



Cancer Screening Programmes

Informing choice in breast screening

BREAST SCREENING PROGRAMME ANNUAL REVIEW 2001

Foreword

by Lord Hunt, Health Minister



Cancer is one of the biggest killers in this country, and the Government has made it a central priority of the NHS. As part of our commitment to improving cancer services, the NHS Cancer Plan was published in September 2000. This is the first comprehensive strategy to tackle the disease and, for the first time, screening is included as part of mainstream cancer services. This review highlights the good progress being made in reaching the breast screening targets set out in the NHS Cancer Plan.

It has been a successful year for the breast screening programme. More women are being screened and more cancers are being detected than ever before, and all those involved in the programme should be rightly proud of this achievement.

At the same time, the programme is in the process of extending invitations to women up to the age of 70 and introducing two-view mammography at all screening rounds. This is the single biggest challenge the programme has faced since it began in 1988, but I feel sure the programme will be able to achieve this ambitious aim whilst maintaining the current high quality service.

New national information leaflets for women will be launched later this year and will give women more accurate information about screening than ever before. This is a new and exciting approach as it will help women to

understand the potential benefits and limitations involved in the screening process to help them make their own choice about whether or not to participate. I know that a huge amount of work has gone into developing the leaflets and I look forward to their launch.

Although the breast screening programme remains one of the best in the world, those involved are certainly not complacent. This review illustrates how the programme is continually striving to make improvements, and shows the breadth and depth of that activity. I would like to thank all those involved with the programme for all their hard work and dedication over the past year.

A handwritten signature in black ink, which appears to read 'Philip Hunt'.

Philip Hunt



Introduction

**by Julietta Patnick, National Coordinator,
NHS Cancer Screening Programmes**

This year we see the NHS Breast Screening Programme start to come of age. More women than ever before - over one and a half million - are being screened by the programme, and the detection rate of cancers has risen to over 9,000 for the first time. As expected, the vast majority of cancers are detected in women attending for repeat screening. Over 60 per cent of breast cancers are diagnosed in a subsequent screen. This, more than anything, is a very strong argument for women to continue to accept their invitations.



At the same time, levels of expertise within the programme continue to improve resulting in real benefits for women. The rate of benign biopsies has fallen, and over 85 per cent of breast cancers are diagnosed without an operation, allowing women to have a definitive diagnosis and choose their treatment option often without having to undergo the stress of diagnostic surgery.

A major event for us is the launch of a new national information initiative designed to give women clear and honest information about the benefits and limitations of breast screening. The leaflets address the need to inform patients about the use made of personal information for audit, as set out in the GMC guidance on confidentiality, as well as tying in with the Data Protection Act, the Human Rights Act, the Disability Discrimination Act, the Ionising Radiations Regulations and changes in the NHS following the Bristol and Alder Hey enquiries. We very much hope that Informed Choice (feature on p.4) will help women fully understand

the implications of accepting, or declining, their invitation for screening.

Our challenge in the coming years is to maintain and improve the current levels of excellence within the programme. Increasing numbers of women are being screened and, with the roll out of the age extension of screening up until 70 years old, these women will be attending for more rounds of screening. This will mean inevitable pressure on the programme that will have to be planned for and dealt with.

The professionalism and success of the NHS Breast Screening Programme is due to the people who work in it. As usual, I would like to pay tribute to all the staff whose individual contributions have helped create a beacon of excellence within the NHS.

Julietta Patnick

New information leaflet helps informed choice



Dr Joan Austoker

“...Screening is a good thing, but there are downsides and it is important women go into it with their eyes open.”

Encouraging women to come forward for screening while at the same time being honest about the limitations of the programme is a difficult balancing act. This is why a new leaflet has been developed to give women the facts about NHS breast screening, helping ensure they are properly informed and their consent to the process is genuine.

The section on potential benefits and difficulties of breast screening was evaluated, on behalf of the NHS Breast Screening Programme, by the Cancer Research Campaign Primary Care Education Research Group at Oxford University, and directed by Dr Joan Austoker.

Dr Austoker said that the screening programme had been considering a new information leaflet, but the process was given added impetus after

the General Medical Council published guidance on seeking patient consent in autumn 2000. This guidance specifically covered screening and said issues such as false positives and false negatives must be explained.

After a literature search of existing explanatory material, and preliminary research conducted by the Cancer Research Campaign Group, a small working group was convened by the NHS Breast Screening Programme to produce a draft of the advantages and disadvantages of breast screening. This draft was shown to a series of women, aged between 50 and 64 with a mix of socio-economic backgrounds, to ensure the information was readily understandable. Suggestions by the women on how the drafts could be improved were built into subsequent revisions, until the final version was deemed clear and readable.



The leaflet, *Breast Screening – The Facts*, covers how the system works as well as dealing with frequently asked questions. It sets out the life-saving benefits of the service but also acknowledges that the programme can not provide a 100 per cent guarantee of detection.

