

Breast cancer screening programmes in 22 countries: current policies, administration and guidelines

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Background Currently there are at least 22 countries worldwide where national, regional or pilot population-based breast cancer screening programmes have been established. A collaborative effort has been undertaken by the International Breast Cancer Screening Network (IBSN), an international voluntary collaborative effort administered from the National Cancer Institute in the US for the purposes of producing international data on the policies, funding and administration, and results of population-based breast cancer screening.

Methods Two surveys conducted by the IBSN in 1990 and 1995 describe the status of population-based breast cancer screening in countries which had or planned to establish breast cancer screening programmes in their countries. The 1990 survey was sent to ten countries in the IBSN and was completed by nine countries. The 1995 survey was sent to and completed by the 13 countries in the organization at that time and an additional nine countries in the European Network.

Results The programmes vary in how they have been organized and have changed from 1990 to 1995. The most notable change is the increase in the number of countries that have established or plan to establish organized breast cancer screening programmes. A second major change is in guidelines for the lower age limit for mammography screening and the use of the clinical breast examination and breast self-examination as additional detection methods.

Conclusion As high quality population-based breast cancer screening programmes are implemented in more countries, they will offer an unprecedented opportunity to assess the level of coverage of the population for initial and repeat screening, evaluation of performance, and, in the longer term, outcome of screening in terms of reduction in the incidence of late-stage disease and in mortality.

Keywords Breast cancer, screening, population-based, database, guidelines, policies

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The demonstration in the 1980s of the efficacy and effectiveness of mammography with or without clinical breast examinations in reducing mortality from breast cancer by 25-30% led to the

adoption of guidelines in a number of countries to introduce routine screening on a population basis.¹⁻⁶ The interest in breast cancer was intense because for years there had been no

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decrease in breast cancer mortality in many countries.⁷ With the cumulative evidence from research on breast cancer screening there were prospects for changing this picture by initiating and expanding screening programmes.

Authorities in the area of breast cancer screening have long recognized that the level of efficacy of screening demonstrated in randomized clinical trials may not pertain to community practice for several reasons.⁸ These include possible differences in the population groups receiving screening, lower accuracy of screening mammography in community practice, or lower compliance with diagnostic follow-up and treatment in community practice which may result in more adverse outcomes. On the other hand, screening effectiveness in community practice today could exceed that estimated in trials because the technical and interpretative quality of mammography has improved since the trials were performed. Furthermore, screening efficacy has been estimated in clinical trials based on assignment to receive screening: to the extent that women assigned to screening were not screened or that women in the control groups were screened, efficacy in trials may have been underestimated. To evaluate optimally the performance of mammography in a community setting, the sensitivity, specificity and predictive value of mammography in community screening programmes should be determined by linkage with cancer outcomes.^{9,10} These parameters have been reported in countries with organized national screening programmes^{11–14} as well as in countries without organized screening programmes, such as the US, where data on community-based mammography have been linked to data on cancer outcomes.^{15–19} With the exception of the US, data are not collected on opportunistic screening that is occurring outside organized screening programmes. Additional research has focused on determining the feasibility of establishing organized population-based breast cancer screening programmes in many countries. A critical issue for these programmes is to establish programmes with high quality of delivery of services and data collection. Recall rates, cancer detection rates and related parameters have recently been reported for a number of pilot programmes within Europe.^{20–27}

In general, results from the established programmes in the Netherlands and the United Kingdom meet, or in some cases, exceed predictions made before programmes started. For example, recall or referral rates (following an abnormal mammogram) of 1.4% combined with a high predictive value of recall of 51% have been reported in the Netherlands, while recall rates of 4–7% were reported in a 1991–1992 assessment of the National Health Service programme in the UK.^{11,12} Both programmes have reported high cancer detection rates for initial screening of 6.0/1000 women screened between 1990–1993 in the UK and 6.6/1000 women screened between 1990–1995 in the Netherlands.^{13,14} While recall rates for abnormal mammograms are usually more variable in the pilot programmes in the European Network with some programmes reporting higher recall rates, a number of pilot programmes report recall rates of 4–7%, similar to those of established programmes.^{21–27} The diversity of health care delivery systems and implementation of programmes in terms of level of organization, invitation into organized programmes, process for reading and interpreting mammograms, and follow-up for abnormal results has made comparison of results from these programmes difficult. Because

of this diversity, data have not yet been collected centrally on these programmes to allow a standardized approach to comparison of outcomes internationally.

