Breast Screening

NORTHERN IRELAND BREAST SCREENING PROGRAMME

ANNUAL REPORT & STATISTICAL BULLETIN 2012-2013

August 2014

HSC Public Health Agency

Contents

1 Summary

This annual report and statistical bulletin describes key issues relating to the Northern Ireland Breast Screening Programme and its performance in 2012/13. It compares performance with previous years and with data from the English NHS Breast Screening Programme.

The Quality Assurance Reference Centre (QARC) monitors, and quality assures, the Northern Ireland Breast Screening Programme to ensure women have access to a high quality service that meets agreed national standards.

The aim of breast screening is to prevent deaths from breast cancer. Breast screening, like all screening programmes, results in both benefits and harms. The main benefit is that screening saves about 1 life from breast cancer for every 200 women screened. This adds up to about 1,300 lives saved from breast cancer each year in the UK.

The main harm is overdiagnosis, as about 3 in every 200 women screened are diagnosed with a cancer that would never have been found without screening and would never have become life threatening. This adds up to about 4,000 women each year in the UK who are offered treatment they did not need.

In 2012/13 QARC began a review of the information provided to women about breast screening. New leaflets and posters have now been published and additional information has been added to the QARC website, including an expanded FAQ section. In addition a revised information booklet has been published for health care professionals. This is also available on the website (http://www.cancerscreening.hscni.net/).

Another significant development during 2012/13 was the production of a business case to replace the existing analogue mammography equipment with digital equipment. It also covered replacing the existing fleet of 5 mobile screening trailers with a fleet of 7 new trailers of much higher specification. The new equipment and trailers will all be installed and operational by September 2014.

In 2012/13 a total of 83,551 women aged 50-70 were invited and 61,766 were screened; giving an uptake of 74% (standard > 70%). This compares with 73.3% in 2011/12 and 75.8% in 2010/11. Uptake is the percentage of women who attend each year, following an invitation.   This means that just over a quarter of women who were invited did not take up the offer of screening mammography.

Significant progress has been made implementing an agreed action plan to promote informed choice about breast screening. This includes specific actions relating to groups that can have difficulty accessing the breast screening programme. These are described in section 7.

Most women who attend for breast screening mammography (96 out of every 100) will be identified as having normal mammograms. 97.1% of these women received their test results within 2 weeks (standard >90%). 3.7% of women who were screened were found to have an abnormality on their mammograms and were referred for further assessment. 90.6% of these women were offered an assessment clinic appointment within 3 weeks (standard >90%). As of 1 January 2014 units should ensure 100% of women are offered an appointment within 3 weeks. 83% of women attended their appointment within 3 weeks. This figure needs to be increased to 90% and units should now meet this figure. Younger women are more likely to be called back for assessment, but cancer is more likely to be found in older women.

Diagnosis before surgery is made by taking a biopsy at the assessment clinic, 96.5% of women with cancers detected by screening had the diagnosis confirmed before surgery (standard >80%). The diagnostic accuracy of biopsies taken at assessment clinics is high. 99.5% of women only required one visit to the assessment clinic to obtain a diagnosis.

A total of 443 cancers were detected in 2012/13. Of these 372 were invasive cancers and 67 were ductal carcinoma in situ (DCIS), 2 were micro-invasive and in 2 the invasive status was not known. Of the 372 invasive cancers 187 (50.3%) were less than 15 mm in diameter (small invasive cancers).

A proportion of cases of DCIS will eventually become invasive. However, it is not yet possible to identify which ones will, and which won't, become invasive. All women diagnosed with this disease are therefore offered treatment.

4.2 per 1,000 women screened for the first time (aged under 53) were diagnosed with an invasive breast cancer (standard > 3.6). The rates for 2010/11 and 2011/12 were 6.4 and 4.0 respectively. The comparative rate for England for 2012/13 was 5.7. The figure for women attending subsequent screening tests was 5.9 per 1,000 (standard > 4.1). The rates for 2010/11 and 2011/12 were 4.8 and 5.8 respectively. The English rate for 2012/13 was 6.2.

The main aim of breast screening is to detect small invasive breast cancers at a time in their natural history when treatment is more likely to reduce the risk of death from the disease. 1.5 per 1,000 women screened for the first time (aged under 53) had a small invasive cancer identified (standard ≥2.0). This does not meet the standard - which was increased from 1.5 to 2.0 in 2011. However, the numbers involved are very small (n=14) and the standard was met in the previous 2 years. In addition the incident small cancer detection rate is above the target and the standardised detection ratio for small invasive cancers meets the standard. The figure for England for 2012/13 was 2.7 per 1,000. Performance in this area will continue to be monitored.

The small invasive cancer detection rate for women attending for subsequent screening tests was 3.2 per 1,000 (standard ≥2.3). The rates for 2010/11 and 2011/12 were 2.8 and 3.4 respectively. The figure for England for 2012/13 was 3.3 per 1,000

73.9% of women diagnosed with an invasive cancer had breast conserving surgery; 25.2% had a mastectomy and 0.8% had no surgery.

The proportion of women who had a surgical operation for what turned out to be benign disease was 1.0 per 1,000 for the prevalent (first) screen (standard < 3.6 per 1,000) and 0.4 per 1,000 for incident (subsequent) screens (standard < 2 per 1,000).

26% of women with invasive cancer required a repeat surgical operation. This is slightly higher than the UK average of 23% (range 16%-27%).

The screening round length is the interval between each offered invitation for screening mammography. The NHS Breast Screening Guidance Publication No. 60 (Version 2) *Consolidated Guidance on Standards for the NHS Breast Screening Programme , April 2005*[1] states that, to ensure women are recalled for screening at appropriate intervals, the percentage of eligible women whose first offered appointment is within 36 months of their previous screen should be 90% or more. Measurement of screening round length provides an indicator of the efficiency with which a screening programme is managed. The long-term effectiveness of the programme is dependent on women in the target age group continuing to be screened at regular intervals. In 2012/13, 83.2% of women were offered an appointment for mammography screening within 36 months of their previous normal screen (standard >90%). The Eastern Unit's round length began to slip in June 2011.   QARC worked with the unit and the Belfast HSC Trust to agree an action plan to bring it back to standard. This was achieved in the third quarter of 2012/13.

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[1] Available at http://www.cancerscreening.nhs.uk/breastscreen/publications/nhsbsp60v2.pdf

A number of factors had contributed to slippage of the Southern Unit's round length in the first quarter of 2012/13, including staff leave. The unit brought its round length back to standard in the second quarter of 2012/13.

The replacement of all mammography equipment throughout Northern Ireland with new digital equipment during 2014 will adversely impact on the 2014/15 round length.

Overall, while there are some areas that require improvement (e.g. screen to assessment and round length), these are good statistics and show that the Northern Ireland Breast Screening Programme is providing a good quality service.

Dr Adrian Mairs
Quality Assurance Director
NI Breast Screening Programme

Miss Claire Armstrong
Support Officer
NI Breast Screening Programme

2 Introduction

> **Regular breast screening reduces the risk of death from breast cancer.**
>
> **For every 1 woman who has her life saved from breast cancer, about 3 women are diagnosed with a cancer that would never have become life-threatening.**

The aim of breast screening is to prevent deaths from breast cancer. Breast screening, like all screening programmes, results in both benefits and harms. The main benefit is that screening saves about 1 life from breast cancer for every 200 women who are screened. This adds up to about 1,300 lives saved from breast cancer each year in the UK.

The main harm is overdiagnosis, as about 3 in every 200 women screened are diagnosed with a cancer that would never have been found without screening and would never have become life threatening. This adds up to about 4,000 women each year in the UK who are offered treatment they did not need.

In Northern Ireland eligible[2] women aged 50 – 70 are invited for breast screening , by GP practice, every 3 years. Due to this three yearly round of invites about a third of women will be invited for the first time before their 51st birthday (the year they turn 50), a third before their 52nd birthday (the year they turn 51) and the rest before their 53 birthday (the year they turn 52).   All eligible women should be invited for the first time before their 53rd birthday. As the women who are invited before their 51st birthday are invited in the year they turn 50, some women will be invited for breast screening for the first time when they are 49.

Women invited for the first time the year they turn 50 are invited for the last time the year they turn 68. Women invited for the first time the year they turn 51 are invited for the last time the year they turn 69, and women invited for the first time the year they turn 52 are invited for the last time the year they turn 70. Everyone receives a total of 7 invitations.

Women aged over 70 years are not automatically invited for screening, but are encouraged to continue attending every 3 years by phoning their local screening unit and requesting an appointment.

[2]Women who have had bilateral mastectomy are excluded from the eligible population.

Figure 1: Locations of the Breast Screening Units

Northern Ireland location map by: NordNordWest : CC BY-SA 3.0
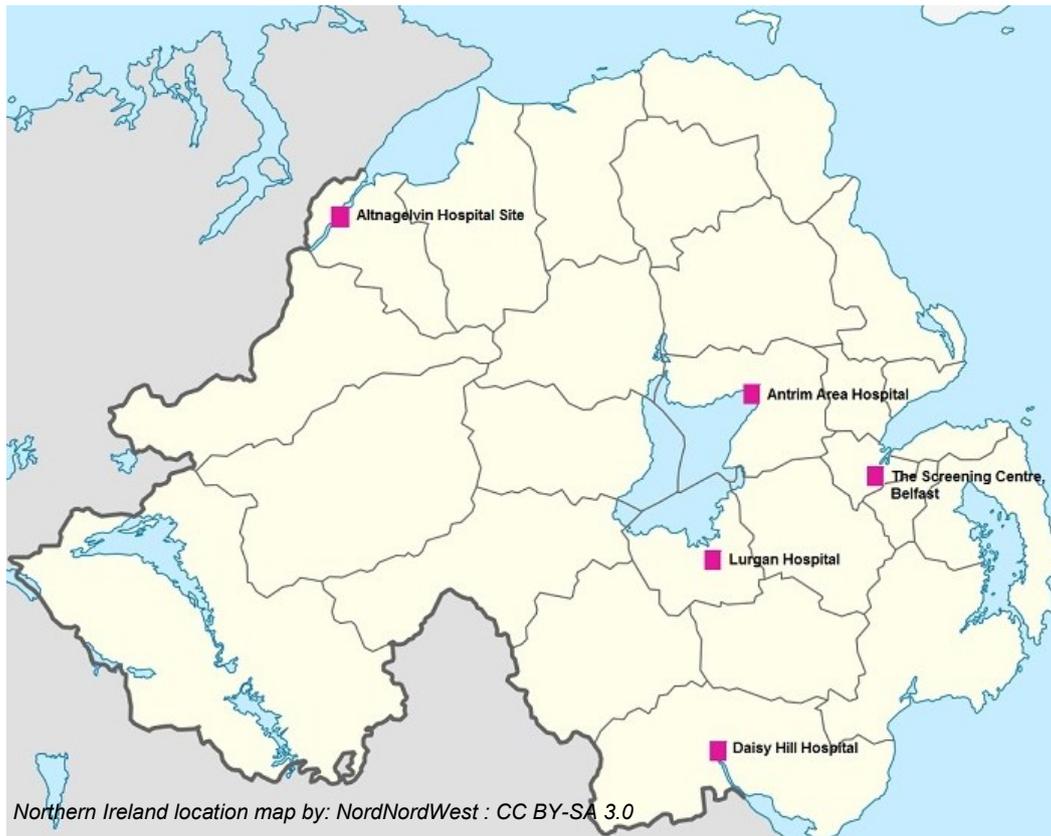
There are four breast screening units in Northern Ireland (figure 1).

These are the:
- Eastern Breast Screening Unit at 12-22 Linenhall Street, Belfast (covers the Belfast and South Eastern Trust areas). Tel: 028 9033 3700.
- Northern Breast Screening Unit at Antrim Area Hospital (covers most of the Northern Trust area). Tel: 028 9442 4425.
- Southern Breast Screening Unit based at Craigavon Area Hospital (covers the Southern Trust area) with static units at both Lurgan and Daisyhill Hospitals. Tel: 028 3834 7083.
- Western Breast Screening Unit at Altnagelvin Area Hospital (covers the Western Trust, and part of the Northern Trust area). Tel: 028 7161 1443.

Some breast screening is carried out in the Eastern Unit and in the Western Unit. However, most breast screening in Northern Ireland is now carried out on mobile breast screening trailers at a variety of locations throughout Northern Ireland. Indeed the number of trailers will increase from 5 to 7 as a new fleet of breast screening trailers is introduced in 2014.

These new trailers will have digital mammography equipment on board and will further increase accessibility to the programme. Figure 2 shows the locations that will be visited by the new mobiles from 2014.

Figure 2: Locations of the Mobile Breast Screening Units from 2014

Northern Ireland location map by: NordNordWest : CC BY-SA 3.0
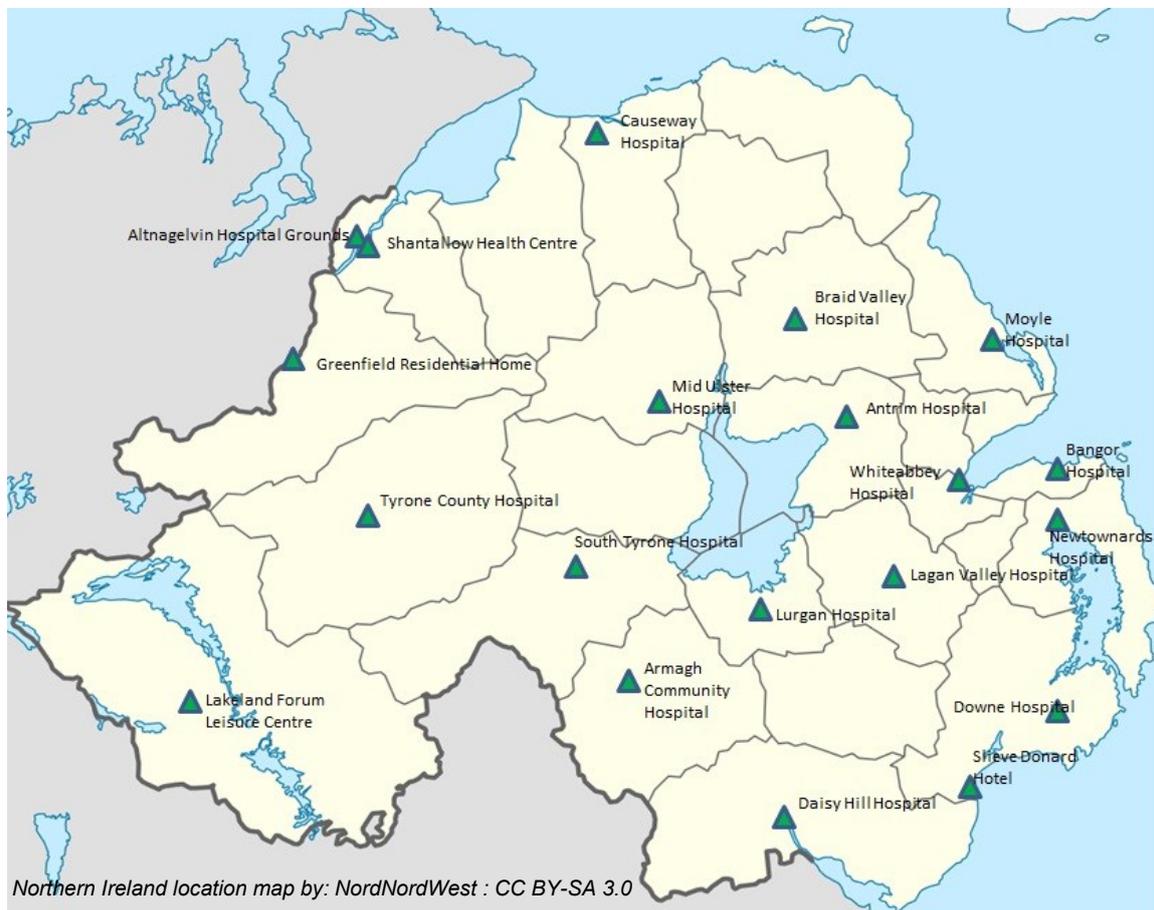
The Quality Assurance Reference Centre (QARC) is part of the Public Health Agency. It provides the quality assurance function for the three cancer screening programmes (breast, bowel and cervical).

The purpose of quality assurance in the breast screening programme is the:

- maintenance of minimum standards; and
- continuous improvement in the performance of all aspects of the screening programme

in order to ensure that women have access to a high quality service wherever they reside.

The Northern Ireland Breast Screening Programme operates to the same standards as the NHS Breast Screening Programme in England. These quality standards can be found at http://www.cancerscreening.nhs.uk/breastscreen/publications/publication-topics.html

3 Key Developments in 2012/13

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The old analogue mammography equipment is being replaced by new digital mammography equipment. In addition the existing fleet of 5 mobile screening trailers is being replaced by a fleet of 7 new trailers of much higher specification.

A new set of information leaflets and posters for the public has been developed, as has a booklet for health care professionals.

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Digital Mammography

During 2012/13 a business case was developed to replace all of the old analogue mammography machines with new digital equipment. It included the need to replace the existing 5 mobile breast screening trailers with a new fleet of 7. It also covered the cost of storing digital mammograms on the Northern Ireland Picture Archiving System (NIPACS). This allows all x-ray images taken by the HSC to be stored on, and retrieved from, a single regional system.