Under the section on the reliability of breast screening, the leaflet says that while mammography is the most reliable method of detecting breast cancer early, it, like other screening tests, is not perfect. For example, some cancers are very difficult to see on the x-ray; some cancers cannot be seen on the x-ray at all, or the person reading the x-ray may miss the cancer. No matter how experienced the reader, this will occur from time to time.

Dr Austoker said the authors struggled in particular with how to quantify clearly the degree of possible

risk of false negatives and false positives. There was much discussion on whether actual numbers or percentages should be included, and whether these should be shown in a graphic or pictorial form.

Another issue for the authors concerned the degree of information required by women about what happens if they are recalled. The consensus from the research was that the issue should be raised, but that most women only want to know further details at the recall stage, not at the screening stage.

The team is planning a further leaflet covering the recall process and issues such as ductal carcinoma in situ, fine needle aspiration and core biopsies, and the number of benign lumps, as opposed to cancerous lumps, that are found at this stage.

The informed choice leaflet dealing with the facts about the pros and cons of breast screening will be evaluated once it is in use in real-life screening clinics, and will be changed or updated when required.

“We are still wrestling with the problem of numbers,” said Dr Austoker. “The difficulty with presenting risk information is that different people understand it in different ways. This is certainly something we will look at with a much bigger number of women once it is in use. That is a question that keeps coming up.”

Dr Austoker believes that the new leaflet will help women make a more informed choice about accepting their invitation for breast screening.

“They are getting a much better idea than they had in the past. There are probably things we can do to make it clearer still, but we have tried to make the information as straightforward as possible. Screening is a good thing, but there are downsides and it is important women go into it with their eyes open.”

World's largest study to shed light on DCIS



Mr Hugh Bishop

One of the major questions for any screening service is: how do you treat what you find? The treatment for screen-detected disease may be the same as for symptomatic disease, but what happens when the screening programme identifies a new disease?

This is what happened with DCIS - Ductal Carcinoma In Situ. Although symptomatic DCIS is uncommon, its treatment is straightforward. Screen detected DCIS has proved to be much more problematic.

The early changes in milk ducts, where pre-cancerous cells die and produce the micro-calcifications picked up by mammograms, have only been apparent since the screening programme started. Before that, they usually went undetected until patients presented with obvious clinical breast cancer.

The dilemma is how to manage these early changes. It isn't known which women might progress rapidly to invasive cancer and need extensive treatment, and which women could be managed more conservatively.

In the screening year 1998/9, there were 1,733 women detected with DCIS. The figure for 1999/2000 is 2,009.

The paradox of DCIS is that a woman with a pre-cancerous lesion which cannot be felt (impalpable) may be asked to undergo a mastectomy while another woman with a small invasive cancer is invited to undergo conservation surgery. Many patients find this concept very difficult to understand.

Another issue is whether this process detects and treats symptoms early – but fails to improve survival: does it simply make women feel ill for longer without improving their lives? In health jargon this is known as lead time bias – finding a disease earlier in its natural history, through screening, but not changing the prognosis.

The Sloane Project is a new study underway trying to answer these questions.

Named after the late Professor John Sloane of Liverpool University, who had a lifelong interest in the pathology of DCIS, the Sloane Project will be the biggest audit in the world of non-invasive breast cancers detected by screening. It will look at some 2,000 patients a year for five years, following their progress after treatment.

Mr Hugh Bishop, Consultant Surgeon at the Royal Bolton Hospital, and secretary of the Sloane Project, said: "DCIS is a disease which has really only arisen since the screening programme started.

"The old style DCIS was symptomatic. Now you have a woman with an isolated area of micro-calcification seen on an x-ray which is often impalpable. What we need to know is how much surgery is indicated?"

"The traditional treatment is mastectomy, which is more than 95 per cent curative but rather extreme. So can we be less extreme? The answer seems to be that probably we can, for some people. But identifying who those people are is not easy."

The multi-disciplinary Sloane Project involves surgeons, pathologists and radiologists. Administered through the West Midlands Cancer Intelligence Unit, the NHS Breast Screening Programme is helping fund and organise the study.



Mr Bishop said: "The Sloane Project is an audit. Women with screen detected DCIS will be managed clinically by surgeons using the advice of their multi-disciplinary team. Careful prospective collection of their pathology data will help us to correlate clinical outcomes with treatment received. Traditionally, outcomes would be tested in a double blind clinical trial but such trials are slow to organise and recruit only a small percentage of available patients. The Sloane Project harnesses the vast potential of the UK NHS Breast Screening Programme by auditing all patients, not just trialling some of them."

Mr Bishop said: "The women will be treated, and we will collect data prospectively, with detailed knowledge of the pathology of their tumours. The pathology hasn't yet been evaluated because this is a new disease.

"We can't just leave DCIS

untreated. We have to do something. We know if you leave disease behind it will recur."

The addition of radiotherapy has been shown to reduce the recurrence of DCIS and invasive cancer. But Mr Bishop explained: "We don't know whether every patient needs it or only those with a poor prognosis in terms of their pathology.