The IBSN programme is shifting from a focus on generating an international database to developing methodologies to be used by these diverse programmes for the evaluation of outcomes from mammography screening. At present published data on organized screening programmes address issues such as recall rates, biopsy rates, cancer detection rates, sensitivity and specificity. Organized programmes reaching a significant proportion of the target populations have been in place for sufficient time in only a few countries, such as the UK, the Netherlands, and Sweden, to allow assessment of the influence of these screening programmes on cancer mortality within these countries. Analyses of the influence of these three nationwide screening programmes on breast cancer mortality are in process but not yet published. Methodologic issues pertinent to these analyses have been discussed in the literature and there is not yet consensus regarding the best approaches to examining these issues.^{11–14,19}

During an international workshop in December 1988, representatives from 11 countries, that had initiated or planned to initiate population-based breast cancer screening programmes, met to define a process for the development of additional information on characteristics of screening programmes and specifications for a uniform database on diffusion and effectiveness of the programmes.²⁸ This laid the groundwork for the IBSN. One effort of this group was the development of two surveys to describe the status of population-based breast cancer screening in countries which had or planned to establish active breast cancer screening programmes. The first survey, conducted by the IBSN in 1990, was sent to ten countries and completed by nine countries listed in Table 2. The second survey, conducted by the IBSN in 1995, was sent to the 13 countries in the IBSN in 1995 and an additional nine countries in the European Network of Pilot Projects for Breast Cancer Screening. The 22 countries participating in the second survey are currently in the IBSN and are listed in Table 1. The breast cancer mortality rates for the countries participating in the second survey have been at a high level in almost all of the countries and the reduction of breast cancer mortality remains an important health objective in these countries (Table 1).

We present a brief background on these two programmes and compare findings from the two surveys. The two surveys collected information on policies and guidelines in use within programmes in 1990 and 1995. Issues addressed in both surveys included funding and organization, target populations included in organized programmes by age and other risk characteristics, screening interval, detection methods, location of services, invitation into programme, number of views, process of reading, interpreting and notification of results, diagnostic evaluation, and major categories of quality assurance practised. Survey participants were also asked to summarize recent data on breast cancer mortality within their respective countries. In this paper we present results of these surveys limited to policies, administration and guidelines as of 1990 and 1995. Future papers will address equally important issues such as the specifics of delivery of services from invitation through diagnostic evaluation and quality assurance practices.

Table 1 Age-adjusted annual breast cancer death rates in 1990–1993 for 22 countries participating in the IBSN or the European Network and responding to a survey in 1995

Country	Annual breast cancer death rate per 100 000 ^a
Australia	20.3
Belgium	22.6
Canada	23.0
Denmark	27.2
Finland	16.6
France	19.7
Germany	22.2
Greece	15.1
Hungary	23.4
Iceland	23.7
Ireland	26.8
Israel	23.4
Italy	20.7
Japan	6.6
Luxembourg	21.6
The Netherlands	26.9
Portugal	18.5
Spain	17.3
Sweden	17.7
United Kingdom	27.7
United States	22.0
Uruguay	27.7

^a World Health Organization Rates for selected years, 1990–1993, age-adjusted to the WHO world standard population.

Objectives and Goals of the IBSN Programme

In the early 1990s, 13 countries that had initiated or planned to initiate population-based breast cancer screening programmes participated in the IBSN programme. World Health Organization (WHO) and International Union Against Cancer (UICC) representatives participated in the discussions related to development of information on screening programmes in these countries. The broad objectives of the IBSN programme are to produce data on the policies, funding, administration, and results of screening in countries that either have or are initiating screening programmes.

