AND FUTURE AMBITIONS

8.1 Success of programme in context of original network aims

All sixteen projects were successful in attaining at least two of the Network's original aims – exploring methods for the implementation of screening programmes in existing health-care systems, and providing a forum for pooling and disseminating knowledge and expertise. Fourteen felt that they had acquired a practical basis for decision-making should their governments consider implementing a national breast cancer screening programme and sixteen benefited from the development of guidelines for best practise related to mammography screening, in particular those for technical quality control (Brussels). For Leuven, the Network had not provided a practical basis for decision-making, and Brussels considered its own success mixed, noting that it had had no experience in extending invitations.

Ten projects reported that the Network had helped in the establishment of reference and training centres. Athens and Florence responded negatively, with the former noting that although it had the experience and substructure it had to await governmental decisions. Cologne's involvement in the Network had provided a framework for German politicians and policymakers to agree that the approach for establishing a national mammography screening programme would entail setting up 'Centres of Excellence' according to the EC Guidelines and using these centres to extend screening throughout the country.

The Ormylia project reported that it had been successful in identifying reliable partners and hoped to help to create pilot projects in countries of Eastern Europe. Support from the European Community had enabled the pilot project in Dublin, and more recently the Irish national screening programme, to raise the standard of mammography, treatment of breast cancer, and follow-up to levels of excellence. The Danish pilot project contributed to the transparency of the screening programme. Marseille is developing tools for monitoring and evaluation of epidemiological data and research on new technologies such as computer aided detection. Turin has extended quality assurance to the management (assessment / treatment) setting. Luxembourg is planning to extend its national screening programme to the 45-49 age group.

8.2 Programme priority

The first priority for each of their programmes varied among the projects. Athens, Dublin, and Leuven referred to the ultimate aim of reducing mortality from breast cancer. Improving or maintaining high quality standards and quality assurance was of major importance to Luxembourg, Navarra, Strasbourg, and Turin. Copenhagen and Galicia aim to provide a very high quality service to women who decide to participate, while Valencia aims to develop guidelines for best practise related to mammography screening. Florence, Ormylia, as well as Athens, all referred to the establishment of reference and training centres, with the latter also referring to the development of a national programme as a priority. Cologne aims first and foremost to demonstrate adherence to the EC Guidelines in a population-based mammography screening project; Ireland has as its priority to maximise the impact of screening on women's health; Coimbra hopes to improve attendance; and Brussels want to set up an invitation programme. Marseille has a basic aim as its priority, namely to achieve good results after its programme policy change in 2002 (two views will be taken at each round).

8.3 Expectations from 'Europe Against Cancer' (EAC) programme

The expectations of ten projects with regard to the 'Europe Against Cancer' programme have been met. For Strasbourg, the EAC support provided it with the means for implementing a breast cancer screening programme in Bas-Rhin and has enabled it to acquire experience for improving quality assurance in radiology and pathology. Both Marseille and Turin have benefited from the exchange of expertise and experience, with Turin acknowledging the financial support for carrying out quality assurance and research projects, as well as establishing guidelines and certification protocols. Marseille, however, noted that after eight years, its expectations have changed and the level of its programme is now different. Navarra emphasised the importance of the EAC programme's prolongation not only for its own project but in order to enable Network participants to carry-on working on joint projects. This is particularly important for Ormylia, for which the EAC programme has been, in many instances, its only support. Dublin's expectations had been met with regard to the Irish programme.

The EAC programme did not meet the expectations of several projects in other respects. Delayed payments by the European Commission have resulted in the postponement of some projects, according to Luxembourg. Valencia remarked that it had not been easy to exchange knowledge and obtain the latest guidelines. Athens noted that although it had unfortunately received no support during the last few years, nevertheless support to the cancer programme should be continued. As numerous demands were placed on the projects in order to respond to changes in the financial policies or the reporting requirements of the European Commission, Copenhagen specifically mentioned that a considerable amount of time and energy had been invested and wasted.