"The objective of the Sloane Project is to gain as much knowledge about what happens to screen detected DCIS as it is possible to collect. I hope we will be able to make much better decisions ten years from now about a patient's DCIS.

"Once the Sloane Project has achieved its outcome we will be able to give better information to a patient so she can make a better choice, with her surgeon, about what treatment she has for her screen detected DCIS."

Assessment guidelines help reduce recall anxiety



Dr Ian Ellis and Dr Robin Wilson

“This is done by applying the latest technology, so you can get an accurate and timely diagnosis...”

For any woman, to be told she has something suspicious on a routine screening mammogram is extremely worrying, which is why the NHS Breast Screening Programme does all it can to ensure women receive additional test results as quickly as possible.

The process of further tests – assessment in the language of the programme – has to be handled sensitively, and the best technology used to give women their results rapidly.

Two new guidance documents aimed at ensuring this process is as swift and accurate as possible – Clinical Guidelines for Breast Cancer Screening Assessment, and Guidelines for Non-operative Diagnostic Procedures and Reporting in Breast Cancer Screening – have just been published.

Dr Robin Wilson, consultant radiologist at Nottingham City Hospital and the lead editor of the assessment guidelines, explained that new guidance was needed because approaches and technology have moved on since previous advice was published over ten years ago.

“There was a need for a new document because the original was produced in 1989, when the whole concept of screening assessment was completely different. Assessment procedures have changed considerably with much more use of imaging, particularly ultrasound, and image guided needle biopsy. There is a need for clarity and uniformity about the breast screening assessment process and its outcomes and a need to establish minimum expected standards, which already apply to other aspects of screening practice.”



There is strict guidance regarding minimising the time that women have to wait for test results. For instance, it advises against telling women they need further tests on a Friday, which means that they do not have to spend the weekend worrying and unable to talk to anyone at the screening unit.

Dr Wilson said: "Assessment generates a significant amount of anxiety for the women involved and it's important that those doing the assessment are aware of that and do all they can to minimise unnecessary anxiety.

"This is done by applying the latest technology, so you can get an accurate and timely diagnosis. By using the knowledge gained from screening research and recognised best practice, we can give guidance to everyone involved in the screening programme on what to do with different types of problems."

One of the key changes in assessment over recent years has been a move away from the use of fine needle aspiration cytology

(FNAC) and towards the use of automated core biopsy guns.

The new guidance on non-operative diagnosis sets out the advantages and disadvantages of both methods, but stresses that either procedure will save time, money and distress for the patient compared to an operative biopsy.

Dr Ian Ellis, chairman of the pathology committee (which produced the non-operative guidelines) and reader in pathology at Nottingham University, explained: "Core biopsy technology is being adopted internationally, but there has been no clear guidance on how to identify features down a microscope and incorporate these into the diagnosis process. These standards set out how to tackle those problems.

"There are cost implications – core biopsies are slightly more expensive than FNAC in terms of consumables,

but compared with an operation both FNAC and core biopsy cost much less. If you can get a concrete diagnosis without having to resort to surgery, you are saving money and, more importantly, doing much less to the woman to achieve the same result. There are cost savings of 90 per cent with FNAC or core biopsy compared with an operative biopsy."

Dr Ellis added: "The real issue is not diagnosing breast cancer, but diagnosing benign disease accurately. If a woman has cancer she will have to go on and have an operation, but it avoids women without cancer having to undergo a surgical operation.

"With a core biopsy we know in the vast majority of cases we can get an accurate diagnosis of benign conditions, which means the woman can be reassured that the lesion is innocent and we don't have to do any more investigations."

Although the speed of analysing cells from FNAC can be very fast, it is a demanding technique for pathologists. With pathologists in short supply, they prefer to read core biopsies, as the extra material gives more information. The normal time from taking a core biopsy to getting results is one day.

Dr Ellis said: "As long as the sample is received by 5pm one day you can usually have a result at 10.30am the next day. We invite the lady back to clinic at lunchtime the day after her test, so she just has to wait overnight."

Equipping the programme



Mr Alan Robinson



Mr Colin Hancock

The people who work in the screening service are rightly seen as its biggest asset. But without the right equipment even the best motivated unit cannot function properly. That is why the NHS Breast Screening Programme has a rolling evaluation scheme designed to ensure that new technology is assessed to see how it can benefit the service.

Even without technological advances, the demands on equipment are increasing due to the expansion in the numbers being screened, resulting from the post-war baby boom, the increased target age to 70, as well as the need for two views to be taken on repeat screens rather than one.

Alan Robinson, Chairman of the National Equipment Group for the breast screening programme, and Regional Physicist in Trent, explained: “New Opportunities Funding has helped provide money to update equipment, but the buying programme needs to expand because

of the increase in the screening age group, and the move to two views.

“In general it means about a 40 per cent increase in workload. Some centres may have capacity but others will need extra equipment. Space is also a problem. In some areas it may require more mobile units, perhaps using some on a semi-permanent basis at the side of buildings. Fixed sites may need an extra mammography machine, a larger capacity film processor and an additional roller viewer.”