To assess diffusion and utility of screening, the IBSN identified data needed to answer a diversity of questions: What is the funding and organization of screening programmes? Who is being reached for initial and rescreening examinations and at what rate? In practice, how are women reaching screening services (e.g. scheduling from population registries, self-referrals, primary care physician referrals)? At what rate is breast cancer being detected through screening and between screening examinations (i.e. interval cancers)? And what are the positive and negative predictive values, the sensitivity and specificity of screening, the biopsy positive rates among cases positive on screening, the size of tumour detected and histologic evidence of axillary node involvement, and possibly, grade of tumour.

Measurement of the effectiveness of screening in reducing mortality from breast cancer is complex. Traditional measures of

annual death rates from breast cancer are based on mortality among women whose breast cancer was diagnosed over a long period of time. Changes in relative survival rates are subject to the problems of lead time and length biased sampling and would not provide a basis for estimating the effect of screening on changes in mortality. In short, a major methodological task is to develop models that reduce this lag and explore the use of surrogate measures, e.g. reductions in the rate of advanced stages of breast cancer at detection.^{11–15} The overall goal is to produce information based on a standard set of definitions and classification rules for international comparisons. Participants in the IBSN anticipated using this standard set of definitions and classification in building database systems to assess the progress of screening in their countries.

The European Network of Pilot Projects for Breast Cancer Screening

Shortly before the start of the IBSN and independently of this programme, the European Community mounted the Europe Against Cancer Programme as a major effort to control cancer in the Community and its member states.²⁹ Within this framework a plan was initiated to carry out population-based pilot projects of mammography screening. The European Network of Pilot Projects for Breast Cancer Screening, co-funded by the European Community, was designed to include the pooling and dissemination of knowledge and expertise in screening with mammography to improve the quality of screening. It was expected that the activity would provide a practical basis for the implementation of breast cancer screening programmes on a national scale. The main tool for the pooling and dissemination of knowledge and expertise in screening with mammography was the implementation of specific guidelines issued by members of specially appointed working groups. A working team was appointed by each group of health professionals involved in a screening programme: epidemiologists, radiologists, radiographers, radiophysicists, surgeons, and pathologists. The guidelines issued will help to standardize procedures, increase quality assurance, and improve reporting of results among the participating screening programmes.

Projects for inclusion in the European Network were established in Belgium, Ireland, France, Spain, Portugal and Greece. Later, Italy, which was also in the IBSN, Denmark, Luxembourg and Germany joined the Network of pilot projects. The target population was women aged 50–64, with allowance to start and end the intake of women at different ages. Training of all staff involved in the programme and quality assurance of all aspects of the screening programme were incorporated.³⁰ A close working relationship has developed between the IBSN and the European Network.

The 1990 Survey of IBSN Countries

In 1990, the following nine countries that were early participants in the IBSN responded to a survey to assess the status of screening and readiness to develop information consistent with the IBSN Programme's objectives and goals: Australia, Canada, Finland, Iceland, Japan, the Netherlands, Sweden, the UK and the US. The survey was administered by the National Cancer Institute (NCI) and sent to individuals within these

Table 2 Summary of guidelines most commonly used or recommended for use in population-based breast cancer screening programmes in nine IBSN countries surveyed in 1990

Country	Age groups covered by mammography ^a		Screening intervals in years ^b		Detection methods ^c
	Lower limit	Upper limit	Age 40–49	Age 50+	
Australia ^e	40	69	2	2	MM
Canada ^f	50	69	1	2	MM, CBE, BSE
Finland	50	59	NA ^d	2	MM
Iceland	35	69	2	2	MM, CBE ^g
Japan	30	None	1	1	CBE, BSE
The Netherlands	50	70	NA	2	MM
Sweden	40	74	1.5 ^h	2 ^h	MM
United Kingdom	50	64	NA	3	MM
United States	50	None	1–2	1–2 ⁱ	MM, CBE, BSE

^a Age groups covered for screening mammography except for Japan which did not use mammography as a method of screening.