The new digital mammography equipment and trailers will be introduced in different areas between April and September 2014.

Digital mammography offers a number of advantages over analogue mammography. These include:

- Ease of storage/retrieval of images and ability to view the images at different locations (through NIPACS) - images will be in the right place at the right time to facilitate patient care;
- The capability to manipulate the images eg magnify them or adjust the contrast;
- Better visualisation of dense breasts in younger women, as well as the ability to detect more cancers (better sensitivity);
- A reduced need for women to be asked to return to have additional mammograms taken (technical recalls) as the quality of the image can be checked immediately (the image being digital does not need to be processed like the analogue mammograms).

The new mobile trailers are a significant improvement on the existing trailers and provide access for women with disabilities.

Figure 3: One of the new mobile breast screening trailers

New Breast Screening Leaflets

Work started on a new set of information leaflets in 2012/13. These were developed in light of the findings of an Independent Review of Breast Screening (the Marmot review). This concluded that the UK breast screening programmes confer significant benefit, by reducing breast cancer mortality, and should continue. However, it also recommended that women should be given clear and balanced information about the benefits and harms of breast screening (see page 7). We have therefore taken this opportunity to update and revise each of our leaflets. One of the revised leaflets "Breast Screening – Helping You Decide" replaces the old leaflet "Breast Screening Can Save Lives". This is sent to women with their invitation to attend breast screening.

4 Statistics

The Quality Assurance Reference Centre regularly monitors the performance of the Northern Ireland Breast Screening Programme

The Quality Assurance Reference Centre (QARC) monitors the performance of each of the four breast screening units against national standards using Körner returns:

KC62 – This is an annual return made by trusts on: outcome of initial screen, outcome of assessment (including cytology and histology), cancers diagnosed (by size and type) and overall outcome measures (uptake, referral rate, non-invasive cancers, benign biopsy rate, invasive cancer detection rate, referral for cytology/biopsy, malignant:benign ratio for surgery, early recall rate); by 1st invitation, previous non-attenders, last screen within 5 years, last screen more than 5 years, early recall, self referrals, all women; by age.

KC62 data are obtained from the National Breast Screening System (NBSS). This is the IT system that supports the breast screening programme.

KC63 – This is an annual return made by trusts on: numbers of eligible women, invited and screened by age, numbers recalled, numbers self or GP referred, and time since most recent screen in 12 month blocks.

In December 2010 an electronic link was established between NBSS and the IT system that supports primary care (NHAIS/Exeter system). It will also enable the establishment of better failsafe procedures to ensure that all women who should be invited for breast screening are invited. It will allow us to provide KC63 data. KC63 will provide information on the coverage of the programme. Coverage is defined as the proportion of women resident and eligible for screening who have had a screening mammogram at least once in the previous three years. KC63 data will not be available until late 2014 when the system will be populated with 3 (financial) year's worth of data (as the breast screening programme is a 3 yearly rolling programme).

Women with a date of first offered screening appointment between 01/04/2012 and 31/03/2013 were used to produce this report. Comparative figures for the previous 2 years (5 years for uptake) and from the English NHS Breast Screening Programme are also shown.

These data allow the Quality Assurance Reference Centre to evaluate the quality of the Northern Ireland Breast Screening Programme. Performance is compared to the minimum standards and targets which are set out in NHSBSP Publication No. 60 (Version 2) *Consolidated Guidance on Standards for the NHS Breast Screening Programme* , *April 2005*[1] and revised in NHSBSP Publication No. 59 *Quality Assurance Guidelines for Breast Cancer Screening Radiology (Second edition), March 2011*.[3]

The current standards are summarised in **Appendix 1**. It should be noted that these quality assurance data provide information on the performance of the four breast screening units and the programme as a whole: they do not provide information on the performance of individual staff.

<u>Minimum standards</u>: These figures represent the levels of performance which are the minimum acceptable for any breast screening unit. Where the minimum standard is shown "greater than or equal to", any level of performance below that standard is investigated by the Quality Assurance team. Where the minimum standard is shown as "less than or equal to", any level of performance above that standard is similarly investigated.

<u>Targets</u>: These are the quantitative goals that are considered to be achievable individually by one third of units within the NHSBSP. All units should aim to achieve the targets. If the specified cancer detection rates etc. are achieved, then the programme will be on target to replicate the mortality reduction achieved in the original clinical trials.

The KC 62 data for women aged 50 – 70 are shown in **Appendix 2**.

Before March 2009 women aged 50-64 were invited for breast screening. Since that date invitations have gone to women aged 50-70 (age extension).

English data are taken from the NHS Information Centre for Health and Social Care, *Breast Screening Programme, England 2012-13* Report.[4]

[3] Available at http://www.cancerscreening.nhs.uk/breastscreen/publications/nhsbsp59.pdf

[4] Available at http://www.hscic.gov.uk/catalogue/PUB13567/bres-scre-prog-eng-2012-13-rep.pdf

5 Number of Women Screened

83,551 women were invited for breast screening in 2012/13 and 61,766 of these women attended for breast screening

A total of 83,551 women aged 50-70 were invited for breast screening in 2012/13. Of these 61,766 women attended for screening. Figure 4 below illustrates how many women aged 50-70 were screened by each unit over a three year period.

Figure 4: Number of women aged 50-70 who were screened each year from 2010/11 to 2012/13
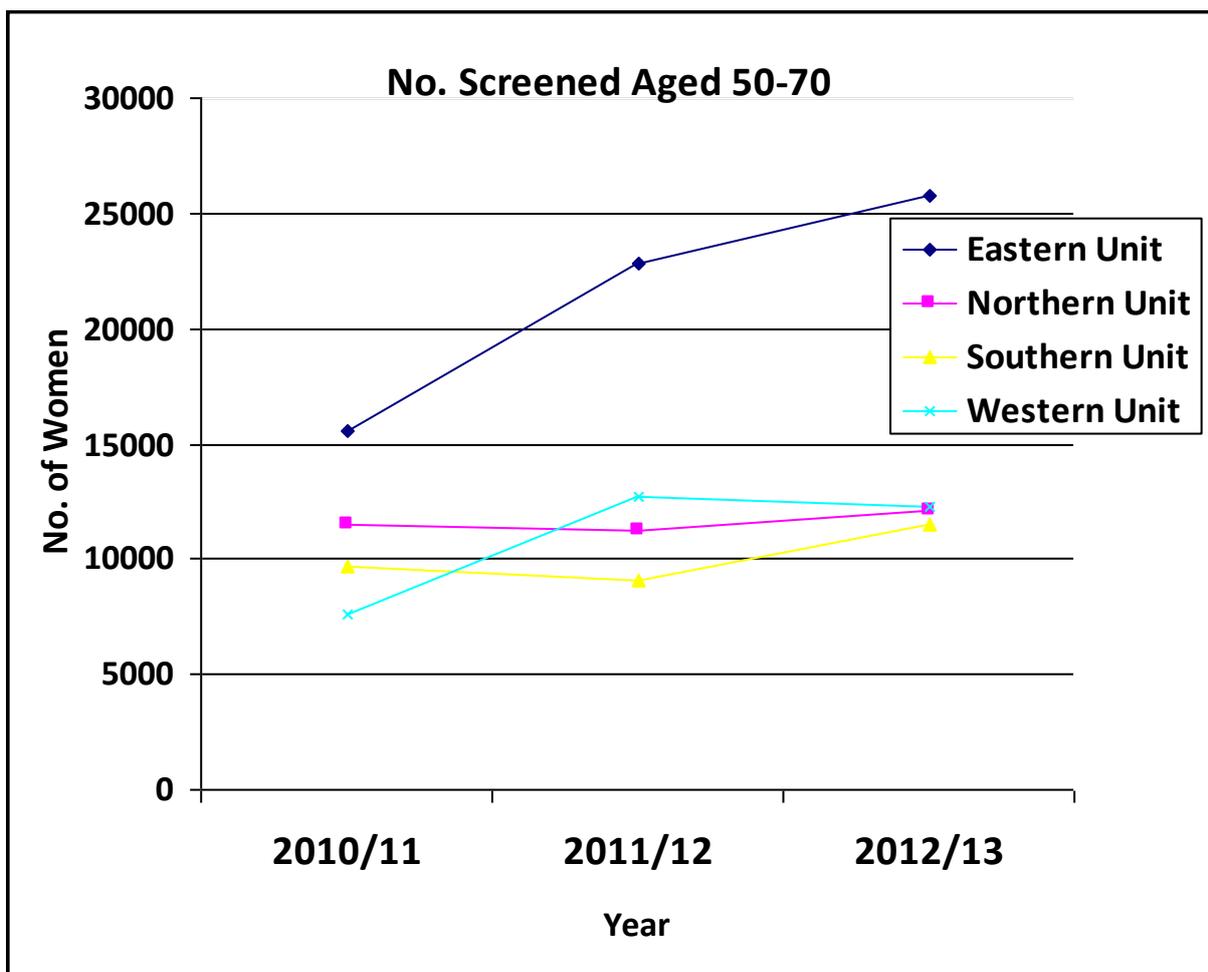
The 4 breast screening units cover screening populations of different sizes. The screening populations for each unit in 2012/13 were:

Eastern unit - 89,409

Northern unit - 54,271

Southern unit - 43,414

Western Unit - 36,450

Approximately 1/3 of the eligible screening population is invited each year. However, for historical reasons, a series of peaks and troughs in the numbers of women invited year have developed in the Eastern Unit.   The unit is working to even out these fluctuations and figure 5 shows the predicted numbers of invites (and numbers attending) over the 3 year period 2013/14 - 2015/16.

Figure 5: Number of women invited and number of women screened by year 2010/11- 2012/13, with predicted numbers for 2013/14 - 2015/16, for the Eastern Breast Screening Unit
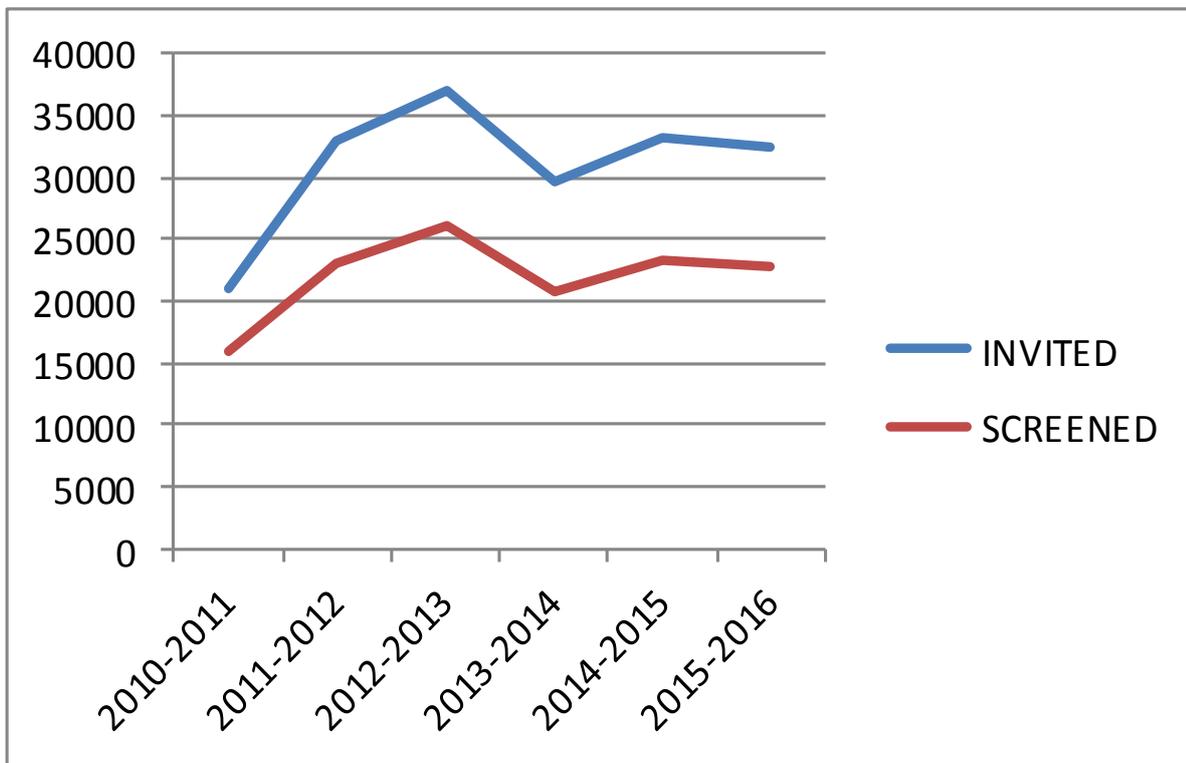
6 Uptake

Each year around 75% of women invited take up the offer and attend for breast screening .

Attendance is lowest in Derry/Londonderry and in Greater Belfast.

Uptake measures the percentage of women who attend for breast screening each year, following an invitation. Figure 6 shows the uptake rates over a 6 year period. The age range 50-64 is used to compare results with those obtained before age extension in March 2009.

In 2012/13 each of the 4 breast screening units achieved an uptake of over 70% for women aged 50 - 64, which is the national minimum standard. Overall the Northern unit has the highest uptake and the Eastern unit the lowest. The average figure for Northern Ireland in 2012/13 was 74.2%. This means that just under three quarters of all women who were invited accepted the offer of breast screening (a total of 61,766 women).

Figure 6: Uptake for women aged 50-64 by unit and for Northern Ireland 2007/08 – 2012/13
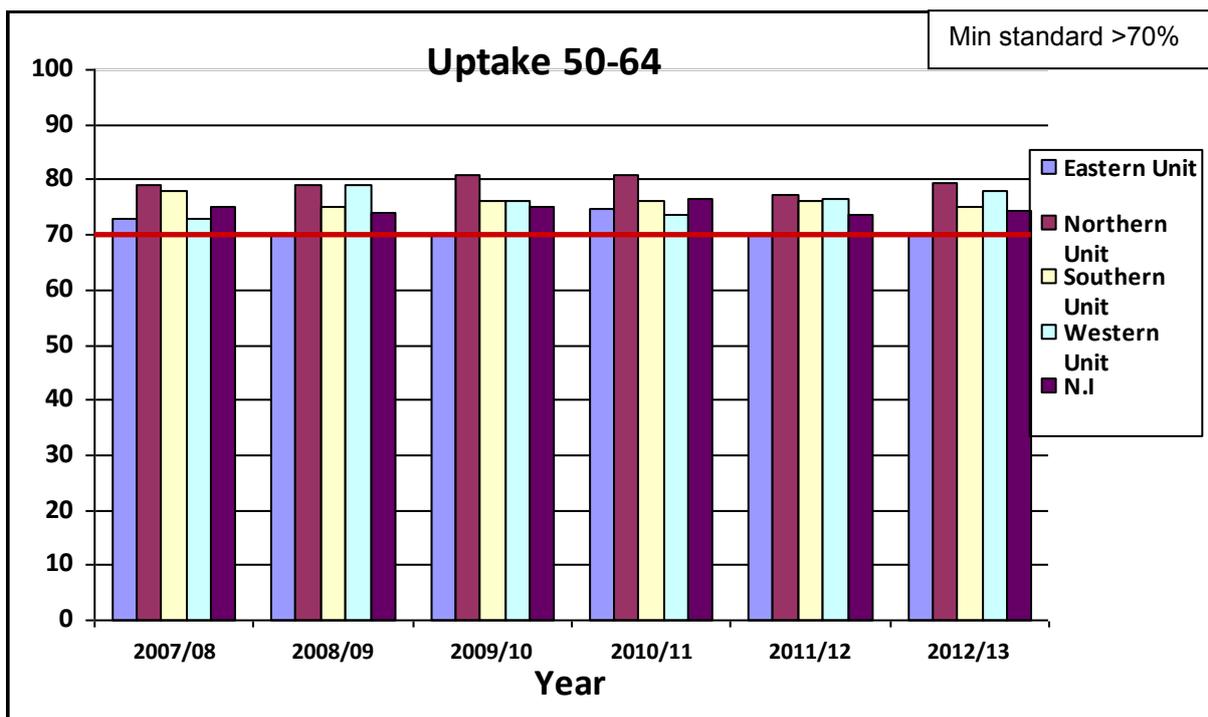
The uptake for women aged 50–70 between 2010/11 and 2012/13 is shown in figure 7.

The overall uptake for this age range in Northern Ireland was **73.9%** in 2012/13. This compares with 73.3% in 2011/12 and 75.8% in 2010/11.

The comparative figure for England was **72.2%**. This compares with 73.1% in 2011/12 and 73.4% in 2010/11.

The comparative figure for Wales was **71.2%**. This compares with 73.2% in 2011/12 and 74.3% in 2010/11.[5]

Scotland publishes a 3 yearly average uptake figure. This was **73.5%** for the period 2010/13.[6]

The breast screening programme in the Republic of Ireland is not strictly comparable. It invites women aged 50-64 every 2 years. Uptake in 2011/12 (the most recent published figures) was 74.5% based on the population known to the programme and excluding certain groups of women.[7] Without the exclusions the figure is 72.2%.