The national equipment group consists of physicists, radiologists or radiographers from every region, plus representatives from the screening programme and K-Care, the equipment evaluation unit at King’s College, London. Apart from evaluation of new equipment, the group also monitors the performance of existing equipment and provides a forum for discussion of problems and liaison with manufacturers.

New technology

The advent of digital equipment is one of the greatest new developments to affect the screening programme and allows inputs straight into a computer, giving an image instantly without having to process a film.

Digital small field units, generally 'add-on' devices for specific types of biopsies, are now available and large field systems are being developed to image the whole of the breast. Small field units are currently being introduced more routinely for assessment.

Setting the standards

One of those instrumental in ensuring the programme has the best equipment has been Colin Hancock, a Chartered Electrical Engineer, who was a Principal Engineer in the Scientific and Technical Branch of the Department of Health.

In 1986, Mr Hancock, who until recently advised the programme on a consultancy basis, formed the team that drew up guidelines for the mammographic equipment to be used in the screening programme.

"We appreciated that equipment for mammography at that time handled about 20 women with symptoms per week," said Mr Hancock.

"We would now examine healthy women looking for extremely small cancers, micro-calcifications of the order of one millimetre in size. Because there was often no



opportunity to verify that a correct exposure had been made before the women left (e.g. on trailers with no on-board film processing), the equipment performance had to meet the requirements of an 80 women-a-day work load and much more stringent imaging capability."

Before any equipment could be purchased, a representative model had to be evaluated against the guidelines.

Since the original guidelines came out in 1987 they have been updated four times, with the latest version having just been published in 2001.

In addition, there are Guidance Notes covering all equipment used in breast screening from film cassettes to mobile trailers.

The Guidance Notes have become powerful tools to drive up standards and are so highly regarded, internationally as well as in the UK, that manufacturers obtaining a poor evaluation report have withdrawn machines from the market.

Mr Hancock added: "These documents tell the manufacturers what the users need – we are leading them. There is not a manufacturer in the world who would consider making mammographic equipment for the United Kingdom without first looking at our Guidance Notes to see what current requirements are. In that sense we have been leading the design of equipment across the world."

Introduction to the statistics

While the rest of the report reflects the NHS Breast Screening Programme in England, it is very pleasing that colleagues in Scotland, Wales and Northern Ireland have collaborated in producing these overall UK statistics. Thanks are due to the screening programme reference centres throughout the UK whose staff work hard to produce high quality data. Thanks are also due to the Cancer Screening Evaluation Unit at the Institute of Cancer Research which provides the analysis, and to the participants and organisers of the BASO surgical audit which provides some of the data.

The picture this year is very much of a mature “steady state” breast screening programme which is making progress and maintaining its quality in the face of increasing numbers of women.

The extension of the breast screening programme to women up to and including the age of 70 and the introduction of two screening views at all rounds was announced in September 2000. While this has not yet taken effect, it has prompted the separation for the first time of women aged 65 to 69 and those aged 70 and over which can be seen in some of the tables. This will allow us to monitor the effects and effectiveness of screening these women in future years and provides some interesting data this year.

Some of the targets are expressed slightly differently this year. For example, rather than expressing in situ cancers as a percentage of all cancers detected, the screening programme now monitors the rate of in situ cancers found per 1,000 women screened. Similarly, with small invasive cancers (less than 15 mm) the screening programme is now looking for a rate per 1,000 women screened, rather than a percentage.

Finally, it should be noted that the year being reported followed a reorganisation of the NHS in England. The

regions used in the final tables for reporting have changed from previous years but this change affects the South of England only.

Rigorous audit and reporting of the breast screening programme statistics is a vital part of its activity. Breast screening carries some risks for women, there's a small risk from radiation and, in addition, we can be sure that every woman is anxious to some extent about attending for breast screening.

Those who are recalled for assessment are particularly anxious, even if they are eventually discharged with no cancer being found after further investigations. Some women who are screened have had biopsies for what is eventually determined not to be cancer.

For the benefits of screening to outweigh these disadvantages, the NHS has to be very certain that it is doing more good than harm, thus the experience of every single woman is vital to our understanding of the operation of the screening programme. The information is obviously treated with the utmost respect and its confidentiality observed. However, screening programme staff spend a great deal of effort checking and re-checking that every woman's experience is as good and effective as the NHS can possibly make it. The results of that activity are presented here.

NHS Breast Screening Programme 1999/2000 statistics

Screening activity women aged 50+ • Table I

The number of women invited for screening rose again this year in line with the expected increase in the numbers of women in the target age group. Acceptance was steady amongst all women invited, as was the number of women recalled for assessment. The number of benign biopsies fell slightly, while the number of cancers detected rose to over 9,000 for the first time.

The rate of cancers detected per 1000 women screened also rose, although the overall standardised detection ratio (SDR) is consistent with previous years. The screening programme has now reached a relatively “steady state” with the major changes coming from changes within the population.