^b Refers to screening only by mammography if mammography is used.

^c Mammography (MM), Clinical Breast Examination (CBE), Breast Self-examination (BSE).

^d NA = Not applicable.

^e In 1990, Australia had ten pilot projects with differing policies. This preceded the establishment of a national programme with consistent national policies.

^f Although national guidelines recommend screening begin at age 50, provinces establish province-specific policies. In British Columbia policy was to start screening at age 40 and to use only MM for all age groups on an annual basis. In 1990, BSE was included in programmes in two provinces; CBE was used in one province.

^g In Iceland, MM was used to screen women at age 35 and between ages 40–69. CBE was used for women between the ages of 30–39 and was added to the screening mammogram for women with breast symptoms.

^h In Sweden the 1.5 year interval applied to age group 40–54; the 2-year interval applied to age group 55–74.

ⁱ In the US no single group establishes national policy. In 1990 the American Cancer Society and the National Cancer Institute advised mammography screening be performed annually; while the US Preventive Services Task Force advised mammography screening be performed at 1–2 years intervals beginning at age 50.

countries who were responsible for the implementation or evaluation of organized screening programmes in countries where such programmes existed. In countries, such as the US, where screening does not occur within the context of an organized national programme, an individual responsible for surveillance of mammography screening at the community level within the US NCI completed the survey. The primary focus of the survey was on mammography but early detection of breast cancer was viewed in some countries as also requiring close attention to periodic clinical examination of the breast and the promotion of monthly breast self-examination between programme screening intervals. Japan provided parallel information on clinical examination of the breast since mammography was not a part of the screening programme. Hungary did not respond to the survey because planning for establishing its screening programme was not finalized. Israel, Italy, and Uruguay later became part of the IBSN programme and did not provide data for the 1990 survey.

In 1990, half of these countries using mammography started screening at 40 years of age (one, at 35 years of age), the others at 50 years of age (Table 2). The shortest interval between routine screenings was 1 year, the longest interval was 3 years. All countries except Japan included a mammography examination in their screening programme; four countries included only a mammography examination in their routine screening programme. The presence of breast cancer risk factors, such as family history of breast cancer, did not alter guidelines regarding age group screened or interval of screening. Most countries with organized screening programmes used dedicated centres for mammography. Most were also using mobile units. In some cases, these units were being used extensively, particularly to

reach rural, low income, and other populations less likely to come to central centres for screening. With the exception of the US, all countries financed their breast cancer screening programmes primarily through government sources, at the national and/or local level.

At the time of the 1990 survey, data being collected or planned in population-based breast cancer screening programmes included findings in screening, biopsy and fine needle aspiration, stage of disease at detection, and results of follow-up.

The 1995 Survey of the IBSN and European Network Countries

The 1995 survey on the structure and process of breast cancer screening up-dated information about the screening programmes in the 13 countries in the IBSN and obtained similar information about the pilot programmes within nine countries in the European Network. Three countries within the European Network, Belgium, Greece, and France, had two pilot programmes which contributed information. Differences in the programmes within these countries are noted in the footnotes. Selected results of the survey are discussed below.

Table 3 groups the countries in the IBSN and the European Network by their reported current policies or guidelines, methods of funding and administration of programmes, and overall coverage of the population by organized screening programmes. Thirteen countries have national or both national and regional funding of programmes. In five of these 13 countries, national administration (termed centralized [C] system in Table 3) is in effect; in eight countries, the programmes are administered regionally (termed partially centralized [PC] system in Table 3).