Figure 7: Uptake for women aged 50-70 by unit and for Northern Ireland 2010/11 to 2012/13
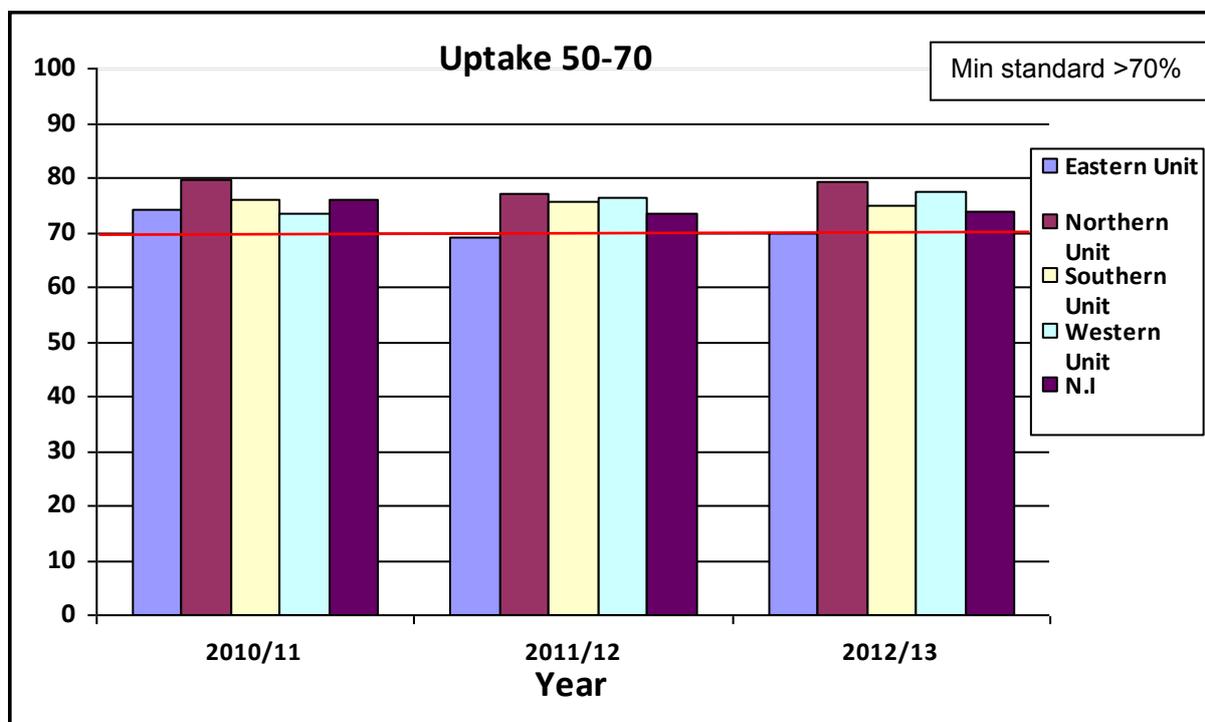
[5] http://www.breasttestwales.wales.nhs.uk/sitesplus/documents/1025/btw_programme_performance_2012-13.pdf
[6] https://isdscotland.scot.nhs.uk/Health-Topics/Cancer/Publications/2014-04-29/2014-04-29-SBSP-Cancer-Summary.pdf?56365603209
[7] http://www.breastcheck.ie/sites/default/files/bc_pr.pdf

7 Promoting Informed Choice

> **Significant progress has been made implementing an agreed action plan to promote informed choice about breast screening. This includes specific actions relating to groups that may have difficulty accessing the breast screening programme.**

There are a number of reasons why women may not attend for breast screening. This can be due to organisational and communication issues, as well as individual factors, including personal choice. The PHA, in partnership with other stakeholders, is implementing an action plan to help ensure all eligible women can make an informed choice about attending for breast screening and that the service is as accessible as possible.

The action plan was developed following a workshop and series of meetings with groups representing minority ethnic communities; people living in deprived circumstances; people with learning difficulties; lesbian, gay, bisexual and transgender communities; people with physical and sensory disabilities, prisoners and Travellers.

The following actions have been taken:

1. The number of breast screening mobile units will increase from 5 to 7 in 2014. This will mean that the service can be brought into more communities improving accessibility (the new locations are shown in figure 2).

2. Women are now given more than 2 weeks' notice of their screening appointment date so that they have more time to make arrangements to attend (women are encouraged to phone the breast screening unit to request a more convenient appointment if the one offered doesn't suit).

3. The Eastern Breast Screening Unit and the Northern Breast Screening Unit have introduced a system of text prompts to remind women about the appointment the day before. Plans are underway to introduce similar systems in the Southern and Western Breast Screening Units.

4. Each of the breast screening units has developed an action plan for community and primary care engagement.

5. The Quality Assurance Reference Centre (QARC) has established a regional group, with representation from each of the breast screening units, to promote informed choice in breast cancer screening.

6. The invitation letter to women has been revised. It will now be reviewed annually.

7. A new set of breast screening information leaflets has been produced (see page 10). The information leaflet for health care professionals has also been revised and is on the QARC website.

8. Screening appointment cards (the size of business cards) have been produced to give to women when they attend for their last invited screening mammogram. This aims to encourage older women to make an informed choice about continuing to attend for breast screening as the risk of breast cancer continues to rise with age (see figure 8). In addition an over 70s leaflet is being developed; as is an over 70s page on the QARC website.

Figure 8: The risk of getting breast cancer continues to increase with age.
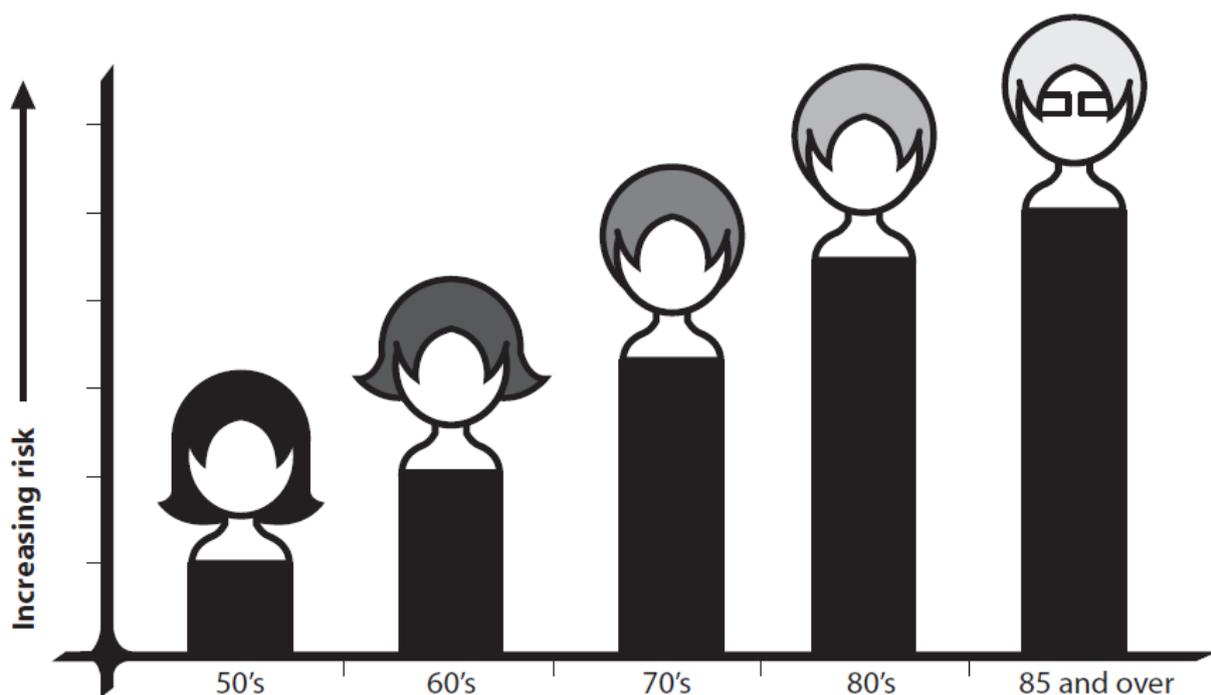
Illustration courtesy of NHSBSP

9. Collaboration with the Royal National Institute for the Blind (RNIB) has resulted in the development of a Braille version of the "Breast Screening—Helping You Decide" leaflet; as well as an audio version which will be on the cancer screening website. This collaboration has also resulted in a feature on the breast screening programme appearing on Sound Vision Ulster; an audio magazine for people with visual impairment http://www.soundvisionulster.com/listen_to_svu/listen_to_svu.html

10. Three tweets are being issued by the PHA each month about the Breast Screening Programme. A couple of examples are shown below:

- Make an informed choice about attending for breast cancer screening find out more @ bit.ly/FAQ-Breastscreening

- Check out www.cancerscreening.hscni.net to see when breast cancer screening is taking place for your area.

11. A set of geomaps was produced showing the uptake of breast screening at small area levels (super output area and electoral ward) to assist in targeting resources at low uptake areas. An example is shown in figure 9 below. The maps are at http://www.cancerscreening.hscni.net/2094.htm

Figure 9: Uptake for women aged 50-64 by electoral ward Belfast and South Eastern Trust areas 2008-2011

Legend
Unit ZNE1 by Electoral Ward
zne1 by Ward50_64.% Uptake
- 46 - 69 (Below National Minimum Standard of 70%)
- 70 - 76 (Above National Standard but below NI Average of 77%)
- 77 - 85 (Above NI Average of 77%)
- Mobile Units
- Static Units
- LCG Boundary

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12. An equality questionnaire was piloted on women attending for breast screening in a selected area. It aimed to capture information on the categories set out in Section 75 of the Northern Ireland Act 1998. There were issues concerning the distribution of the questionnaire, negative feedback from radiographers and from some women attending for screening. Following a revision of the questionnaire, and the protocol for its distribution and return, it will be piloted in a different area during 2014/15.

13. A thousand questionnaires will be issued during 2014 to women who have not attended for their first (prevalent) screen to try to identify the reasons why these women do not attend. The results of this survey will inform focus group work later in 2014.

14. QARC and the Breast Screening Units are identifying and actively offering support to individual GP practices with a low uptake of breast screening; as well as offering to provide support and advice to any GP practice that requests it.

Figure 10: Article from QARC Newsletter April 2014

conference dates ⊙
QARC contact details⊙

BREAST SCREENING PROGRAMME VISIT TO VERE FOSTER MEDICAL GROUP

Representatives from the Quality Assurance Reference Centre and the Office Manager of the Breast Screening Unit (Linenhall St, Belfast) recently visited the Vere Foster Medical Group, (Sandy Row and Falls Road Practices) to talk to practice staff about the Breast Screening Programme. The talk was very interactive with practice staff suggesting ways in which interventions at practice level might help to improve uptake eg alerts on the electronic screen that eligible women from the practice are being called for screening, was one of many suggestions.

If you would like someone to come and talk to practice staff about the breast screening programme please contact either your local breast screening unit or the Quality Assurance Reference Centre at screening.breast@hscni.net.

Dr Adrian Mairs, Quality Assurance Director, NI Breast Screening Programme

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15. The PHA has approved a business case for a service to promote informed choice in relation to the breast, bowel and cervical cancer screening programmes across Northern Ireland. The service will deliver community educational sessions to raise awareness of each of the cancer screening programmes. In addition special breast screening clinics will be facilitated for groups of women to attend together for mammography screening.

The service will focus on groups of people that find cancer screening services more difficult to access than the rest of the population for a variety of cultural, educational or historic reasons. This will include people from deprived communities; people belonging to an ethnic minority; Travellers; lesbian, gay and transgender people; and people with learning, physical or sensory disabilities. This list is not exhaustive.

16. A project to support Travellers make an informed choice about breast screening has been developed by QARC, the Southern Health & Social Care Trust and An Munia Tober (a Traveller support group). This will involve raising awareness of breast cancer and of the breast screening programme; and the provision of a special breast screening clinic for Travellers. The clinic will be arranged on a date and at a location to enable a group of Traveller women to attend for breast screening together. If successful the project will be rolled out to other areas.

17. QARC is also leading another project. This one focuses on women with learning difficulties. The aim is to identify all women, who have been registered as having a learning difficulty, in advance of them being invited for screening. This will enable the development of a service more tailored to the needs of these women, which could be achieved in a number of ways:

- A revised more appropriate invitation letter
- Provision of more appropriate literature to enable the woman/her carer to make an informed choice
- Organising a visit to the unit before coming for screening
- Providing information to the Community Learning Disability Service
- A longer appointment time (normally appointments last 6 minutes)
- The potential in the longer term to establish special clinics, i.e. inviting eligible women within a particular area/residential care home to a specific clinic.

8 Medical Physics Standards

> ### Each of the mammography x-ray machines meets the standards for image quality and radiation dose.

Mammograms are taken using low dose x-rays. The Northern Ireland Breast Screening Programme has a number of performance standards relating to:

- the image quality (spatial resolution and low contrast detectability); and
- the radiation dose provided by the x-ray equipment.

These are shown in table 1 below. These parameters are measured during regular medical physics surveys of the mammography equipment.

Table 1: Mammography Equipment Performance Standards

Parameter		Standard
Spatial Resolution [line pairs per mm] *		≥ 12
Low Contrast Detectability (%)	6 mm detail	≤ 1.2
	0.5 mm detail	≤ 5
	0.25 mm detail	≤ 8
Mean Glandular dose to Standard Breast (mGy)		≤ 2.5

* Note: The Spatial Resolution standard does not apply to the digital mammography units in Antrim & Craigavon Area Hospitals.

The following charts indicate the performance of the units in the Northern Ireland Breast Screening Programme against the standards. All units meet the applicable standards.

Figure 11:   Spatial Resolution of Mammography Images by Machine

Spatial Resolution
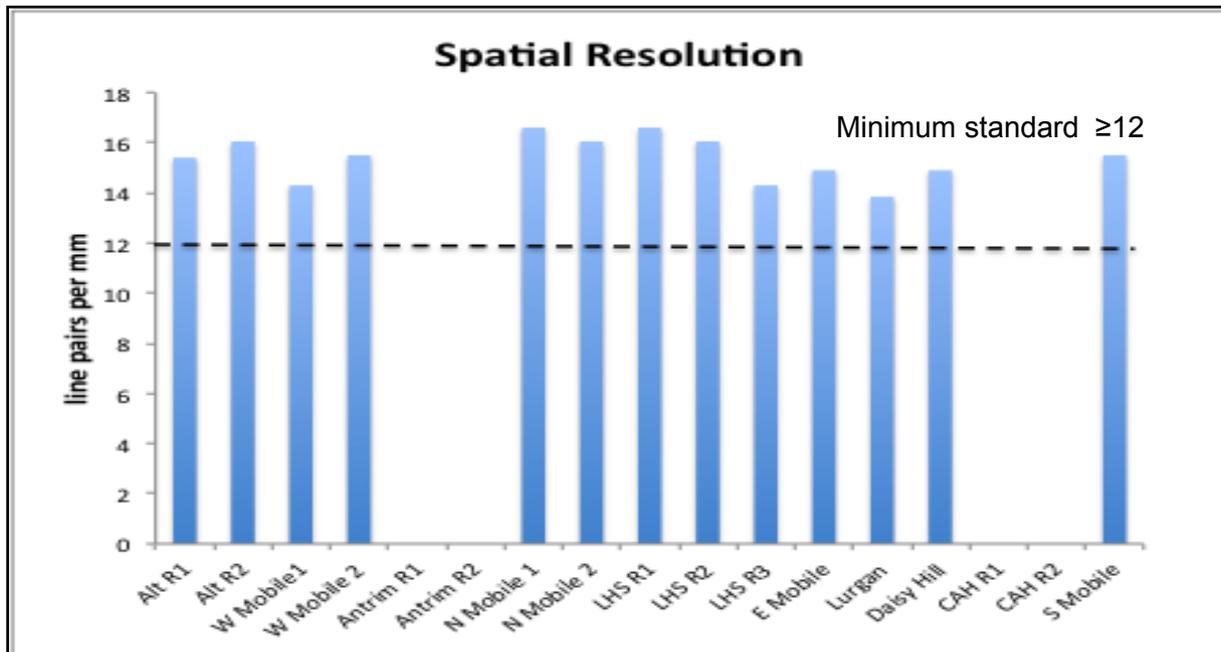
Figure 12: Low Contrast Detectability by Mammography Machine – 6 mm Details