8.4 Aims met with respect to own screening project

Fourteen projects claimed that, with respect to their own screening project, their aims had been met. Athens had introduced screening programmes in fourteen counties in Greece and two provinces in Cyprus since 1989. Navarra had achieved its basic initial objective of fully consolidating its programme. Dublin had completed the first round of its national screening programme. Strasbourg had the opportunity to evaluate the advantages and disadvantages of implementing a decentralised breast cancer screening programme and to address ways to take account of the heterogeneity linked to its health care system, even though the best solutions

were not always found. Turin established a regional programme (nine local programmes) that covers its entire target population. Cologne was successful in its planning in 2000 and in implementing its first pilot screening programme in 2001.

The epidemiological results from Luxembourg's national screening programme are in line with the EC Guidelines. Copenhagen does not know whether breast cancer mortality has been reduced. An aim for Coimbra is to improve attendance. Brussels stated that a national programme is actually being implemented.

8.5 Expansion of screening project

For the majority of projects, expansion was not a matter that they considered as being applicable. In Denmark, implementation of screening programmes is a political decision that is made at the regional level. In Greece, the projects did not pursue expansion because of the high cost and lack of governmental support. In Portugal, the confidentiality laws limit expansion. Coimbra is awaiting authorisation to use general practitioner's lists to invite women.

8.6 Positive effects of pilot project at project, regional, and national levels

8.6.1 Project level

Almost all pilot projects for breast cancer screening, supported by the EAC programme, reported that, with the EC Guidelines as the baseline, the implementation of quality assurance in all aspect of screening activities has had a positive effect. Some of them have become experts in the field and are able to present good results. Ormylia could never have started screening without the support of the EAC programme. Copenhagen stated that the exchange of experiences with others in Europe was very positive but it would 'quit' if it became too bureaucratic.

Brussels and Strasbourg also mentioned financial support, with the latter stressing the fact that the exchange of experiences to improve quality in different health care systems (centralised / decentralised) was important.

8.6.2 Regional level

At the regional level, many projects introduced best practise in screening activities according to the EC Guidelines. Information and the sensitisation of the target population about early breast cancer detection and attendance is still important in Athens; in addition, lobbying activities were carried out with local conveyors, church, women organisations, etc. Valencia also improved political support. For Strasbourg and Marseille, the EAC programme support was useful in training professionals involved in screening in their / other regions in France. The reference centre of Turin is organising the regional programme for 800,000 women ages 45-69.

8.6.3 National level

In Belgium, France, and Ireland, the pilot projects were leaders in implementing a national programme. In Germany, the pilot project helped in planning the management of the national programme and the international co-operation in quality assurance for the 'pilots' led to the start of its own national QA programme in symptomatic mammography in January 2002. In Greece, Athens continues to receive requests from counties to start screening programmes,

and Ormylia, which is still the only screening programme in the northern part of the country, has been asked to set up satellite projects. The requests received by Athens are forwarded to qualified government messengers.

Navarra is encouraging the setting up of programmes in other Spanish autonomous communities, and Galicia is disseminating the EC Guidelines at the national level and co-ordinating these regional screening programmes. For Turin, being a pilot project has helped it in attaining the goals of a reference centre at local, regional and national level. Luxembourg, in spite of the high heterogeneity among its ten centres, achieved some homogeneity in implementing quality assurance and training radiographers. Coimbra is proud to get a 'stamp' of quality and improvement.

8.7 Future ambitions

In the coming years, Leuven will be working towards receiving certification as a national and international reference centre; building a national evaluation unit and an international multi-centre evaluation of individual patient data; and expanding screening activities to new countries in an ambassadorial role. Brussels' aim is to participate and to succeed in the implementation of an organised programme with invitations. The analysis of breast cancer mortality is on the agenda for Copenhagen. In Germany, the aims are: European co-operation in quality management of a large national mammography screening programme; comparison of German screening programme results with other programmes in Europe; extension of QA advances in screening to the entire range of breast cancer care; and European co-operation in certification of symptomatic units.