Table 3 Year of initiation of organized breast cancer screening programmes; population covered by these programmes in 1995; year national coverage was expected; and organization of policy, administration and funding for population-based breast cancer screening programmes in 22 countries surveyed in 1995

Country	Year organized ^a programme began	%target population covered by organized ^a programmes	Year national coverage expected	Type ^b of system	Facilities used ^c	Major source of funding for MM in programme
IBSN programme countries						
Australia	Natl 1991	75–100	1996	PC	MC,GR,M	G ^d
Canada	Natl 1988	<25	Not planned	DC	MC,GR,M	G
Finland	Natl 1989	100	1989	C	MC	G
Iceland	Natl 1987	100	1989	C	MC,GR,M	G
Israel	Natl 1995	70	1997/1998	C	MC	G, HMO ^e
Italy	Reg 1990	<25	Not planned	DC	MC	G
Hungary	Not begun	NA ^f	2010	NA	MC,GR	G
Japan	Natl 1987 CBE	8	2000 (MM)	C	MC	G
The Netherlands	Natl 1988	76–100	1997	PC	MC,M	G
Sweden	Natl 1986	100	1997	PC	MC	G
United Kingdom	Natl 1988	100	1996	PC	MC,M	G
United States	Natl 1991	25–50	Not planned	PC	MC,GR,M	G
Uruguay	Not begun	<25	Not planned	NA	MC	NA
European Network pilot projects						
Belgium	Reg 1992	<25	Not planned	DC	MC,GR	G
Denmark	Reg 1992	<25	Not planned	PC	GR	G
France	Reg 1989					
	Natl 1994	30–40	Not planned	DC	GR	Natl Health Assurance
Germany ^g	Not begun	NA	Not planned	NA	NA	EAC ^h
Greece ⁱ	Reg 1989/91	60; <25 Natl	Not planned	DC	MC,GR,M	EAC
Ireland	Reg 1989	<25	2000	PC	MC,M	
Luxembourg	Natl 1992	36	Not planned	C	GR	Union of Sickness
Portugal	Reg 1990	25–50	Not planned	PC	MC,M	G
Spain	Reg 1989	<25	Not planned	NA	MC,M	G

Data reflect information from organized screening programmes. However, data for the US reflect government-sponsored programmes supporting screening for low income women and the voluntary Medicare benefit for women 65 years of age and over.

^a In second column refers to national (Natl) and regional (Reg) programmes. In third column refers to percentage of the national population covered by national programmes if available and by regional programmes if no national programme was established by 1995.

^b C represents centralized systems that have a national policy and administration of programmes, and national or both national and regional funding PC represents partially centralized systems that have the same characteristics as centralized systems except that programmes are administered regionally. DC represents decentralized systems that have a national policy, but regional funding and administration.

^c Facilities used for the delivery of mammograms in organized programmes: MC = dedicated mammography screening centres; GR = non dedicated centres, such as general radiology departments; M = mobile units.

^d G = government.

^e HMO = Health maintenance organization.

^f NA = Not applicable.

^g Describes plans in Germany as of 1995 which were not further implemented.

^h EAC = Europe Against Cancer.

ⁱ Greece has two programmes. In one, termed Greece I here (the Hellenic Society of Oncology), the programme began in 1989, currently has a 60% participation for women aged 40–64 in its region, and uses only mobile units dedicated to screening. In the other, termed Greece II here, the programme began in 1992, does not have an estimate for participation within its region, and uses both mammography centres and general radiology departments as facilities for screening.

One country differs from the others in that both policy and administration are the responsibility of the region alone; i.e. Canada has national guidelines, but each province develops policies governing its province. In the US, where mammography does not occur within the context of an organized national programme and policies and guidelines from organizations differ, funding by the government is provided nationally only under the Medicare programme for women 65 years of age or over

and regionally by state governments under the Medicaid programme for women meeting the requirements for financial assistance; administration is voluntary.

Regionally or nationally organized programmes began in several countries in the late 1980s or early 1990s. National coverage of the population, defined as making screening mammography available to the targeted population of women at the national level within these programmes, is not planned in about

half the countries. However, the number of women receiving screening mammography is increasing in either organized programmes or by 'opportunistic' screening in existing clinical practice within many of these countries with no set target date for national coverage by organized screening programmes. For example, Canada intends to increase coverage by organized programmes but there is no set time line for complete coverage; in the US, plans do not exist for establishing governmentally or nationally organized screening programmes. Recent estimates of the percentage of women ever having had a mammogram are 65% in Canada among women over the age of 35, and 61% in the US among women aged 40 and over. In the remainder of countries with organized national or regional programmes, national coverage in terms of making screening mammography available to the targeted population was either achieved by the late 1980s or was expected by the mid to late 1990s.