Low Contrast - 6 mm details
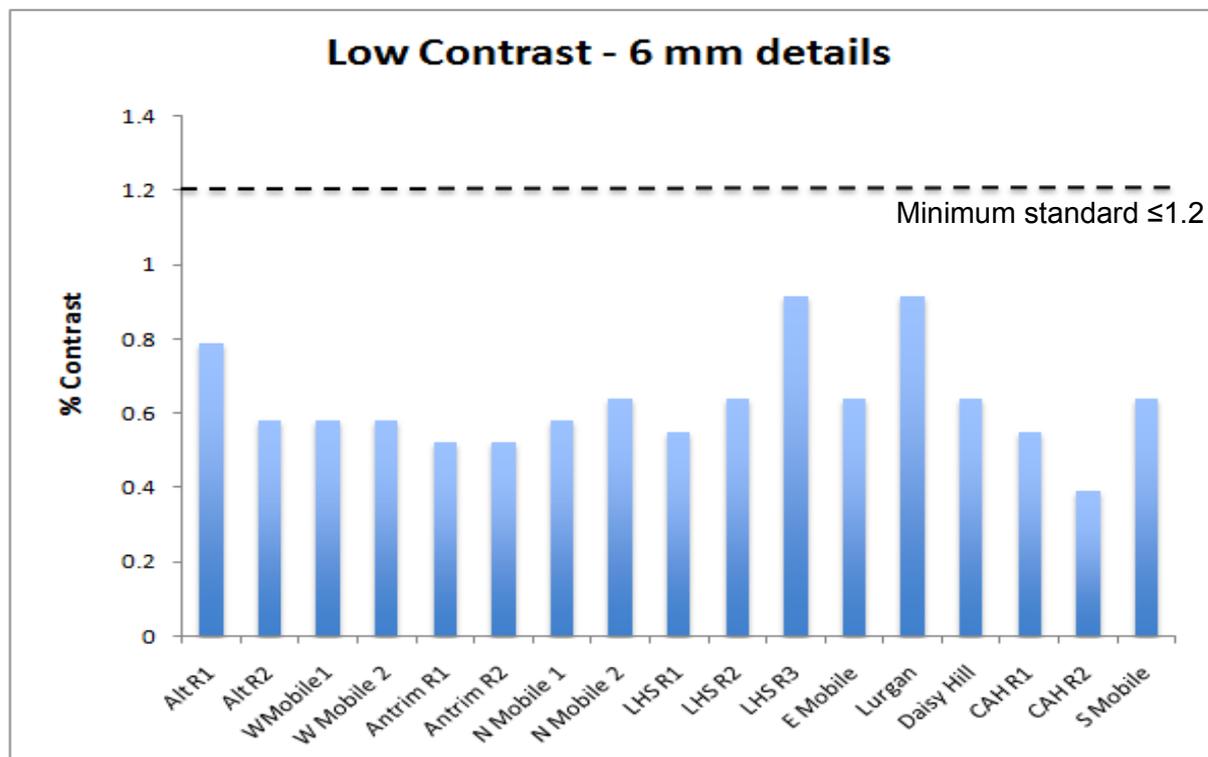
Figure 13: Low Contrast Detectability by Mammography Machine – 0.5 mm Details
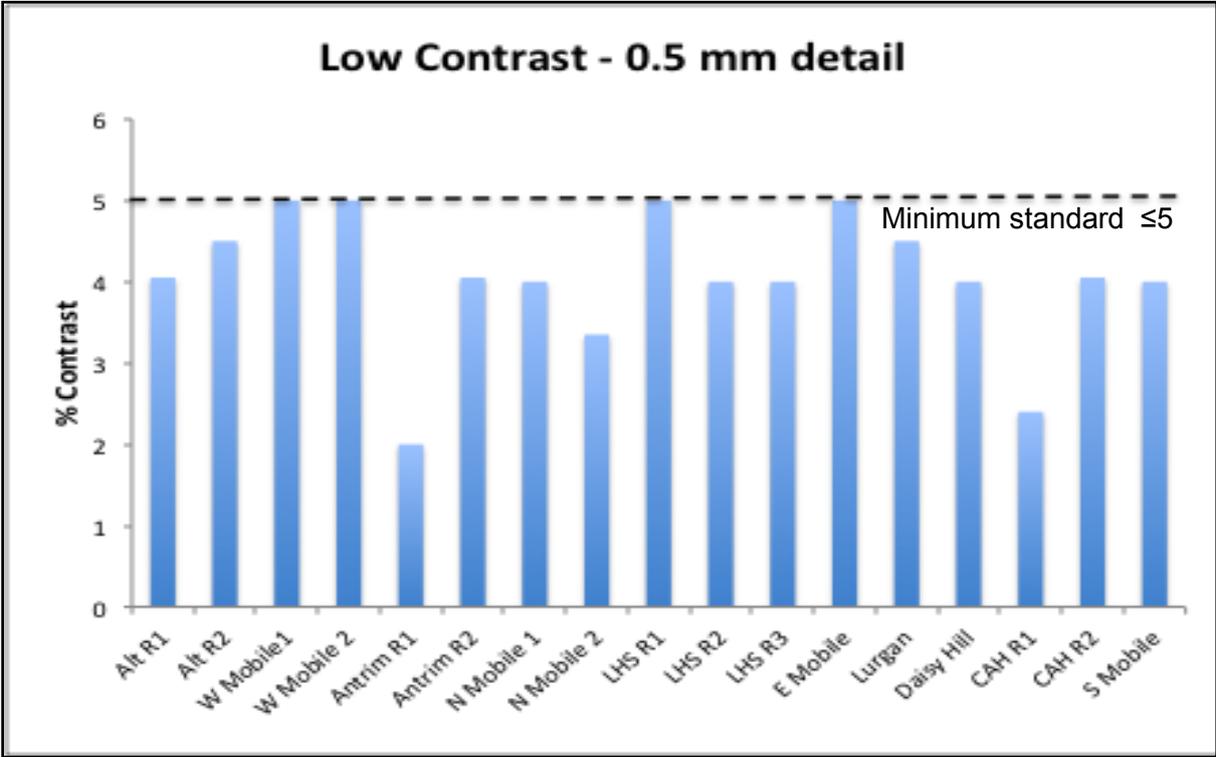
Figure 14: Low Contrast Detectability by Mammography Machine – 0.25 mm Details
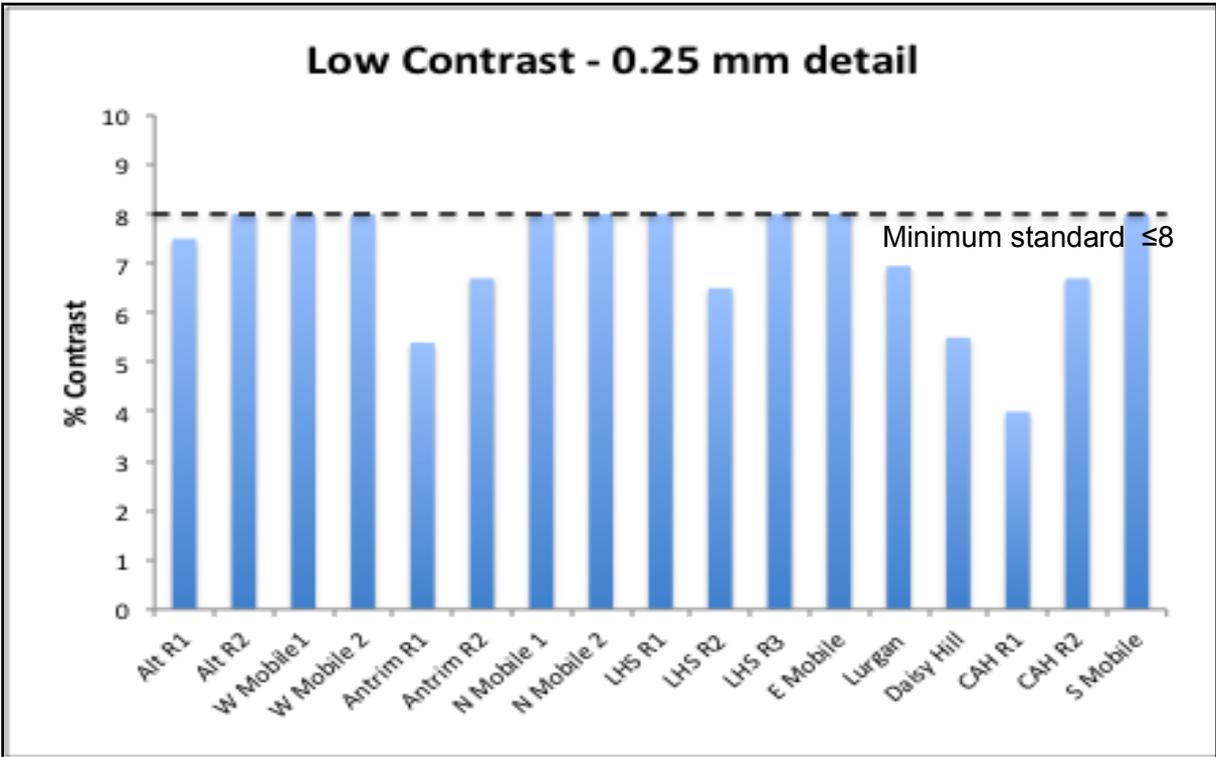
Figure 15: Mean Glandular Dose by Mammography Machine

Mean Glandular Dose - Standard Breast
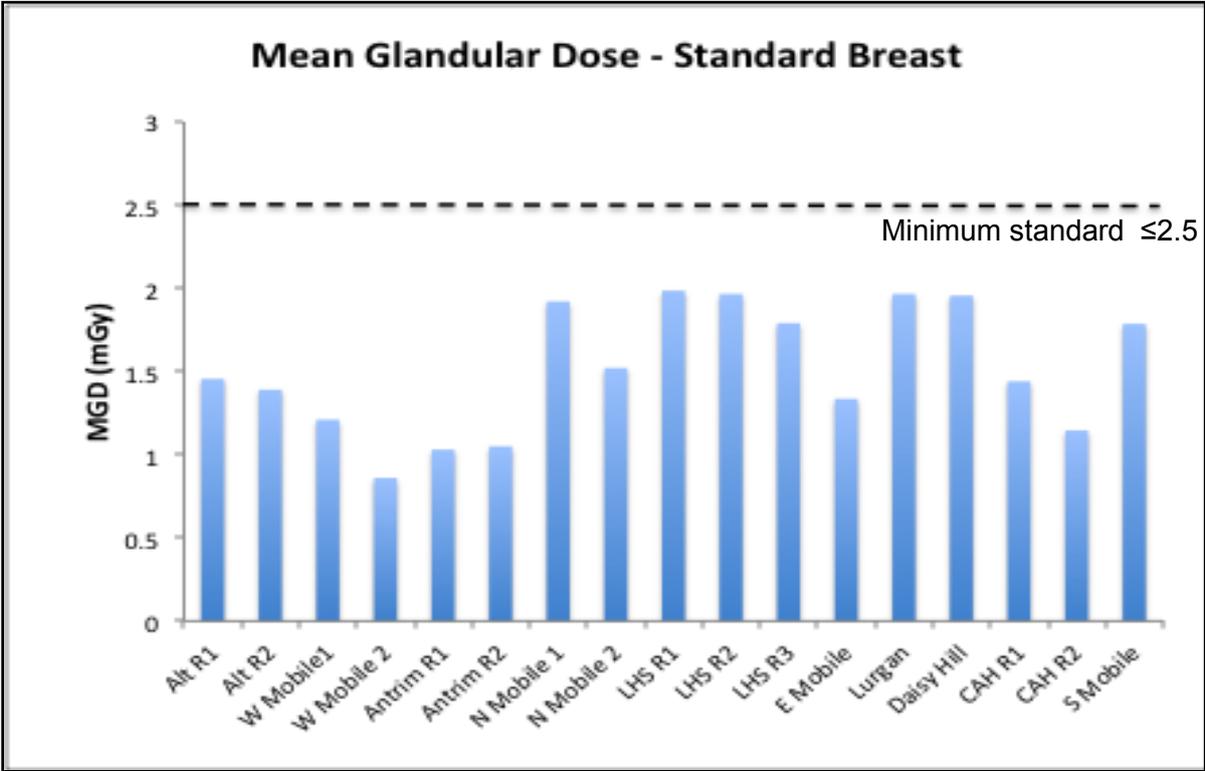
9 Screen to Routine Recall

> **97.1% of women (who had a normal test result) received their results within 2 weeks**

Most women who attend for breast screening mammography (96%) will be identified as having normal mammograms. Screen to routine recall measures the interval between the date a woman attended for screening (the date her mammograms were taken) and the date her episode is closed on the NBSS i.e. the date the result is entered (taken as a proxy for the date she is sent her results letter). The minimum standard is for ≥ 90% of women to receive their results within two weeks, with a target of 100%.

Figure 16 shows the overall results for Northern Ireland over a 6 year period. In 2012/13, 97.1% of women received their results within 2 weeks. Performance against this standard has improved considerably over the past few years.

Figure 16: Screen to routine recall for Northern Ireland by year from 2007/08 to 2012/13
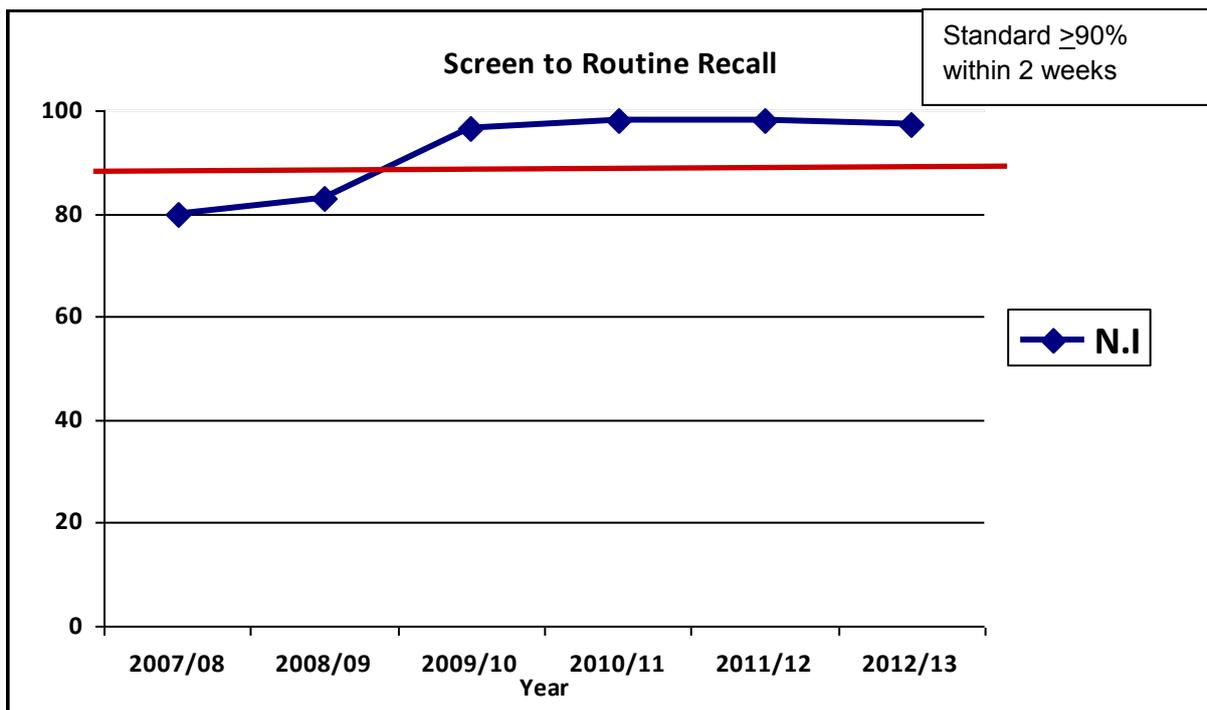
Figure 17 shows the performance of each unit in 2012/13. All units exceeded the standard.

Figure 17: Screen to routine recall by unit in 2012/13
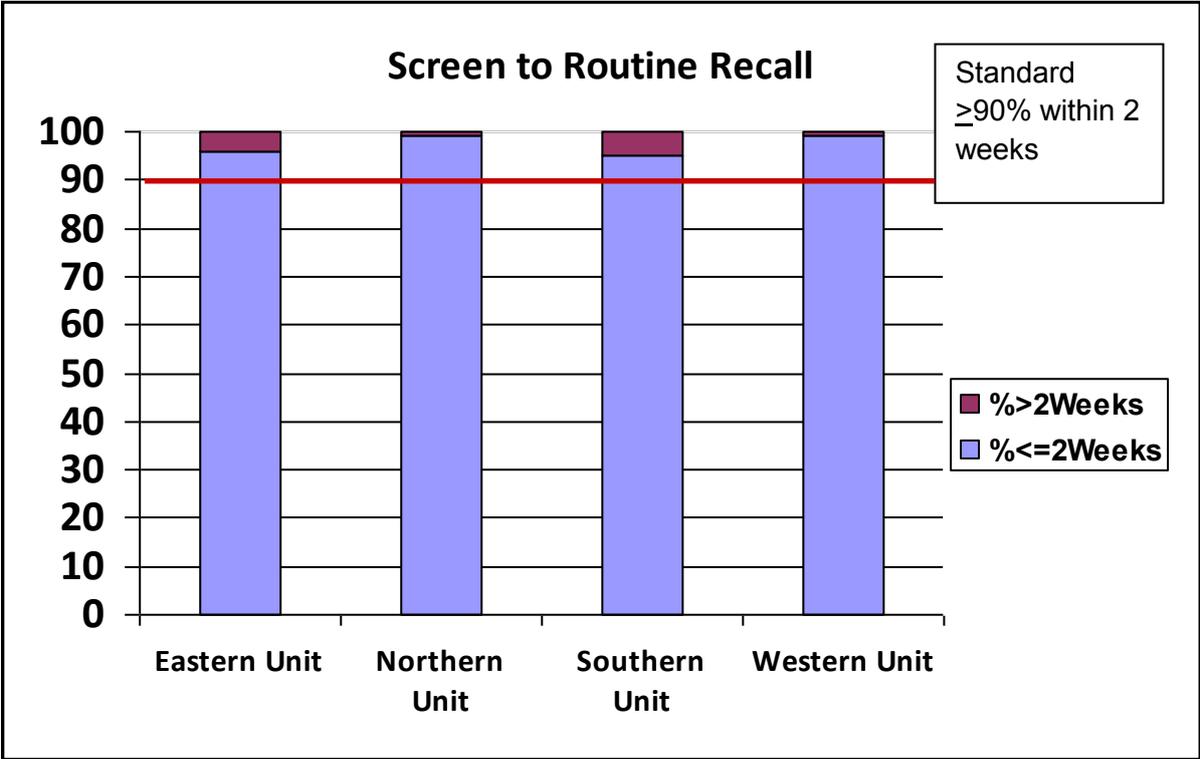
10 Screen to Assessment

<div style="border:1px solid">

90.6% of women referred for assessment were offered an appointment within 3 weeks

</div>

About 4 women in every 100 women are asked to come back for more tests after screening. These women are invited to attend an assessment clinic. On average 1 out of 4 women called back will be found to have cancer. The rest will not have cancer and will go back to having routine screening invitations every 3 years.