	1999/00	1998/99
Number of women invited	1,811,541	1,699,727
Acceptance rate (% of invited)	75.4	75.5
Number of women screened (invited)	1,365,636	1,290,126
Number of women screened (self/GP referrals)	124,154	116,191
Total number of women screened	1,489,790	1,406,317
Number of women recalled for assessment	78,843	76,114
% women recalled for assessment	5.3	5.4
Number of benign biopsies	1,928	2,033
Number of cancers detected	9,525	8,771
Cancers detected per 1,000 women screened	6.39	6.24
Number of in situ cancers detected	2,009	1,733
Number of invasive cancers less than 15mm	4,041	3,722
Standardised detection ratio	1.14	1.13

Acceptance by type of screen • Table 2

While acceptance has remained constant overall, it has dropped slightly in the 50 to 64 age group, from 76 per cent last year, to 75.4 per cent this year. Acceptance also drops slightly amongst women as they get older and

particularly as they get into their 60s. The number of women aged 70 and over who are invited is very small indeed, although the acceptance rate is broadly in line with what might be expected.

	50 – 54	55 – 59	60 – 64	65 – 69	70+	Total 50 – 64
Acceptance following first invitation (%)	75.5	39.4	36.7	37.9	43.8	73.4
numbers	382,678	13,002	9,837	581	64	405,517
First screen previous non-attenders (%)	33.3	20.1	12.4	13.5	32.1	22.0
numbers	68,648	82,503	64,441	4,950	78	215,592
Acceptance following second or subsequent invitations (%)	87.9	86.5	84.6	83.5	85.4	86.1
numbers	260,275	476,242	416,114	26,253	533	1,152,631
Acceptance following early recall (%)	98.0	95.5	95.8	95.4	94.8	97.0
numbers	2,654	1,150	935	411	192	4,739
Total (%)	76.0	75.9	74.2	72.1	79.6	75.4
numbers	714,255	572,897	491,327	32,195	867	1,778,479

Screening quality: first screen (50 – 64) • Table 3

The performance of the screening programme at first screen is very similar to that of previous years. The cancer detection rate and SDR have dropped - but very

slightly - and the number of women in this category has increased very slightly.

	Standard	Achieved
Acceptance rate at first invitation (%)	≥ 70.0	73.4
Recall rate (%)	< 7.0	8.3
Benign biopsies per 1,000 women screened	< 3.6	2.7
Invasive cancer detection rate per 1,000 women screened	> 3.6	5.0
In situ rate per 1,000 women screened	≥ 0.4 to ≤ 0.9	1.7
Invasive cancers less than 15mm per 1,000 women screened	≥ 1.5	2.6
Standardised detection ratio	≥ 1.0	1.26
Total number of women screened for the first time	–	344,890

Screening quality: subsequent screens (50 – 64) • Table 4

The number of women being re-screened by the NHSBSP is now approaching 1 million. The quality continues to move slowly upwards and the SDR is now 1.1 compared with 1.06 in previous years. The benign biopsy rate has dropped slightly and the recall rate is

exactly the same as in previous years. With the introduction of two views into this category of screening from 2001/2 onwards, it is expected that the quality will continue to improve for these women.

	Standard	Achieved
Acceptance rate at subsequent screen (%)	–	86.1
Recall rate (%)	<7.0	3.9
Benign biopsies per 1,000 women screened	<4.0	0.7
Invasive cancer detection rate per 1,000 women screened	>4.0	4.4
In situ rate per 1,000 women screened	>=0.5 to <=1.0	1.14
Invasive cancers less than 15mm per 1,000 women screened	>=1.65	2.41
Standardised detection ratio	>=1.0	1.10
Total number of women screened a second or subsequent time	–	992,248

Screening outcome: (50 – 64) • Table 5

The results for women in all categories aged 50 to 64 are given here and represent once again a fairly steady state, with the exception of increasing numbers of women. The majority of early recall women are recalled directly to assessment, which is reflected in the very high percentage seen here. They also have very high

rates of DCIS and invasive cancer detected. The number of women in this category continues to fall. The number of cancers detected in women who refer themselves is once again higher than in invited women, but unusually this year, they have a larger proportion of small cancers than invited women.

	First screen (invited)	Subsequent screen (invited)	Self/GP referral	Early recall
Number of women screened	344,890	992,248	34,498	4,596
% women recalled for assessment	8.3	3.9	6.12	85.7
Benign biopsies per 1,000 women screened	2.7	0.7	2.2	16.5
Overall cancer rate per 1,000 women screened	6.7	5.6	7.9	29.8
In situ cancers per 1,000 women screened	1.7	1.1	1.6	10.9
Invasive cancers per 1,000 women screened	5.0	4.4	6.3	18.7
% invasive cancers less than 15mm	51.9	54.7	61.1	70.9

Screening outcome: first screen by age group (invited women only) • Table 6

This table shows the number of women attending for the first time following their first invitation. The numbers of women aged 65 to 69 are very small here and it is

difficult to see anything meaningful in this figure.