With the exception of France and Luxembourg, the countries involved in the European Network had not begun nationally organized breast cancer screening programmes by 1995. Among the countries in the European Network, only Ireland planned to expand pilot or regional programmes to allow national coverage of the population. In general, compared with the countries which have decentralized systems, the countries with centralized or partially centralized systems for policy, funding and administration appear more likely to have achieved complete coverage of the population. Almost all countries in the IBSN and five of the nine in the European Network most commonly used dedicated centres for mammography rather than existing general radiology departments. Mobile units were used in five countries in the IBSN and four in the European Network.

Table 4 summarizes the guidelines most commonly used in population-based breast cancer screening programmes among these 22 countries. The guidelines shown refer only to screening by mammography for all countries which use that screening method. Mammography is the dominant detection method; clinical examination of the breast is performed in addition to mammography in only eight countries and breast self-examination is added as a third method in three provinces in Canada, the US, one programme in Uruguay, and one programme in Greece.

Table 4 indicates the age groups covered by guidelines or recommendations most commonly used in the screening programmes for the 22 countries participating in the 1995 survey. In contrast to the findings of the 1990 survey where countries were evenly split regarding initiating screening at either 40 or 50 years of age, in the 1995 survey countries were more uniform in the recommendation for the age to initiate screening. Among the 21 countries that have mammography screening, 13 have guidelines which specify 50 years of age for the initiation of screening. In some countries, such as the US, guidelines differ and no single source is used for national policy. For example, in 1995, age 50 was the age recommended for initiation of mammography screening by the US Preventive Services Task Force, while the American Cancer Society and several professional organizations specified age 40. The US NCI's statements regarding age for initiation of mammography screening have changed over time. Prior to 1993, NCI statements suggested screening should begin at age 40. Based on an assessment of data from an international workshop in 1993, NCI modified that statement to note the absence of data on benefit in women aged 40–49.³¹

Most recently, based on an international conference on mammography screening in women aged 40–49³² and subsequent discussions, NCI issued statements advising that mammography screening be initiated at age 40.

There is much greater variation among countries in the upper age limit for screening, with age 69 set by about half the countries. The screening interval for women over 50 years of age is 2 years in most countries. Hungary, Israel, Uruguay, Germany and one programme in Greece recommend altering the screening interval for women who have a family history of breast cancer. In addition, Israel adjusts the screening interval for women who have a history of benign breast disease with atypia. In France, women with a family history of breast cancer are excluded from routine screening and are followed by a separate system.

In summary, at least 22 countries have established national, regional, or pilot population-based breast cancer screening programmes. The growth of breast cancer screening with mammography results from the demonstration of the efficacy of screening principally through randomized controlled trials.^{1–6} The trials have differed in the ages covered, screening intervals, and detection methods. Thus, it is not surprising that variations exist in how the programmes have been organized. The programmes have changed as the results from the 1990 and 1995 surveys indicate. The most notable change is the increase in the number of countries that have implemented or plan to implement an organized breast cancer screening programme. A second major change is in guidelines with age 50 being the lower age limit recommended for initiation of mammography screening in about two-thirds of countries. There were some changes in detection methods used by the countries surveyed in 1990 and 1995. Only three of ten provinces in Canada continued to use the clinical breast examination and breast self-examination in addition to mammography in 1995. There were no changes in screening intervals among those countries surveyed in 1990 and 1995; however, variation in the upper age limits among countries continued. Relatively fewer countries were using mobile units and most were using dedicated centres for mammography screening.