Screen to assessment (date of first offered appointment) measures the interval between a woman's screening mammogram and the date she is offered an appointment for the assessment clinic. The minimum standard is for ≥ 90% of women to be offered an appointment within 3 weeks of attendance for mammography, with a target of 100%. Figure 18 shows the results for Northern Ireland over a 6 year period. Performance had been improving but has dropped a little recently, largely due to the Eastern unit not meeting the standard (figure 19). It was 90.6% in 2012/13. As from 1 January 2014, in line with advice from the National Screening Office in England, units should be achieving a figure of 100% for this standard.

Figure 18: Screen to assessment for Northern Ireland by year from 2007/08 to 2012/13—date of first offered appointment

Screen to Assessment Date of First Offered Appointment

Minimum standard ≥90% within 3 weeks
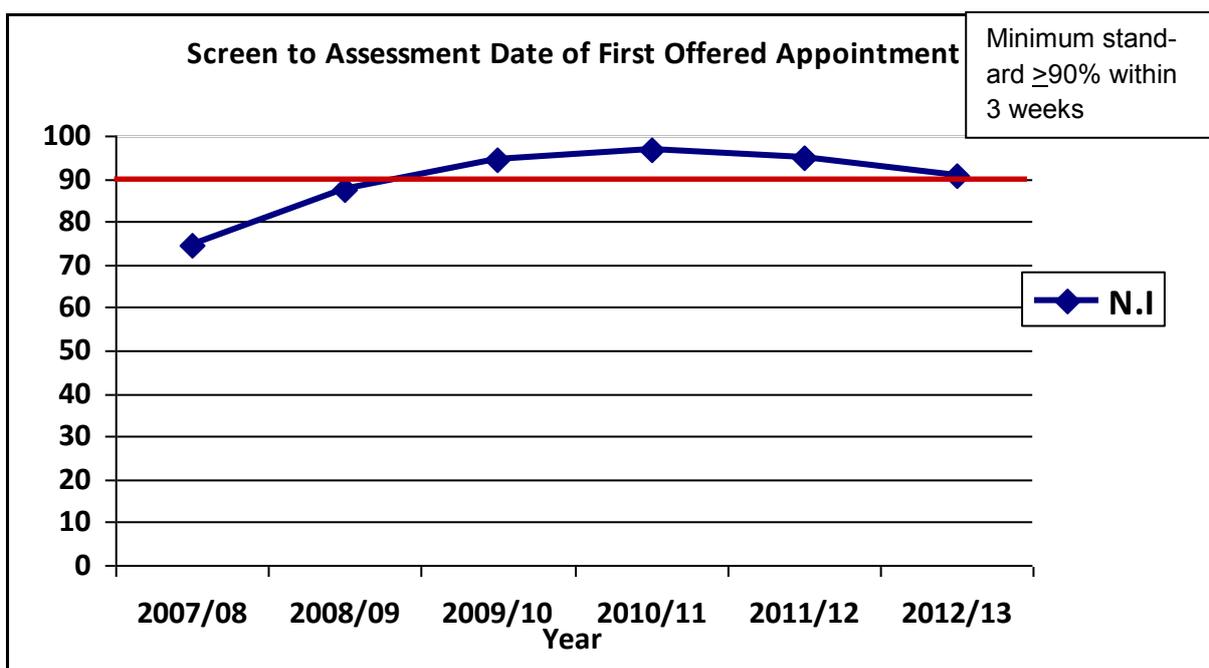
Figure 19: Screen to assessment (date of first offered appointment) by unit 2012/13
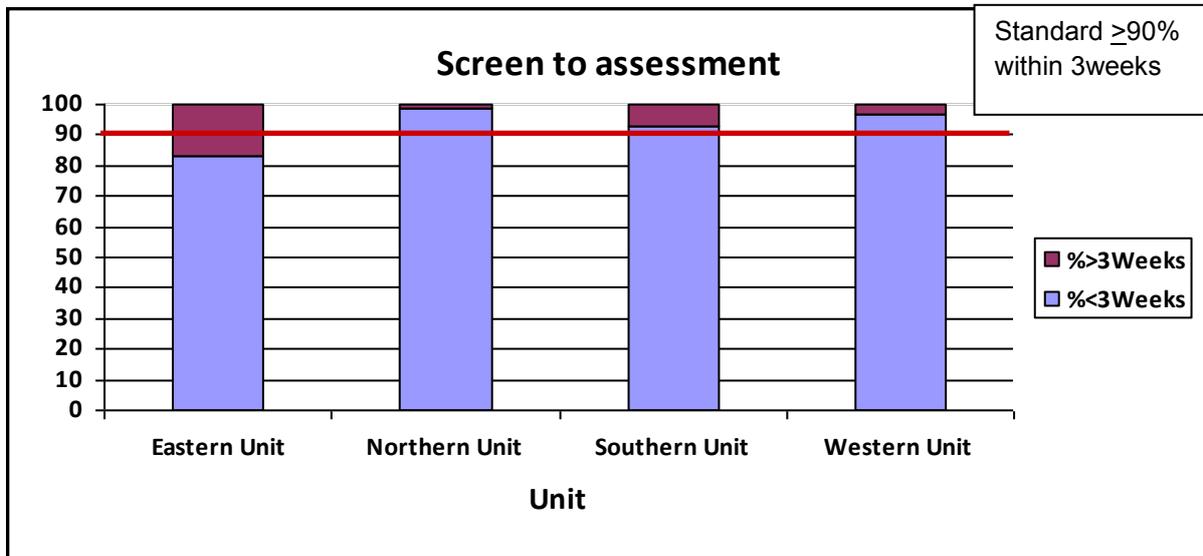
QARC also monitors the interval between a woman's screening mammogram and the date she actually attends her appointment (figure 20). This differs from the previous measurement, as some women may choose to change their appointment to a later time; some women may not turn up (DNA) and be offered another appointment date, or (rarely) because an assessment clinic is cancelled. Units should aim to achieve a figure of ≥90% for this standard. The figure achieved in 2012/13 was 83%. QARC is working with units to improve performance against this standard

Figure 20: Screen to assessment for Northern Ireland by year from 2007/08 to 2012/13 — date attended appointment
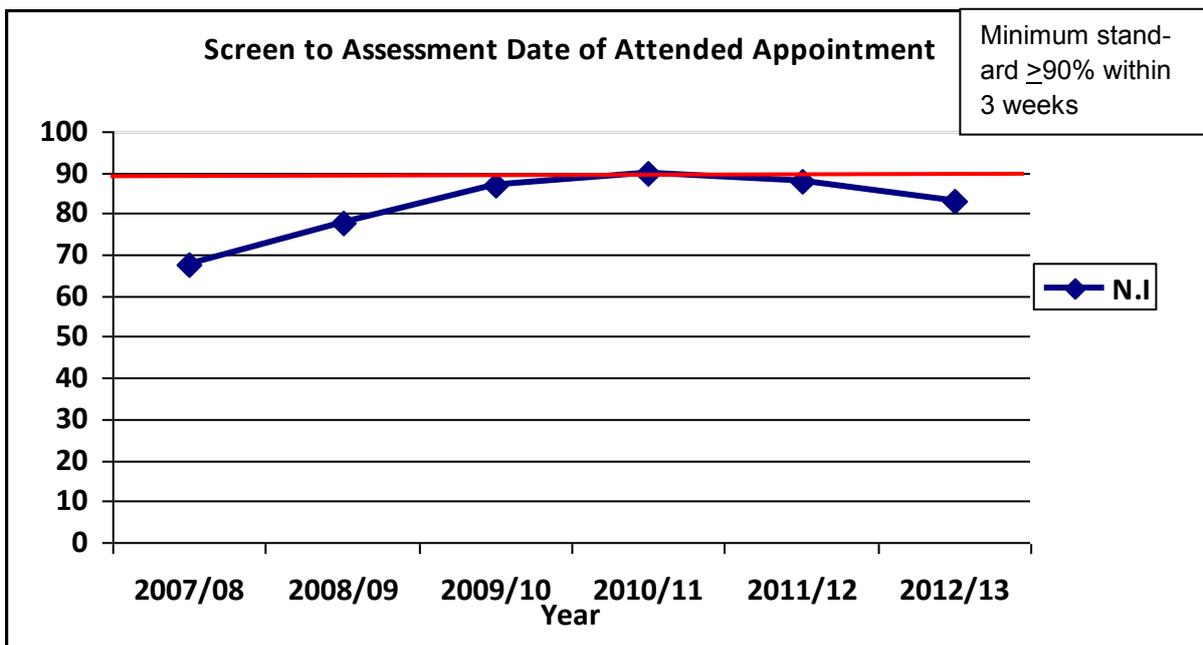
11 Referred for Assessment

> **2,336 women were referred for assessment in 2012/13 – 3.7% of the women screened**

The percentage of women who are recalled to an assessment clinic is normally higher in those women who are attending for their first screening mammogram (known as the prevalent screen) than in those attending for subsequent screening mammography (incident screens). Table 2 shows the performance by unit. The objective is to minimise the number of women referred for further tests. However, a recall rate that is too low can reduce the number of cancers detected.

Prevalent screen
The minimum standard for the percentage of women recalled for assessment in the prevalent (first) screen is <10%, with a target of <7%. The Northern Ireland figure was 7.7%, which meets the standard.

Incident screen
The minimum standard for the percentage of women recalled for assessment for incident (subsequent) screens is <7%, with a target of <5%. The Northern Ireland figure for incident screens was 2.5%, which meets the standard and the target.

Table 2: Percentage of women aged 50–70 recalled for assessment, by unit, in 2012/13

Unit	Prevalent %	Incident %
Eastern	8.7	2.4
Northern	11.2	3.0
Southern	5.5	2.6
Western	5.0	2.1
Northern Ireland	7.7	2.5
	Standard < 10% Target < 7%	Standard < 7% Target < 5%

Table 3 below shows that Northern Ireland compares well with the performance of the English regions (green indicates that the standard and the target have been met; orange indicates that the standard has been met).

Of the 80 breast screening units in England, 73 met the minimum standard of <10% recall for the prevalent screen in 2012/13.

Table 3: Percentage of Women Aged 50-70 Recalled to Assessment by Region.

NHS BREAST SCREENING PROGRAMME INCLUDING NORTHERN IRELAND: % RECALLED TO ASSESSMENT BY REGION PREVALENT SCREEN AGE 50 – 70 2012 - 2013 Standard <10% Target <7%		NHS BREAST SCREENING PROGRAMME INCLUDING NORTHERN IRELAND: % RECALLED TO ASSESSMENT BY REGION INCIDENT SCREEN AGE 50 – 70 2012 - 2013 Standard <7% Target <5%	
East Midlands	5.9	West Midlands	2.4
North East	6.5	East Midlands	2.5
West Midlands	6.7	East of England	2.5
Yorkshire & Humber	7.1	**Northern Ireland**	**2.5**
East of England	7.2	North East	2.6
Northern Ireland	**7.7**	**England**	**2.9**
England	**7.8**	Yorkshire & Humber	3.0
South West	8.1	South Central	3.1
South East Coast	8.3	South West	3.2
London	8.6	London	3.2
North West	8.7	North West	3.3
South Central	9.1	South East Coast	3.4

Figures 21 and 22 show the trends over the 6 year period 2007/08 to 2012/13.   The Northern unit tends to have the highest recall rates and the Western the lowest. The Northern Unit did not meet the standard in 2012/13 with a figure of 11.2%. However, performance in other areas is satisfactory and the unit, and QARC, are monitoring this.

Figure 21: % referred to assessment for prevalent (first) screen by unit and for Northern Ireland, 2007/08 to 2012/13


Referred to Assessment Prevalent (%)

Min standard <10%

Legend: NI, Eastern Unit, Northern Unit, Southern Unit, Western Unit
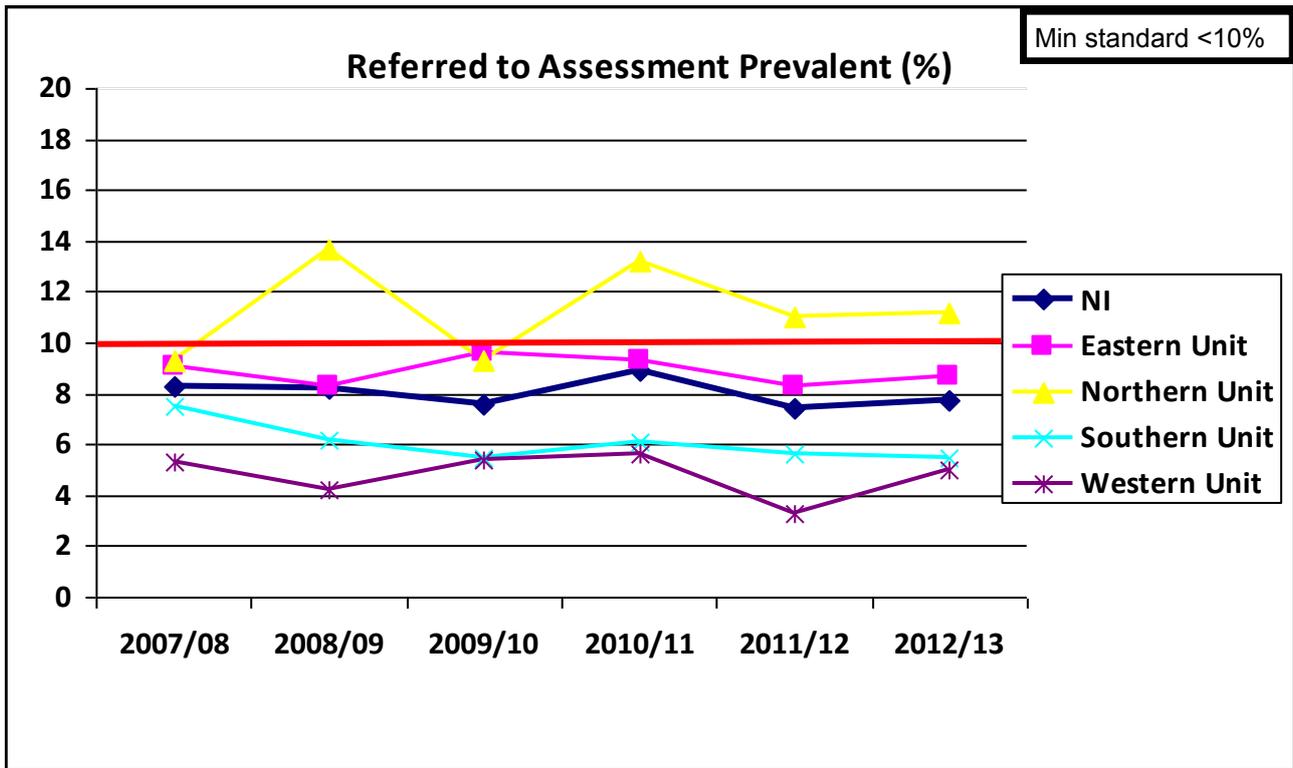
Figure 22: % referred to assessment for incident screen for women aged 50-70 by unit and for Northern Ireland, 2007/08 to 2012/13

Referred to Assessment Incident (%)

Min standard <7%

Legend: NI, Eastern Unit, Northern Unit, Southern Unit, Western Unit
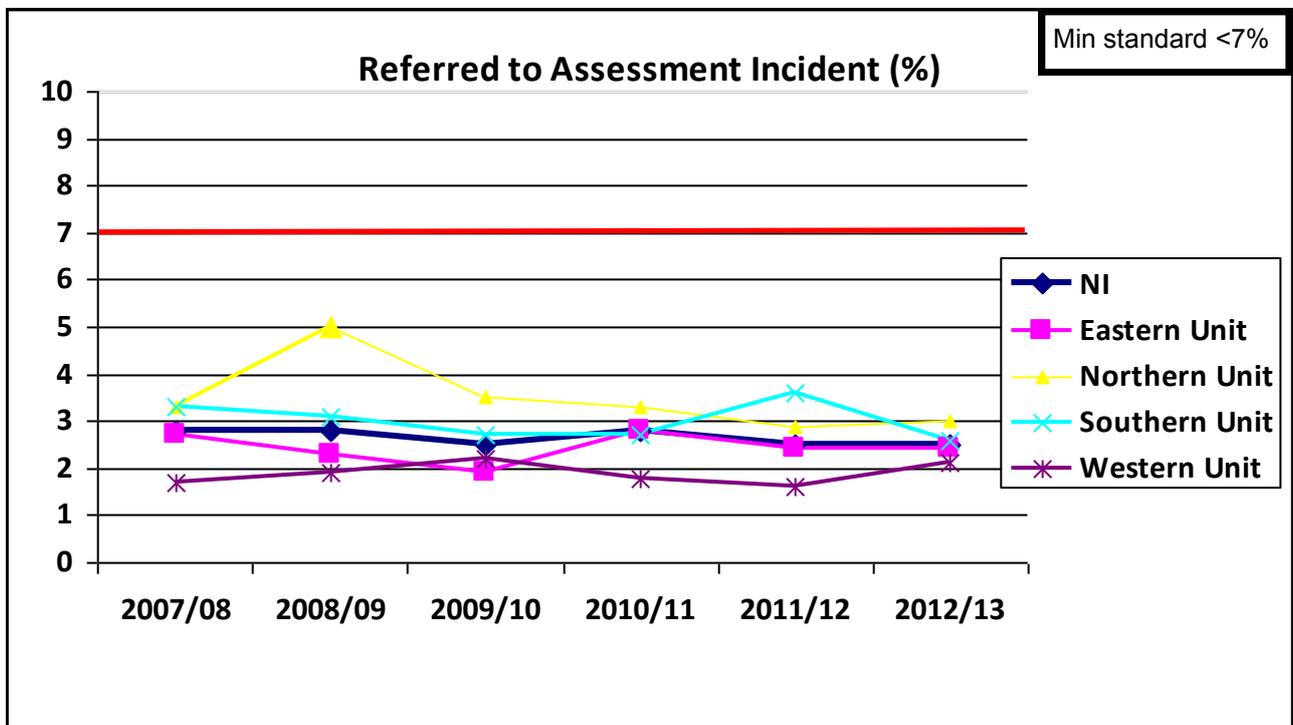
By age band

Table 4 shows the percentage of women who are returned to routine recall after screening; and the corresponding percentage sent for further investigation at an assessment clinic, split by age bands.