Athens cited as its future ambitions to expand its screening programmes at the national level, and be recognised as a reference and training centre. Ormylia hopes to augment its services and to develop pilot projects in Eastern Europe. Navarra intends to demonstrate the effectiveness of these type of activities and use them as a model for setting up other cancer screening programmes. In France, Marseille wants to maintain a high standard of quality of the programme in a decentralised health system, even when implementing the national programme. The aims in Strasbourg are: to improve a quality programme in reducing heterogeneity; to improve compliance and reduce opportunistic screening (depends on political decisions); and to extend quality assurance for screening, diagnosis, and treatment to all participants, which will be facilitated by implementation of national accreditation.

Ireland hopes to implement a total national screening programme by 2002; to become a centre of excellence that will also promote knowledge and awareness of all aspects of breast disease; and to be involved in multi-centre trials on new technologies that include diagnosis, treatment, and follow-up. Florence wants to establish a network of regional reference and training centres. Turin is planning to extend further quality assurance; to evaluate outside screening settings; to help to implement new regional screening programmes; and to work towards a national network of regional screening programmes covering the entire target population of Italy. Luxembourg is aiming to raise the participation rate and to acquire knowledge in new technologies such as digital mammography. Coimbra would like to be able to use the population database to send out personal invitations, and to help programmes in the north and south of Portugal to cover their regions.

9 CONCLUSIONS

9.1 Results of the survey

In assessing the responses from the EBSN members to the survey on the 'Present status of breast cancer screening within the European Community' it can be concluded that, for most projects, their expectations with regard to the 'Europe Against Cancer' programme have been met. As the following conclusions illustrate, the European Breast Screening Network has played an important role in providing a basis for support and the exchange of experiences.

- Most Member States set out to study the feasibility of introducing screening on a regional basis in their different health care systems. Today, most are aiming for national coverage of the target population by mammographic screening, either through a national screening programme or through a network of regional ones. This was beyond the expectations of most projects when they initially became involved with the EAC programme. Four projects have made significant progress in this respect. Ireland initiated its national programme in 2000, France and Belgium in 2001 and Germany foresees its implementation in 2003.
- It is possible to set up mammographic screening within various types of health care systems. Use of a liberal health care system entails the involvement of many units and numerous professionals (radiologists, radiographers, etc.) who are less committed to screening. The role of the co-ordinating centre, therefore, is demanding and involves organising and supervising all screening activities, particularly double readings. Whether the results of the screening programmes in the differing health care environments will prove to be equally effective can only be shown in the long term through careful evaluation of the programmes.
- 'The European Guidelines for Quality Assurance in Mammography Screening' have been pivotal in introducing and implementing QA programmes in the projects. In many European Member States, they now serve as the basis for country-specific protocols and regulations (even as a basis for a national law e.g. France). In liberal health care systems, these Guidelines have been accepted as a yardstick by medical professionals by stressing: the need for teamwork in order to have a successful screening programme; the multidisciplinary approach; and a change of attitude among professionals involved. The European Guidelines were also successful in contributing to quality assurance in the clinical management of screen-detected as well as symptomatic breast cancer.
- The implementation of the 'European Guidelines for Quality Assurance in Mammography Screening' encouraged many of the projects to introduce training activities. Links were established with the EUROpean Network of REFerence Centres for Breast Cancer Screening (EUREF) and other training centres for this purpose. A major difficulty encountered, particularly by radiographers, in relation to training, however, was the absence of French-speaking instructors.
- All programmes covered by this report target women ages 50-64 for screening and most of them have extended their upper age limit to 69 years. Even though the screening policies in the EC Guidelines recommend two-view mammography for subsequent screening exams as well as double reading, variation remains in the guiding principles adopted in each Member State.

- Information and the exchange of experiences were an important factor in bringing about changes in screening policies and helped to bridge the gap between research and practice. International contacts also proved to be of importance in establishing contacts with local policy-making institutions and Ministries of Health.
- The objective at the outset of the EAC programme of providing free access to screening for eligible populations has been attained. This is true for liberal as well as centralised health care systems that were also influenced by the change in women's attitudes to breast cancer screening.
- The fact that nearly all screening programmes now have political and financial support within their Member State is a reflection of a long-term commitment from their respective governments.
- The European Breast Screening Network is in the process of altering and modifying its structure according to changing needs. It has recently adopted By-laws that dictate procedures (e.g. calls for proposals, an external referee process) for the inclusion of new high-quality projects ranging from screening to the management of breast cancer. This should facilitate the attainment of the objective to help in reducing the burden from breast cancer in Europe.
- The aim of all screening programmes, ultimately, is to reduce mortality from breast cancer and improve women's breast awareness through the implementation of high-quality screening based on the EC Guidelines.