The programmes surveyed are population-based and offer an unprecedented opportunity to assess the level of coverage of the population for initial and subsequent screening, evaluation of performance, and in the longer run, outcome of screening. It is expected that, as results become available from these and future programmes, a basis for screening programmes to adopt the same or very similar guidelines will be clarified.

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Table 4 Summary of guidelines most commonly used or recommended for use in population-based breast cancer screening programmes in 22 countries surveyed in 1995

Country	Age groups covered ^a		Screening interval-years ^b		Detection methods ^c
	Lower limit	Upper limit	Age 40–49 ^d	Age 50+	
IBSN programme countries					
Australia ^e	40	69	2	2	MM
Canada ^f	50	69	1 ^f	2	MM, CBE, BSE ^f
Finland	50	59	NA	2	MM
Hungary	50	64	NA	1	MM, CBE
Iceland	40	69	2	2	MM, CBE ^g
Israel	50	74	1 High risk	2	MM
Italy	50	69	NA	2	MM
Japan	30	None	1	1	CBE, BSE
The Netherlands	50	69	NA	2	MM
Sweden	40–50 ^h	64–74 ^h	1.5	2	MM
United Kingdom ⁱ	50	64	NA	3	MM
United States ^j	40–50	None	1	1–2	MM, CBE, BSE
Uruguay ^k	45	None	1	2	MM, CBE, BSE
European Network pilot projects					
Belgium	50	69	NA	2	MM
Denmark	50	69	NA	2	MM
France	50	65–69	NA	2–3	MM
Germany ^l	50	None	1 High risk	2	MM
Greece ^m	40	64/none	2	2	MM, CBE, BSE
Ireland	50	65	NA	2	MM
Luxembourg	50	65	NA	2	MM, CBE
Portugal	40	None	No Rec	2	MM
Spain	45	64	2	2	MM

^a Age groups covered for screening mammography except for Japan which does not use mammography for screening.

^b Refers to screening interval for mammography if mammography is used.

^c Mammography (MM), Clinical Breast Examination (CBE), Breast Self-examination (BSE).

^d NA = Not applicable as age group was not included in screening guidelines. No Rec = No recommendation regarding screening interval was included in national guidelines.

^e Women under or over the stated age limits may be screened if they so request. State policies regarding screening interval for age group 40–49 vary.

^f Although national guidelines recommend screening begin at age 50, provinces establish province-specific policies. In British Columbia, policy was to start screening at age 40 on an annual basis. CBE is added in three provinces, BSE is added in seven provinces (passively with use of a video in four and actively by an individual in three)

^g See footnote^g in Table 2 regarding use of CBE in screening programmes.

^h Age groups that are covered are decided by each county.

ⁱ Women over age 65 may be screened if they so request.

^j In the US guidelines differ and no single source is used for national policy. The American Cancer Society (ACS) and several professional organizations specify age 40 for the initiation of screening. The US Preventive Services Task Force recommendation is 1–2 years for women aged 50 and over. ACS guidelines note annual screening for women aged 50 and over; 1–2 years for women aged 40–49 (modified in March 1997 to 1 year for women aged 40–49).

^k In Uruguay recommended screening interval is 1 year for age group 45–55 and 2 years for women over age 55. In Uruguay there are two programmes. One is based only on CBE and BSE; the other uses MM, CBE, and BSE.

^l Describes plans in Germany as of 1995 which were not further implemented.

^m Both screening programmes in Greece recommend initiating screening at age 40 and advise 2 years as the screening interval for all ages. In Greece I, MM is the only detection method in the screening programme, the upper age limit recommended in guidelines is 64 years for women initially screened, and presence of risk factors does not alter either the age or interval recommended for screening. Once a woman enters the screening programme she is included in rescreening irrespective of age. In Greece II, MM, CBE and BSE are included in the programme, there is no upper age limit for inclusion in the screening programme, and presence of risk factors reduces the interval recommended for screening to 1 year.

² Tabar L, Fagerberg G, Gad A *et al.* Reduction in breast cancer mortality by mass screening with mammography: First results of a randomized trial in two Swedish counties. *Lancet* 1985;1:829–32.

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