Table 4: Percentage of women invited and screened aged 50–70 returned to routine recall & referred for assessment by age band

Age Group	No. Screened	Routine Recall (%)	Referred to Assessment (%)
45 - 49*	1728	1576 (91)	152 (9)
50 - 52	10863	10118 (93)	745 (7)
53 - 54	7058	6841 (97)	217 (3)
55 - 59	15409	15001 (97)	408 (3)
60 - 64	14313	13925 (97)	388 (3)
65 - 69	13026	12644 (97)	382 (3)
70	1097	1053 (96)	44 (4)
71 - 74	2	2 (100)	0 (0)
>=75	0	0 (0)	0 (0)
Target Group (50-70)	61766	59582 (96)	2184 (4)
Total all ages	63497	61161 (96)	2336 (4)
Age group 50 - 64	47643	45885 (96)	1758 (4)

* As women can receive their first invite in the year they turn 50 some women are invited when they are 49.

12 Visits to the Assessment Clinic

99.5% of women only required one visit to the assessment clinic to achieve a definitive diagnosis

The number of assessment clinic visits required to achieve a definitive diagnosis should be kept to a minimum, with no more than 2 for interventional procedures, such as a core biopsy.

Table 5 shows how Northern Ireland compares with other parts of the UK. 99.5% of women in Northern Ireland, who needed a biopsy, only required a single visit to the assessment clinic. This is better than the UK average of 96%.

Table 5: The assessment visit with the earliest cytology / core biopsy for all cancers - data for 2012/13

	1 (%)	2 (%)	3+ (%)	Total (%)	2 or more visits to achieved the diagnosis (%)
Eastern Unit	185 (99)	1 (1)	0 (0)	175 (100)	1 (1)
Northern Unit	81 (100)	0 (0)	0 (0)	81 (100)	0 (0)
Southern Unit	66 (100)	0 (0)	0 (0)	66 (100)	0 (0)
Western Unit	106 (99)	1 (1)	0 (0)	107 (100)	1 (1)
Northern Ireland	438 (100)	2 (0)	0 (0)	440 (100)	2 (0)
UK	16294 (96)	732 (4)	6 (0)	17032 (100)	738 (4)

13 Outcomes of Screening

Younger women are more likely to be called back for assessment, but cancer is more likely to be found in older women.

Figure 23 shows the outcomes of screening by age bands. Younger women are more likely to be called back to an assessment clinic for further testing. The result of this further testing is, for most women, reassurance. These women are returned to routine recall and invited for routine screening again in 3 years' time ("RR from assessment" on the graph). Note that the y-axis of the graph starts at 90%; as more than 90% of all women screened have normal mammograms.

Figure 23: Outcomes of Breast Screening by Age Band 2012/13
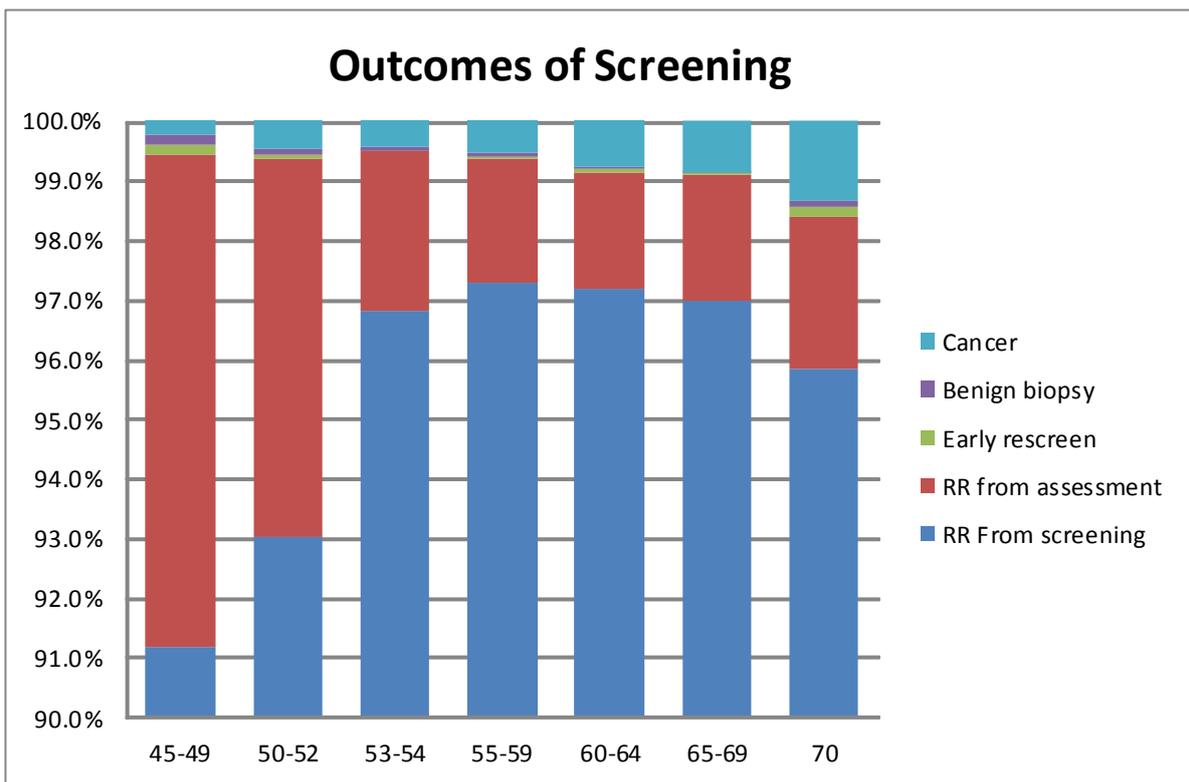
Early re-screen involves bringing a woman (who has attended an assessment clinic) back for repeat screening mammography sooner than the normal three yearly screening interval. This is a rare event and these cases are monitored and reviewed by QARC.

14 Preoperative Diagnosis Rate

96.5% of women with cancers detected by screening had the diagnosis confirmed before surgery

The pre-operative diagnosis rate measures the percentage of screen detected cancers where the diagnosis was established prior to surgery. Diagnosis before surgery is made by taking a biopsy at the assessment clinic (usually by core biopsy, but increasingly by vacuum assisted biopsy).

Some women need to have a surgical biopsy (a biopsy taken during surgery). This can be because the diagnosis is difficult to establish. The minimum standard is >85% of cancers should be diagnosed before surgery, with a target of >90%.

Figure 24 shows each unit's performance over a 6 year period. The figure for women aged 50-70 in Northern Ireland was 96.5% in 2012/13. It has remained around 95% for a number of years.

Figure 24: Preoperative diagnosis rate by unit and for Northern Ireland from 2007/08 to 2012/13
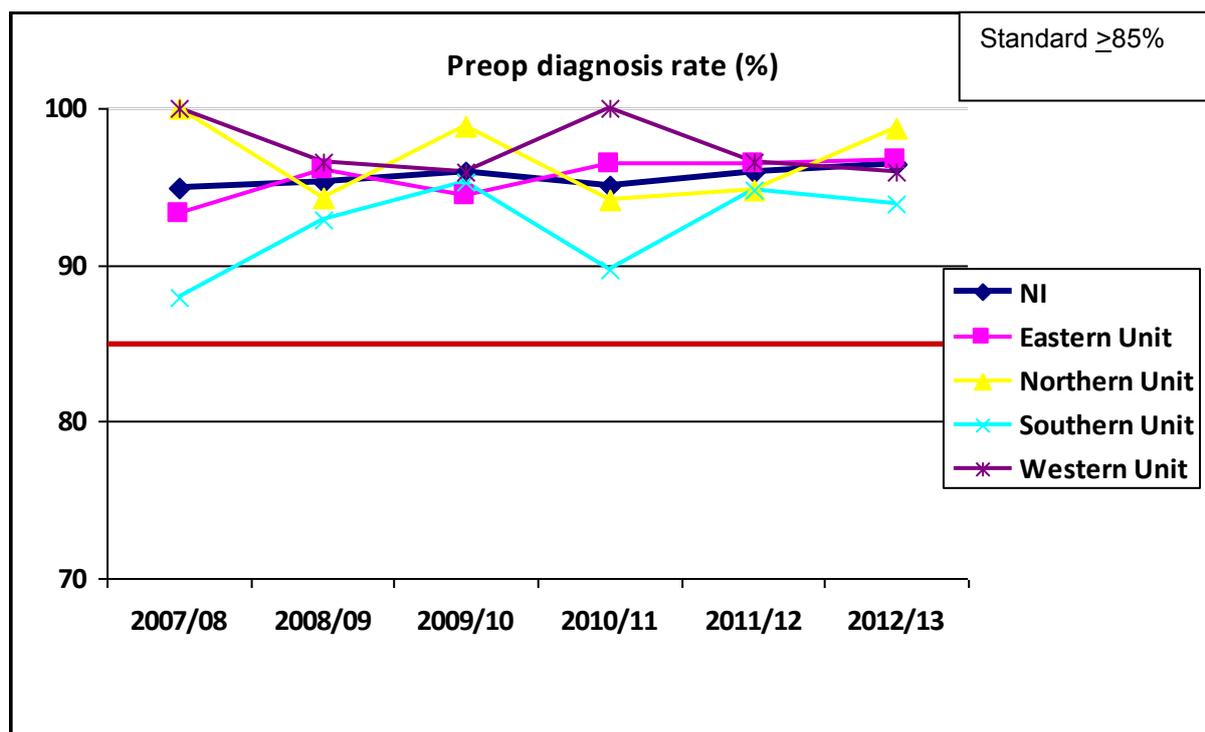
15 Pathology

> **The diagnostic accuracy of biopsies taken at assessment clinics is high**

The breast biopsies taken at the assessment clinic are examined and categorised by a pathologist as:

B1 or C1 – Normal
B2 or C2 – Benign disease
B3 or C3 – Uncertain malignant potential
B4 or C4 – Suspicious
B5 or C5 – Malignant

The letter B refers to core biopsy or mammotomy (taking a sample of breast tissue) and C refers to fine needle aspiration cytology (taking a sample of breast cells).

The assessment clinic biopsy results are subsequently compared with the definitive diagnosis of tissue removed during surgery (further histology). The table shows the results for Northern Ireland for 2012/13.

Table 6: Comparison of assessment clinic biopsy result with final diagnosis (further histology)

		Assessment clinic biopsy results					
		B or C5	B or C4	B or C3	B or C2	B or C1	Total
Further histology	**Malignant**	426	3	12	0	0	441**
	Invasive	370	0	0	0	0	370
	Non-invasive	56	3	12	0	0	71
	Benign	3	2	25	4	2	36
	No Further Histology	5*	0	38	526	57	626
	Total B or C Results	434	5	75	530	59	1103

* These are considered to be cancers.
**This figure differs from the total number of cancers (430) in the next section due to the way the pathology QA data are processed.

Absolute sensitivity = 96.6%
This is the percentage of all the cancers diagnosed (441+5*) that were categorised as being malignant (B or C 5) on the assessment clinic biopsy (426+5*). As can be seen from the table some cancers were initially categorised as uncertain or suspicious.

The minimum threshold is >70% and the preferred threshold is >80%.

Complete sensitivity = 100.0%
This is the percentage of all cancers diagnosed (441+5*) that were categorised as uncertain (B or C 3), suspicious (B or C 4) or malignant (B or C 5) (426+5*+3+12).

The minimum threshold is >80% and the preferred threshold is >90%.

Positive predictive value = 99.3%
This measures the likelihood of having a final diagnosis of cancer (426+5*) if the assessment clinic biopsy is categorised as malignant (B or C 5) (434).

The minimum threshold is >99% and the preferred threshold is >99.5%.

16 Total Number of Cancers Detected

372 invasive cancers were detected in 2012/13 – of these 187 were small (less than 15 mm in diameter).

A total of 443 cancers was detected in 2012/13. Of these:

- 372 were invasive cancers;
- 67 were ductal carcinomas in situ (DCIS);
- 2 were micro invasive cancers; and
- 2 were invasive status not known.

A proportion of cases of DCIS will eventually become invasive. However, it is not yet possible to identify which ones will and which won't. Therefore all women diagnosed with this disease are offered treatment (surgery with or without radiotherapy).

Of the 372 invasive cancers that were detected, 187 (50.3%) were under 15 mm in diameter. These are known as small invasive cancers and they are usually around 55% of the invasive cancer figure. In the UK 52.5% of invasive cancers were categorised as small invasive cancers in 2012/13.

The total cancer detection rate for the 50 -70 age group in 2012/13 was 6.8 per 1,000 women screened.   The comparative figure for England for 2012/13 was 8.1 per 1,000 women screened.

Figure 25: Total cancer detection rate for Northern Ireland and England from 2007/08 to 2012/13

NB: Data for 2007/08 & 2008/09 relate to women aged 50-64 all other data relate to women aged 50-70.
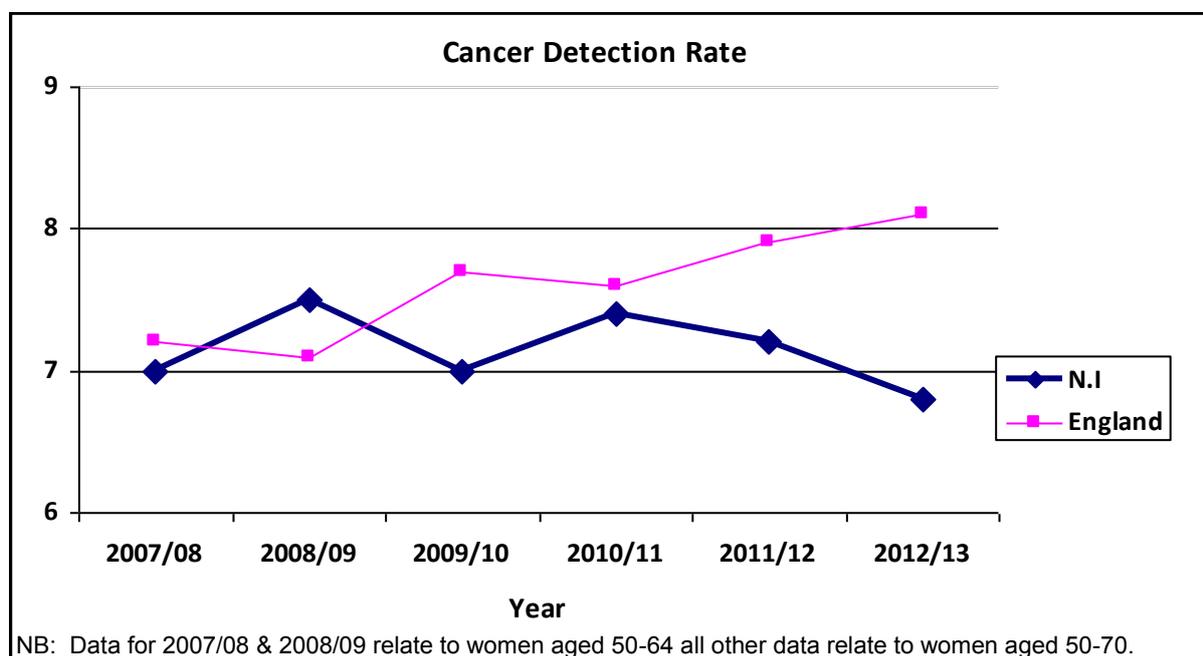
17 Invasive Cancer Detection Rate

> **4.2 per 1,000 women screened for the first time (aged under 53) were diagnosed with an invasive breast cancer. The figure for women attending for subsequent screening tests was 5.9 per 1,000**

This measures the number of invasive cancers detected per 1,000 eligible women who were invited and screened.