9.2 The role of the European Commission

The significant accomplishments and positive aspects of the EBSN benefited from a solid cohesion and well-established relationships among its members. This cohesion was facilitated and was a direct result of the co-operation with the European Commission. The presence of an expert co-ordinator / interlocutor within the Commission facilitated the Network's structure and helped to motivate the teams to work together.

During the first years, as the objectives were to help establish screening programmes and QA programmes, those responsible for the 'Europe Against Cancer' programme were not in a position to reject those projects that did not meet the established criteria. Instead, they tried to instil enthusiasm within the teams to improve their own programmes, particularly through the setting up of parameters for comparing programme results with each other.

For the last three years, the Network has received proposals for new orientations in order to establish working groups that would elaborate on specific topics but include different European teams. With the restructuring of the Directorate in the European Commission responsible for the EAC programme, and the diversification of the working topics, the Network has lost some of its unity – what to a great extent was its strength.

Nevertheless, the network made it possible, through discussions and comparison of results, to consolidate opinions and to strengthen decisions. Screening activities were adapted to the health care systems in place in order to respect the decentralised liberal medicine or centralised structures.

The sentiment that the Network still has every reason to continue is strong. As the projects are entering their third phase, following the establishment of the screening programmes and the improvement of the screening results in line with the EC Guidelines, more time and a relevant financial budget need to be allocated for the execution of comparative evaluations in the Member States of the European Community. Such efforts would help to demonstrate that the

overall goal of a screening programme – the reduction of mortality due to breast cancer – has been achieved, not only in the Nordic countries, but also in other European Member States.

It is regrettable, but necessary to note, that the restructuring of the Commission's Directorate responsible for the EAC programme and the ensuing organisational changes and reporting demands resulted in an increased administrative burden on the projects not to mention the difficulties encountered due to the significant delays in the issuance of payments.

10 BREAST CANCER SCREENING: THE NEXT STEPS

Mammography itself does not prevent breast cancer, but the earlier it is detected by self-examination or mammography and followed by treatment, the greater the woman's chances of survival. Two major activities need to be carried out in the forthcoming years – epidemiological evaluations and certification. Epidemiological evaluations are needed in order to establish effectiveness of service-based screening programmes and to estimate the expected mortality reduction (in contrast to the randomised controlled trials).^{16,17} Certification is necessary in order to ensure high-quality screening over time in a service-based screening programme.

Carefully designed epidemiological studies will have to respond to questions about the effectiveness of mammography, taking into account differences in health-care systems and developments in mammographic screening techniques and treatment over time. Outcome parameters will include early outcomes and ultimately mortality from breast cancer.

Certification will take two forms:

- within a Member State, certification will serve as a tool to guarantee the quality of the skills of the medical professionals involved in screening. This is expected to increase the level of quality overall, particularly in a liberal health care system.
- the former pilot screening projects will look for some form of recognition as a 'European Reference Centre' by a European body. EUREF is in the process of developing a European programme for voluntary certification of high quality mammography services that are continuing their efforts to promote quality improvement. EUREF certification will allocate tangible and demonstrable recognition of adherence to a recognised quality system and will take into account the special requirements of both symptomatic and screening services.

For the above activities, state-of-the art Guidelines, especially for new techniques (e.g. digital mammography), will always be used for reference and therefore will need to be updated periodically.

All of the above ambitions will be greatly facilitated by the continuing presence of the European Breast Screening Network. The Network provides a structure for meetings and discussions and prevents countries from consistently 'reinventing the wheel'. Given the nature of the above activities, it may be wise to consider seeking financial support from other programmes within the European Commission.

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