This category of women will grow as the screening programme is extended up to and including 70 year olds.

	50 – 54	55 – 59	60 – 64	65 – 69	70+	Total 50 – 64
Number of women screened	311,564	21,725	11,601	888	53	344,890
% women recalled for assessment	8.3	8.1	7.2	6.0	1.9	8.3
Benign biopsies per 1,000 women screened	2.7	1.8	2.2	0.0	0.0	2.7
Cancers detected per 1,000 women screened	6.4	8.9	12.2	11.3	0.0	6.7

Screening outcome: subsequent screen by age group (invited women only) • Table 7

This table again presents fairly steady progress in the screening programme. Numbers of women aged 65 to 69 are relatively large and show, as might be expected, a fairly high cancer detection rate. However, the relatively high number of benign biopsies was unexpected and may

be because of increased vigilance and a greater degree of suspicion when examining the 'older' breast. The number of women aged over 70 screened in response to an invitation is still very small.

	50 – 54	55 – 59	60 – 64	65 – 69	70+	Total 50 – 64
Number of women screened	228,639	411,770	351,839	21,932	455	992,248
% women recalled for assessment	4.1	3.9	3.7	3.9	4.0	3.9
Benign biopsies per 1,000 women screened	0.8	0.8	0.7	1.0	2.2	0.7
Cancers detected per 1,000 women screened	4.1	5.4	6.8	9.0	15.4	5.6

Screening outcome: self/GP referrals by age group • Table 8

Women aged 50 to 64 who are in this category are largely those who have failed to attend when invited, but subsequently changed their minds, or those who have moved house or general practitioner so attended outside of the usual screening timetable. They are therefore counted as a self or GP referral. The number of cancers diagnosed in these women is substantially higher than in the invited women, as is the number of benign biopsies. This may indicate that some women are attending the screening programme rather than reporting a suspected problem to their GP. Women

aged 65 and over in this category represent those women living in areas not covered by the pilot projects who wish to attend for screening. These women will be invited by the screening programme in future years. The fact that many of these are women without symptoms is reflected in the fact that the figures for benign biopsy and cancer detection are in line with what is seen in the same age group when invited. This is the first time that the number of women over 70 who self refer have been separated from the number of women aged 65 to 69.

	50 – 54	55 – 59	60 – 64	65 – 69	70+	Total 50 – 64
Number of women screened	12,263	10,505	11,730	61,167	28,489	34,498
% women recalled for assessment	7.5	5.8	4.8	4.5	5.4	6.1
Benign biopsies per 1,000 women screened	2.6	2.6	1.4	0.9	0.9	2.2
Cancers detected per 1,000 women screened	6.7	7.9	9.1	9.8	14.7	7.9

Screening of women aged 70 and over • Table 9

The number of women aged 70 and over who are screened by the programme is still relatively small. The women most likely to self-refer over 70 are those who previously attended screening. Surprisingly few cancers

were detected in these women and this will clearly be an area of interest for the programme to review in future years.

	First screen (invited)	Subsequent screen (invited)	First screen (self/GP referral)	Subsequent screen (self/GP referral)	Early recall	Total
Number of women screened	53	455	6,381	22,108	182	29,179
% women recalled for assessment	1.9	4.0	8.1	4.7	68.1	5.8
Benign biopsies per 1,000 women screened	0.0	0.2	0.1	0.1	1.1	1.0
Cancers detected per 1,000 women screened	0.0	1.5	2.4	0.6	4.4	1.5

Total screening activity all ages • Table 10

Some women under 50 are invited by the programme, largely those who will be 50 in the year in which they are invited and thus are called up by the screening system. As might be expected with the younger,

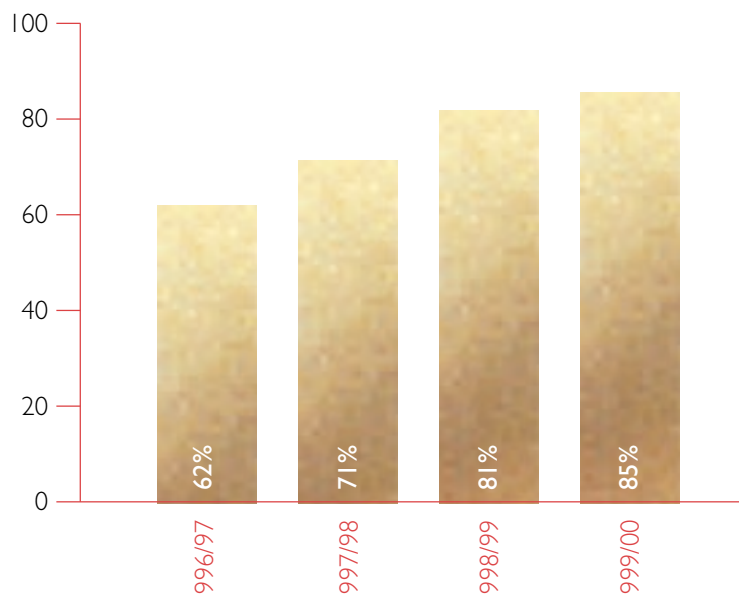
generally pre-menopausal women, they have a slightly higher recall for assessment rate and a slightly lower cancer detection rate.