Prevalent Screen

The minimum national standard for the invasive cancer detection rate is >3.6 per 1,000 women for the prevalent (first) screen; with a target rate of >5.1 per 1,000 women screened.

Figure 26 shows that over a 6 year period the Northern Ireland rate has been consistently above the minimum standard. All units exceeded the standard in 2012/13. These figures tend to fluctuate from year to year due to the very small numbers involved e.g. the 2012/13 rate for the Western Unit is based on only 8 invasive cancers. The rate for Northern Ireland was 4.2 per 1,000 women screened. The comparative rate for England was 5.7 per 1,000 in 2012/13.

Figure 26: Invasive cancer detection rate for the prevalent (first) screen by unit and for Northern Ireland, 2007/08 to 2012/13
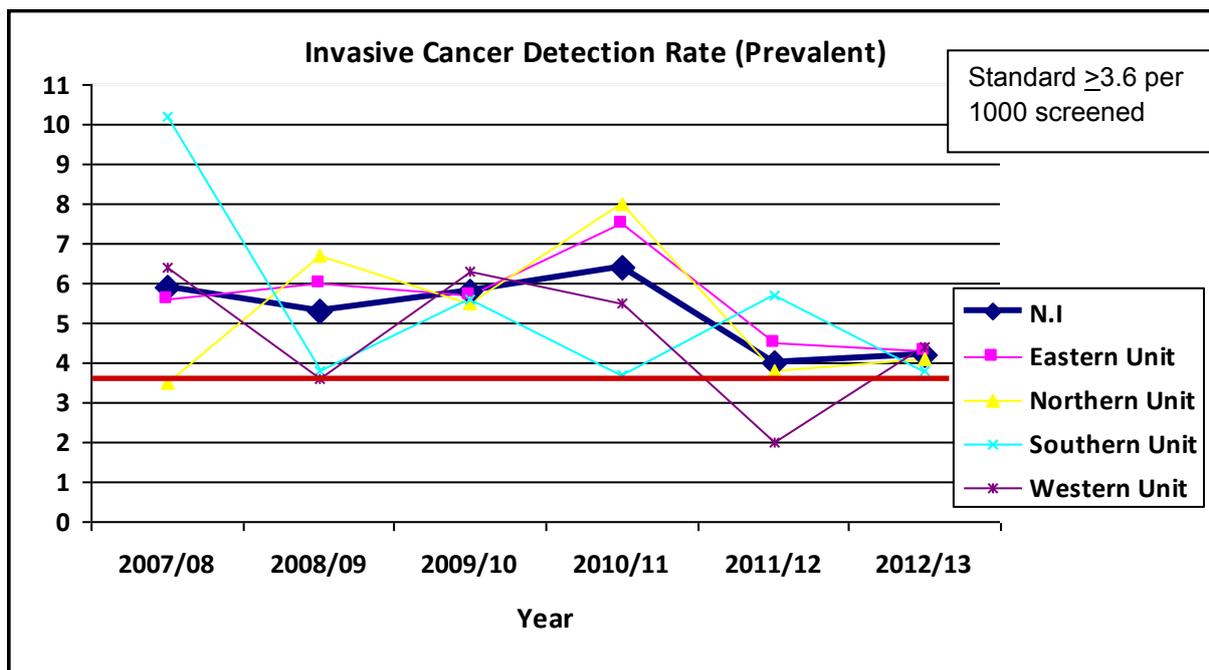
The invasive cancer detection rates for each breast screening unit in 2012/13 are shown again in figure 27. The vertical bars are 95% confidence intervals around each of the rates. These show us how confident we can be that true rate is above the minimum standard. Due to the small numbers each of the confidence intervals cross over the minimum standard. However, as noted above the rates have been consistently above the minimum standard in previous years.

Figure 27: Prevalent invasive cancer detection rate by unit with confidence intervals 2012/13
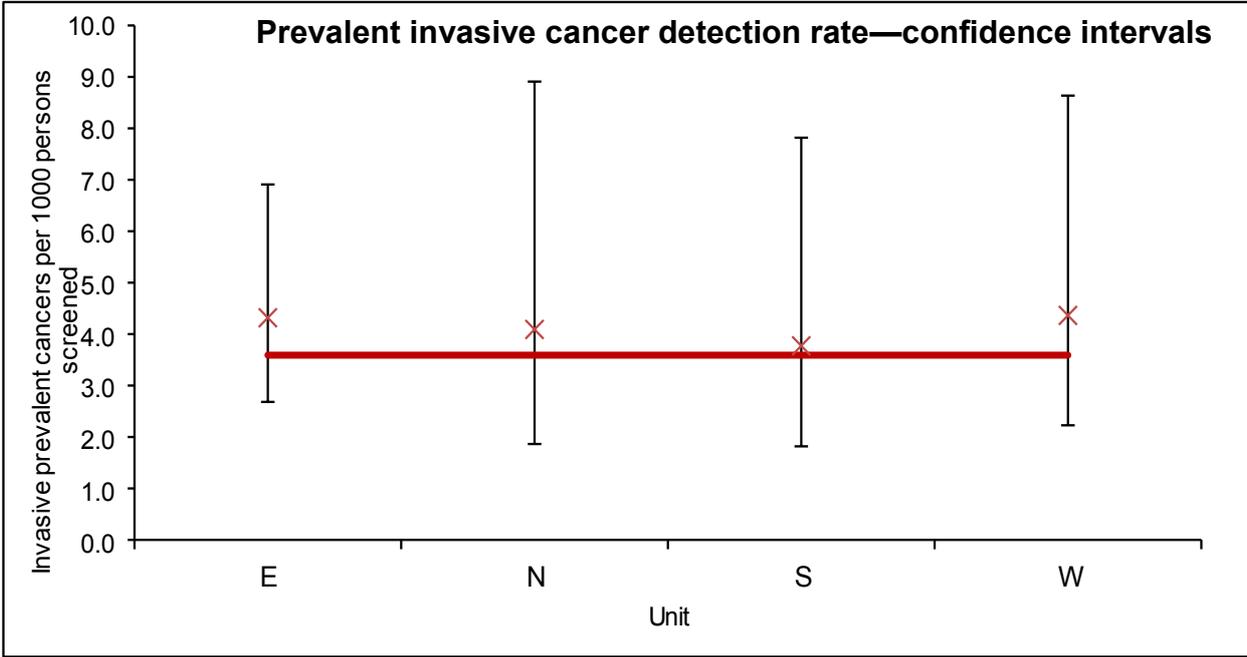
Incident Screen

The minimum national standard for the invasive cancer detection rate is ≥4.1 per 1,000 women for incident (subsequent) screens; with a target of ≥5.7 per 1,000 women screened.

Figure 28 shows that each of the units met the standard for women aged 50-70 in 2012/13. The numbers involved are larger than for the prevalent screen e.g. the Western Unit's rate of 6.9 is based on 62 invasive cancers. Three years' worth of data are shown as prior to 2009/10 it was only women aged 50-64 who were invited for breast screening.

The Northern Ireland rate was 5.9 which exceeds the target. The comparative English rate was 6.2 per 1,000 in 2012/13.

Figure 28: Invasive cancer detection rates (incident screen) for women aged 50-70 by unit & for Northern Ireland 2010-2013
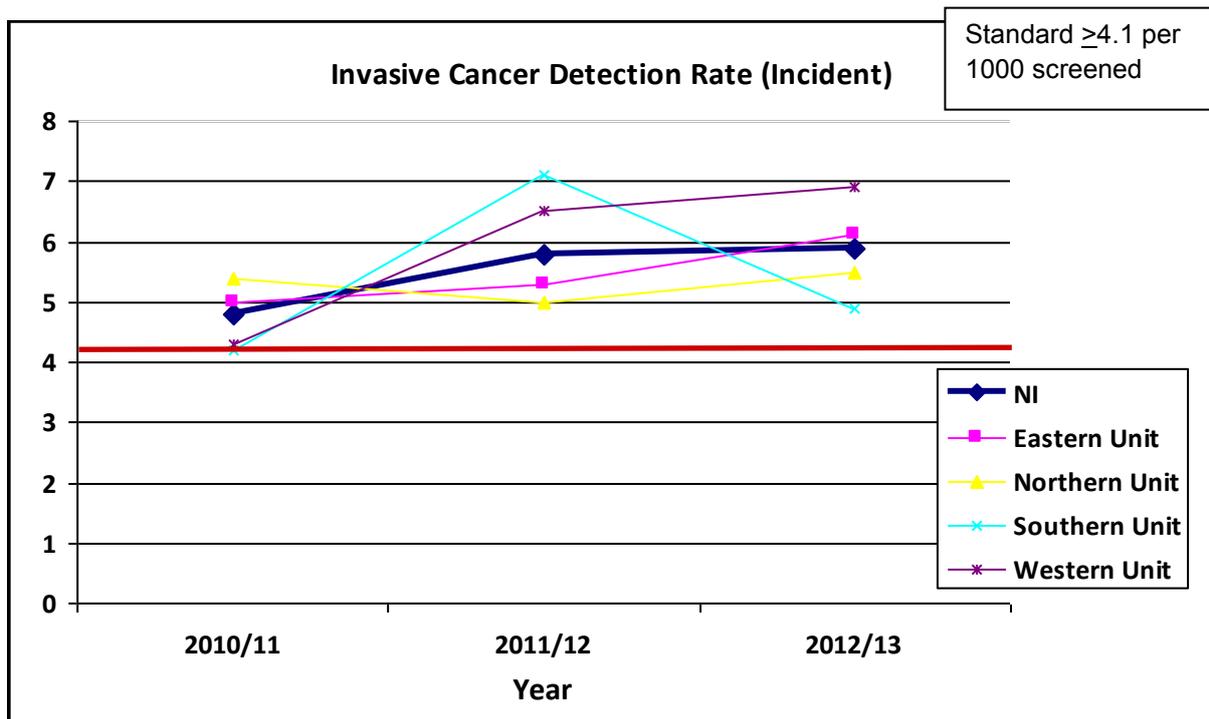
The rates for 2012/13 are shown again in figure 29 with the associated confidence intervals. This shows that we can be confident that the rate for 3 of the units exceeded the minimum standard in 2012/13. Due to the relatively small numbers involved there is a possibility that the true figures for the SHSCT is below the standard.

Figure 29: Incident invasive cancer detection rate by unit with confidence intervals 2012/13
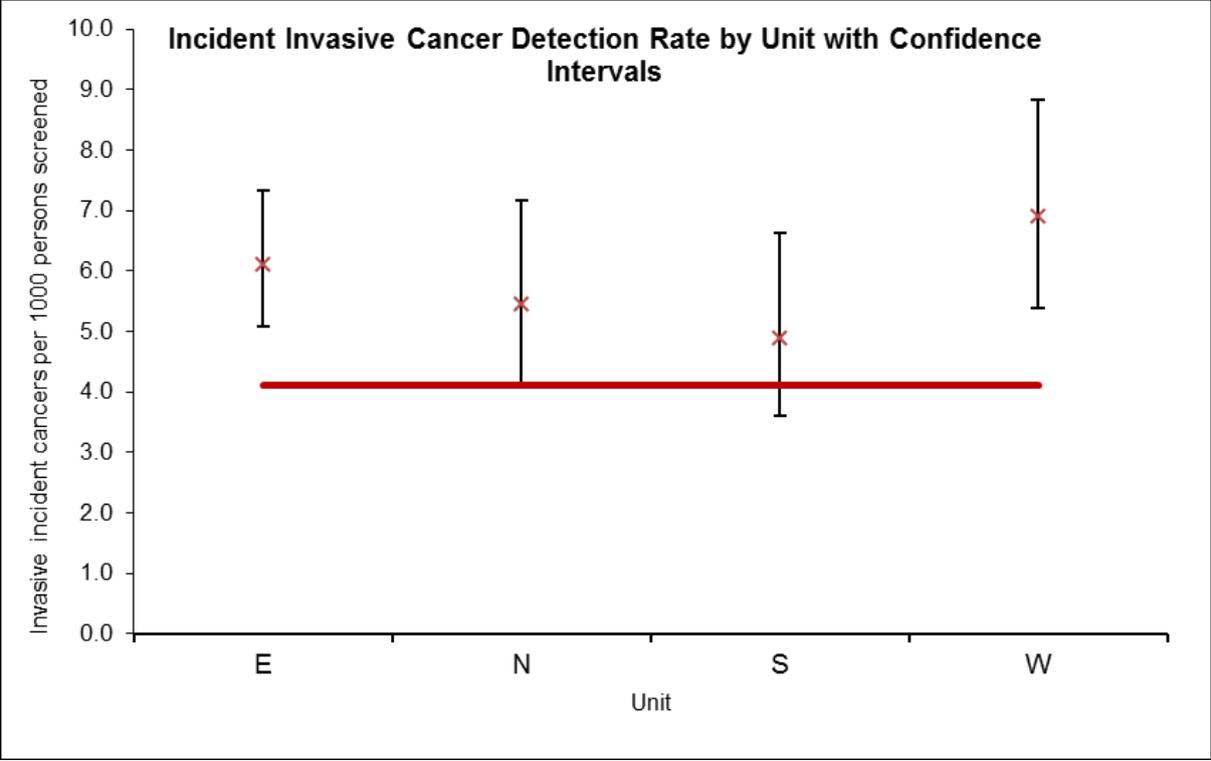
18 Small Invasive Cancers

1.5 per 1,000 women screened for the first time (aged under 53) had a small invasive cancer. The figure for women attending for subsequent screening was 3.2 per 1,000.

The main aim of breast screening is to detect small invasive breast cancers at a time in their natural history when treatment is more likely to reduce the risk of death from the disease. Small cancers are defined as being less than 15 mm in their maximum diameter.

Prevalent
Figure 30 shows the small invasive cancer detection rates for the prevalent (first) screen over a six year period. The Northern Ireland programme as a whole did not meet the minimum standard with a figure of 1.5 per 1,000 women screened (minimum standard ≥2.0 per 1,000 / target ≥2.8 per 1,000). The figure for England was 2.7 per 1,000. It should be noted that the minimum standard was increased from ≥1.5 to ≥2 per 1,000 in 2011.

Rates tend to fluctuate from year to year due to very small numbers. There were only 14 small invasive cancers detected during the prevalent screen in Northern Ireland during 2012/13.

Min standard ≥2.0

Small invasive cancer rate prevalent
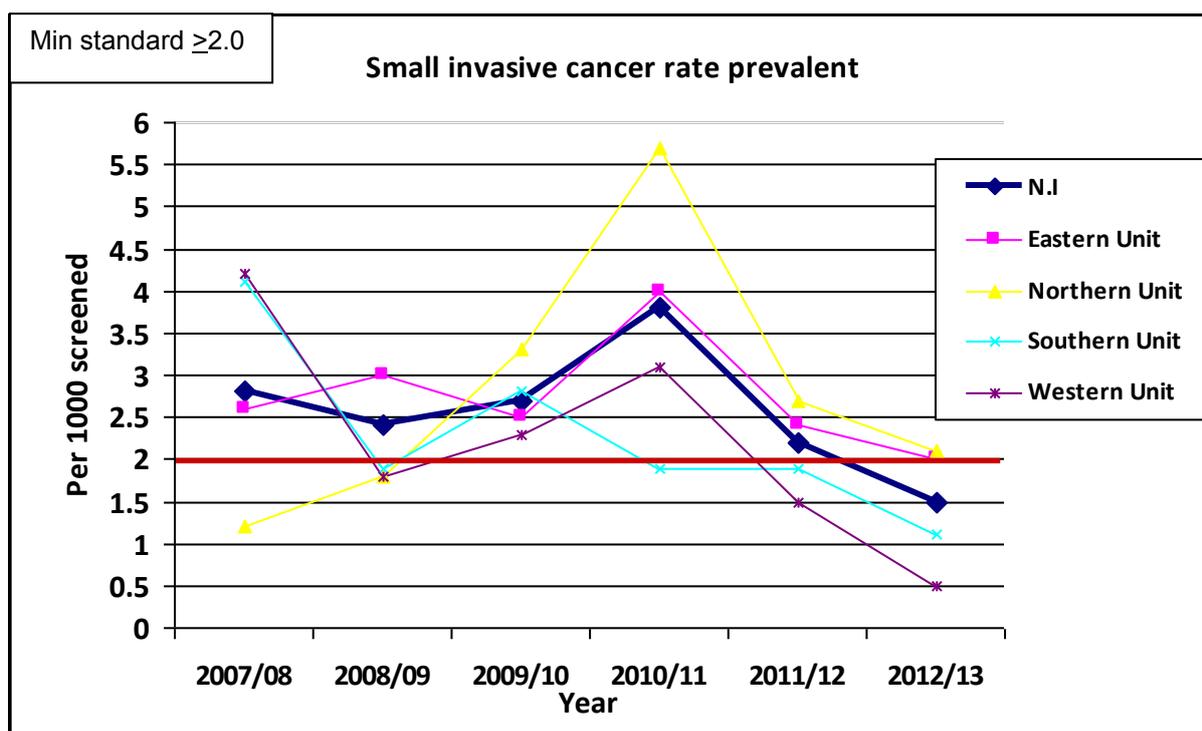
Figure 31 shows the small invasive cancer detection rate for the prevalent screen for each breast screening unit in 2012/13, with the associated confidence intervals. The red line is the minimum standard (2).