	Under 50	Over 50	Total
Number of women screened	60,905	1,489,790	1,550,695
% women recalled for assessment	6.3	5.3	5.3
Cancers detected per 1,000 women screened	4.1	6.4	6.1
Total number of cancers detected	247	9,525	9,772

Cancers with non-operative diagnosis • Table 11 (England, Wales and Northern Ireland only)

85 per cent of breast cancers are now diagnosed without an operation. This means that a woman can have a definite diagnosis and make a decision about

the type of treatment she needs before any surgery. Unfortunately Scotland was unable to supply this figure.



Lymph node status • Table 12

The proportion of invasive cancers where the nodal status is known has now risen to 93 per cent. However, the proportion of cases which have positive lymph

nodes or negative lymph nodes has remained absolutely constant.

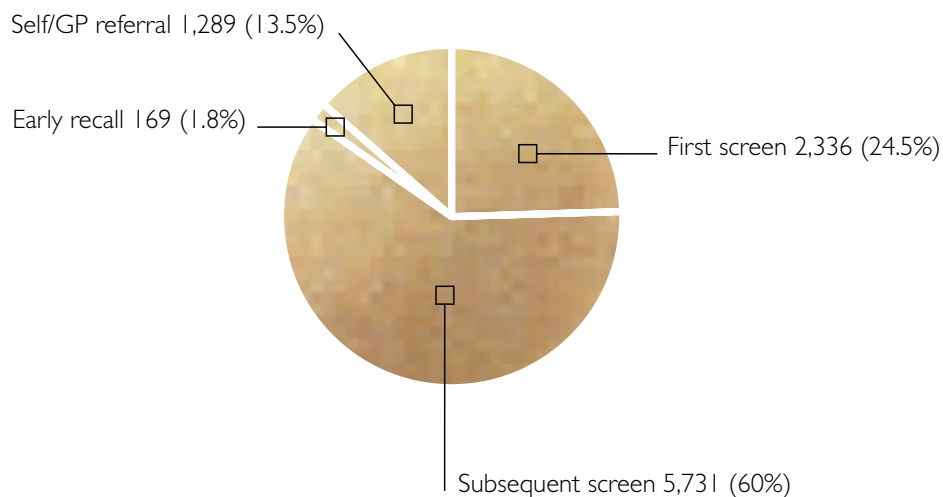
	No. of invasive cancers	% nodal status known	% known cases positive	% known cases negative
1996/97	5,860	81	26	74
1997/98	6,427	87	25	75
1998/99*	6,200	90	26	74
1999/00	7,675	93	25	75

* England and Wales only

Distribution of cancers detected in women 50+ • Table 13

The vast majority of cancers are detected in women attending repeat screening. This proportion has now reached 60 per cent and emphasises the importance of repeat screening for women. Breast screening does

not reduce the risk of developing breast cancer or prevent breast cancer in any way. Rather it reduces the risk of a woman dying from the disease if she attends for screening.



Women 65 and over screened • Table 14

The screening programme is now able to separate for the first time the number of women screened aged 65 to 69, and those aged 70 and over. As can be seen, there has been a steady increase in the number of

women attending in these categories and the numbers are expected to increase further as the programme begins to invite women up to and including the age of 70 over the next few years.

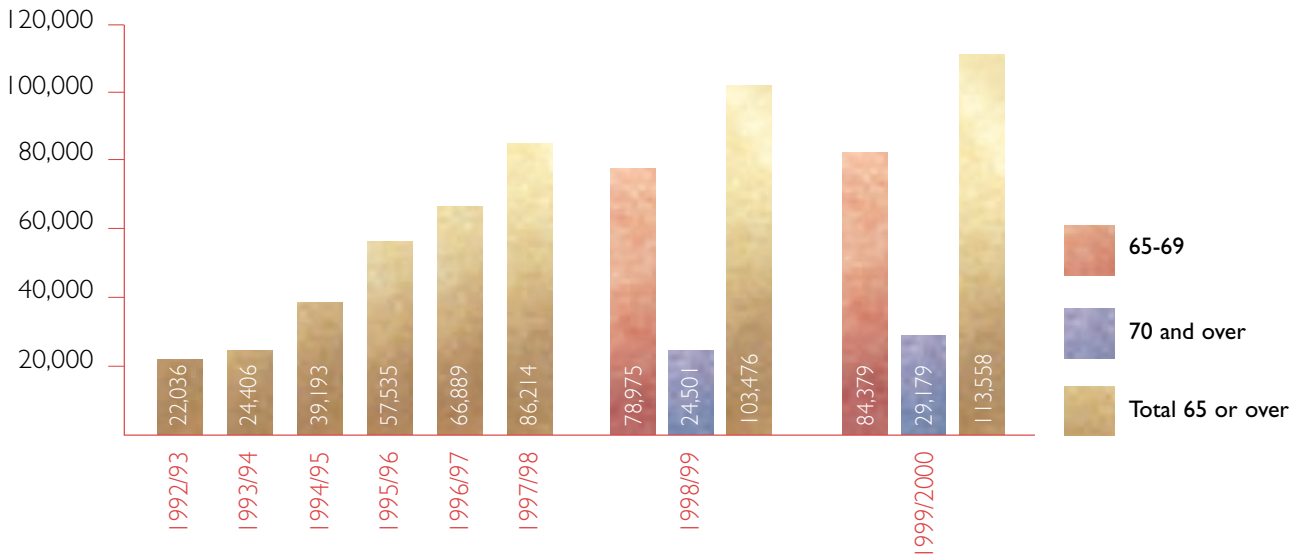
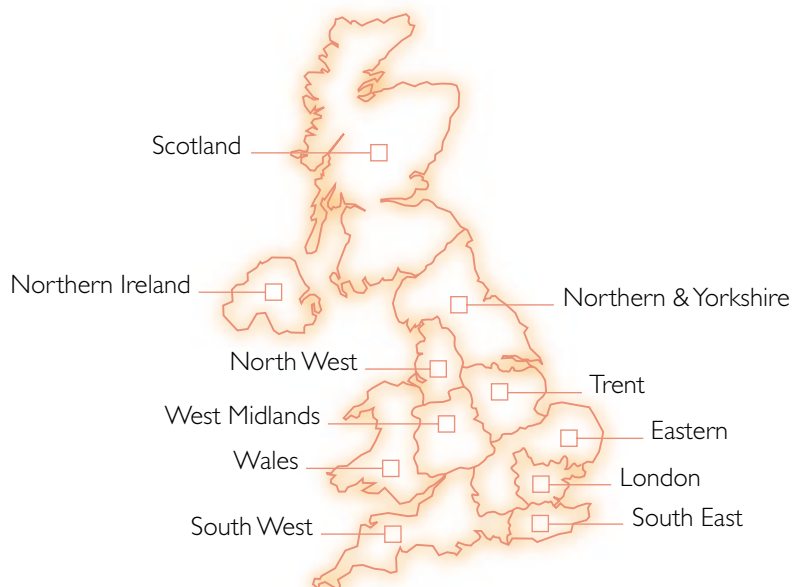


Table 15 & 16 (opposite)

These tables represent screening activity around the United Kingdom. Certain regional trends can clearly be seen. For example, now that London is a discrete region, its lower acceptance - particularly in the prevalent round - is clearly noticeable. No other region stands out as having particularly high or particularly low acceptance.

Recall rates vary around the country, with Scotland having high recall rates, particularly in the prevalent round. Their cancer detection rates are higher, however, which is the classic screening trade off between sensitivity and specificity, or pick up rate against false alarms. Wales also has a particularly high cancer detection rate in the prevalent round, but a much lower recall for assessment rate. In England, there is much more consistency

between the regions, with South West having a high cancer detection rate in the incident round, and also the highest benign biopsy rate. Again, this illustrates the trade off between identifying cancers and worrying women unnecessarily.



Outcome of prevalent (first screens) by region 50-64 • **Table 15**

	Acceptance (%)	Recall (%)	Benign biopsies per 1,000	Cancer detection rate per 1,000
Northern & Yorkshire	77.5	7.4	3.6	4.5
Trent	79.2	7.3	2.1	4.5
West Midlands	74.0	5.8	2.2	5.0
North West	74.7	9.5	3.5	4.9
Eastern	75.0	7.5	2.7	5.2
London	57.3	8.1	2.2	4.9
South East	73.6	9.9	1.9	5.0
South West	76.5	8.8	2.5	5.0
Scotland	74.5	11.0	3.2	5.7
Wales	76.5	6.8	3.8	6.7
Northern Ireland	74.5	5.6	2.0	5.6

Outcome of incident (subsequent screens) by region 50-64 • **Table 16**

	Acceptance (%)	Recall (%)	Benign biopsies per 1,000	Cancer detection rate per 1,000
Northern & Yorkshire	87.6	3.5	0.8	4.2
Trent	89.5	3.3	0.7	4.1
West Midlands	86.8	2.9	0.4	4.1
North West	85.6	4.1	0.9	4.3
Eastern	86.5	3.8	0.9	4.4
London	79.1	3.8	0.8	4.5
South East	86.8	4.5	0.6	4.4
South West	86.9	4.7	1.0	4.7
Scotland	84.3	5.1	0.9	5.1
Wales	87.6	3.4	0.6	4.6
Northern Ireland	86.1	2.7	0.8	4.5



Cancer Screening Programmes

NHS Breast Screening Programme
The Manor House
260 Ecclesall Road South
Sheffield S11 9PS
www.cancerscreening.nhs.uk

© NHSBSP 2001
ISBN 1 871997 49 6