Figure 31: Prevalent small invasive cancer detection rate by unit with confidence intervals 2012/13

Prevalent small invasive cancer detection rate by unit with confidence intervals 2012/13
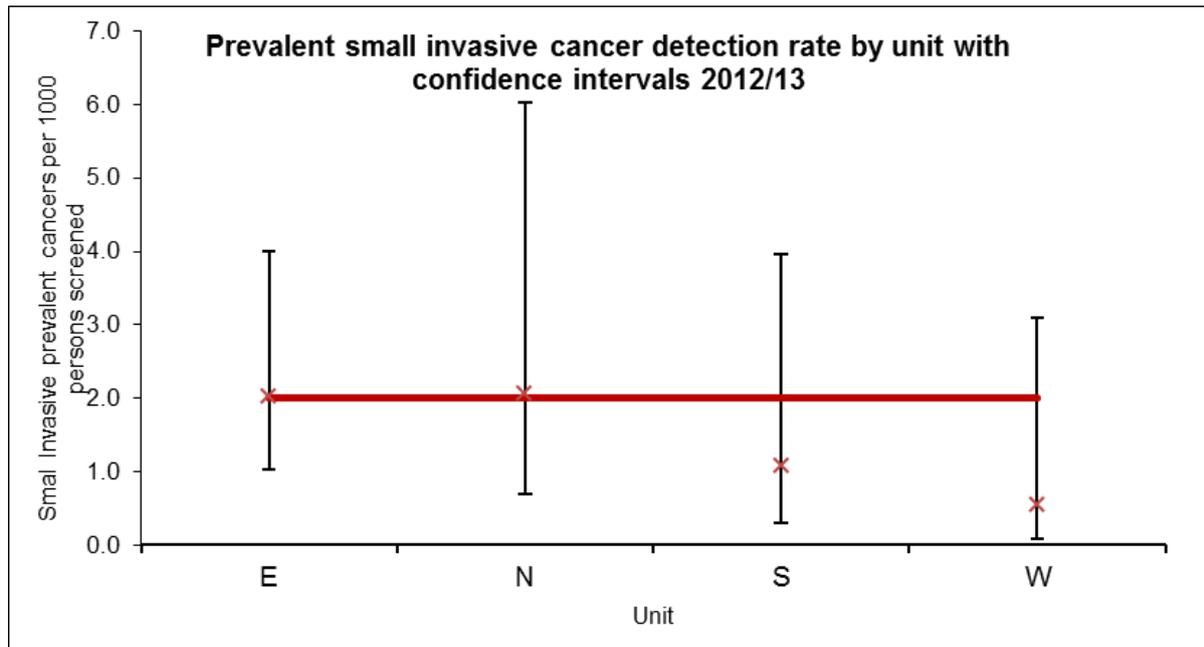
Incident

The small invasive cancer rate for the incident (subsequent) screens is shown in figure 32. The Northern Ireland programme as a whole had a rate of 3.2 per 1,000. This exceeded the minimum standard (≥2.3 per 1,000) and the target of ≥ 3.1 per 1,000 women screened.

The comparative figure for England was 3.3 per 1,000.

Figure 32: Small invasive cancer detection rates (incident screen) for women aged 50-70 by unit & for NI 2010/2013
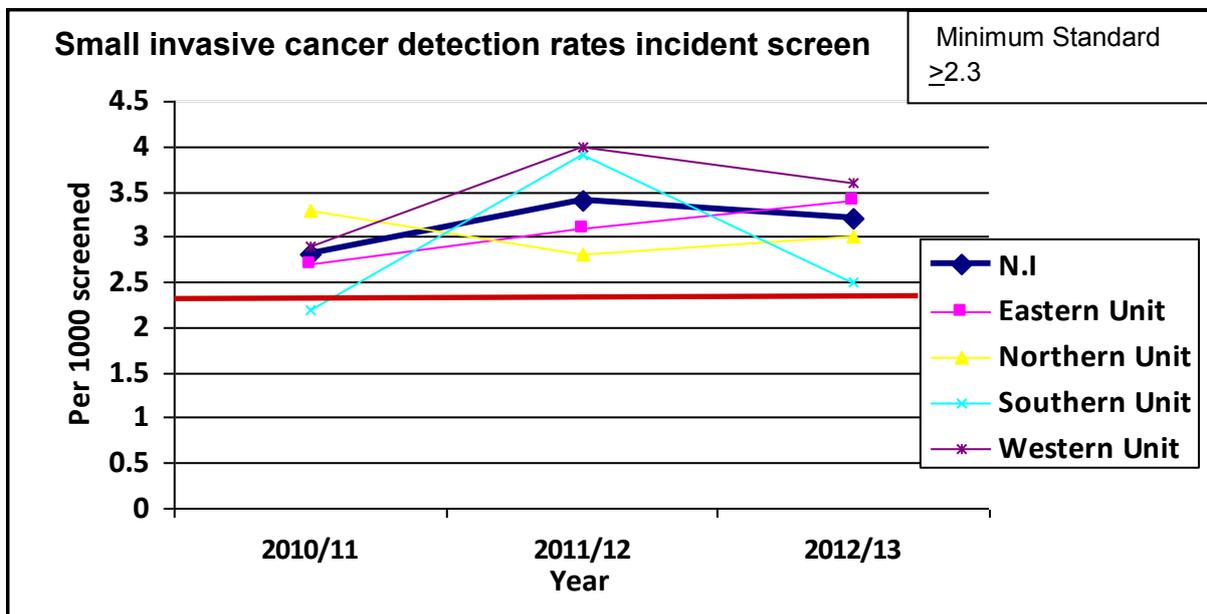
Figure 33 shows the small invasive cancer detection rate for the incident screen for each breast screening unit in 2012/13 with the associated 95% confidence intervals. The red line is the minimum standard of 2.3 per 1,000 women screened.

Figure 33: Incident small invasive cancer detection rate by unit with confidence intervals 2012/13
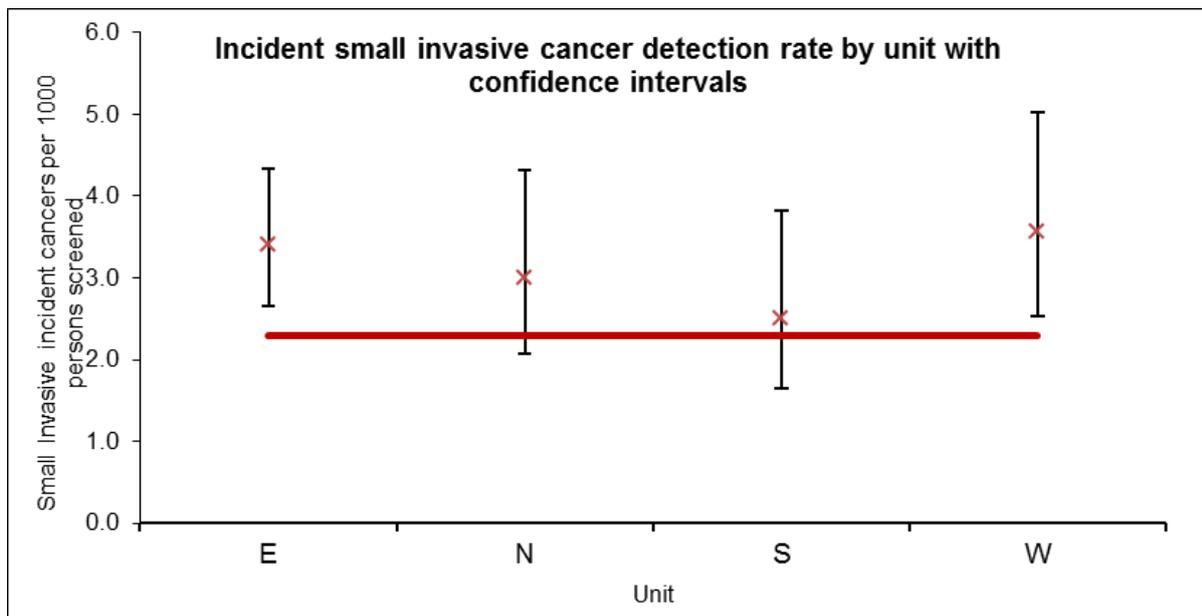
19 Treatment of Invasive Cancers

> ### 73.9% of women diagnosed with an invasive cancer had breast conserving surgery

Of the 372 invasive cancers detected by the Northern Ireland Breast Screening Programme in 2012/13, 275 (73.9%) were treated using breast conservation surgery, while 94 (25.2%) were treated by mastectomy. Three women (0.8%) had no surgery. This can be due to patient choice or because the patient is too unwell for surgery. Figure 34 shows the percentages by screening unit. Figures for the same year, for the whole of the UK, show that 77.6% of women underwent conservation surgery and 20.4% had a mastectomy (1.8% had no surgery). Figure 35 shows the proportion of women treated by different methods in Northern Ireland over the past 3 years.

Figure 34: Treatment of invasive cancers by unit and for Northern Ireland 2012/13
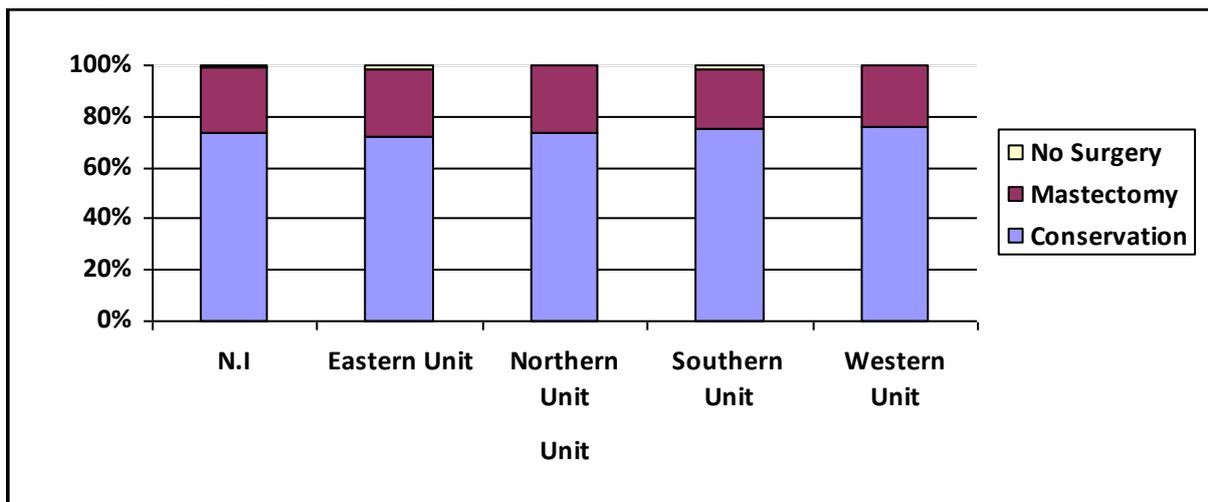
Figure 35: Treatment of invasive cancers over 3 year period for Northern Ireland
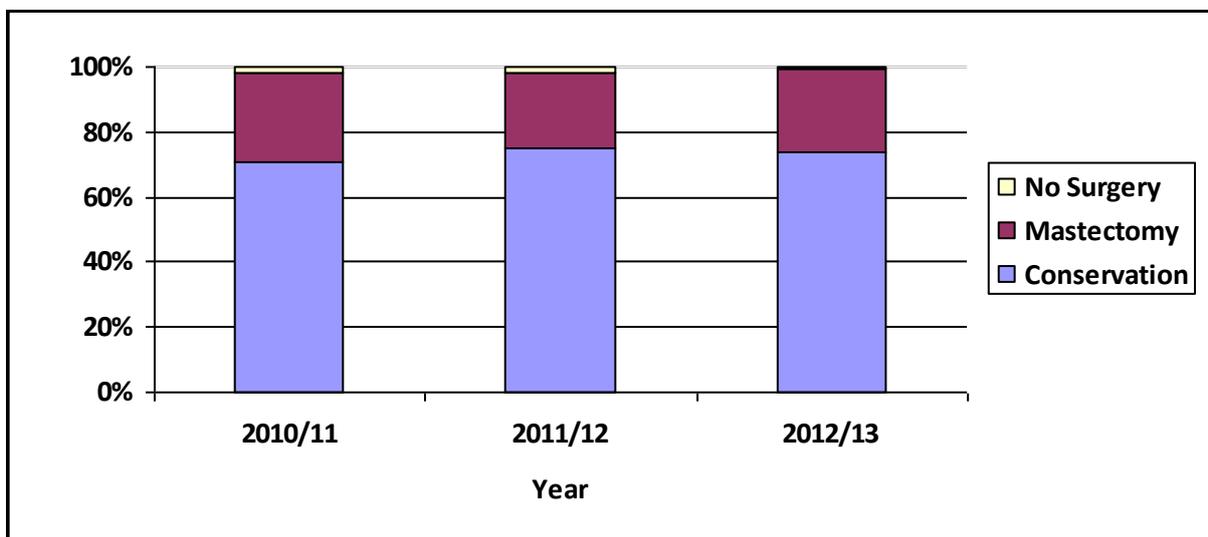
20 Benign Biopsy Rates

The proportion of women who had a surgical operation for what turned out to be benign disease was 1.0 per 1,000 screened for the prevalent (first) screen and 0.4 for the incident (subsequent) screen

This is a measure of the number of women per 1,000 women screened who had surgery for benign breast disease. The aim is to keep this rate as low as possible. However, with some lesions (e.g. fibroadenomas) the patient may choose to have surgery to remove a lump, even though it has been diagnosed as benign at the assessment clinic. In addition radial scars (a star shaped thickening of breast tissue which shows up on mammograms) are removed due to their association with tubular carcinoma of the breast; even though they are intrinsically benign.

The benign biopsy rates for the prevalent (first) and incident (subsequent) screening rounds over a six year period are shown in figures 36 and 37. For the prevalent screen each of the units met the minimum standard (<1.5 per 1,000) in 2012/13 and two of units met the target (<1.0) .

Figure 36: Benign biopsy rate for the prevalent (first screen) 2007/08-2012/13
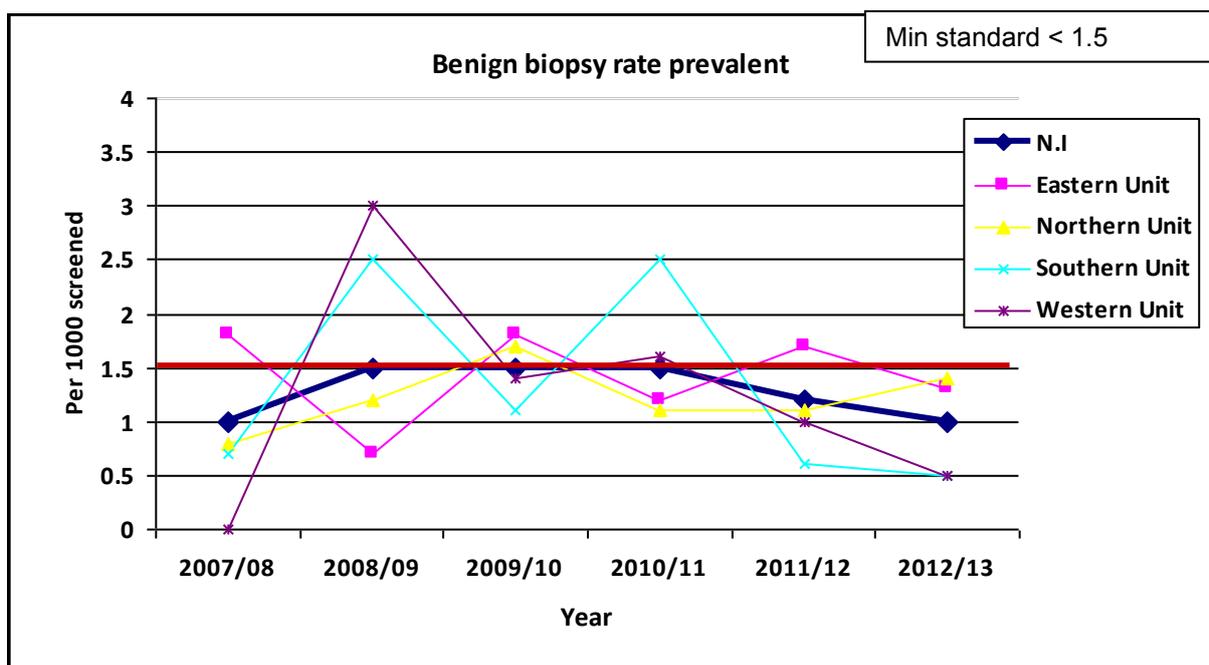
For the incident screen each of the units met the minimum standard (<1.0 per 1,000) and all meet the target figure of <0.75.

Figure 37: Benign biopsy rate for the incident (subsequent screens) 2010/11-2012/13 in women aged 50 - 70
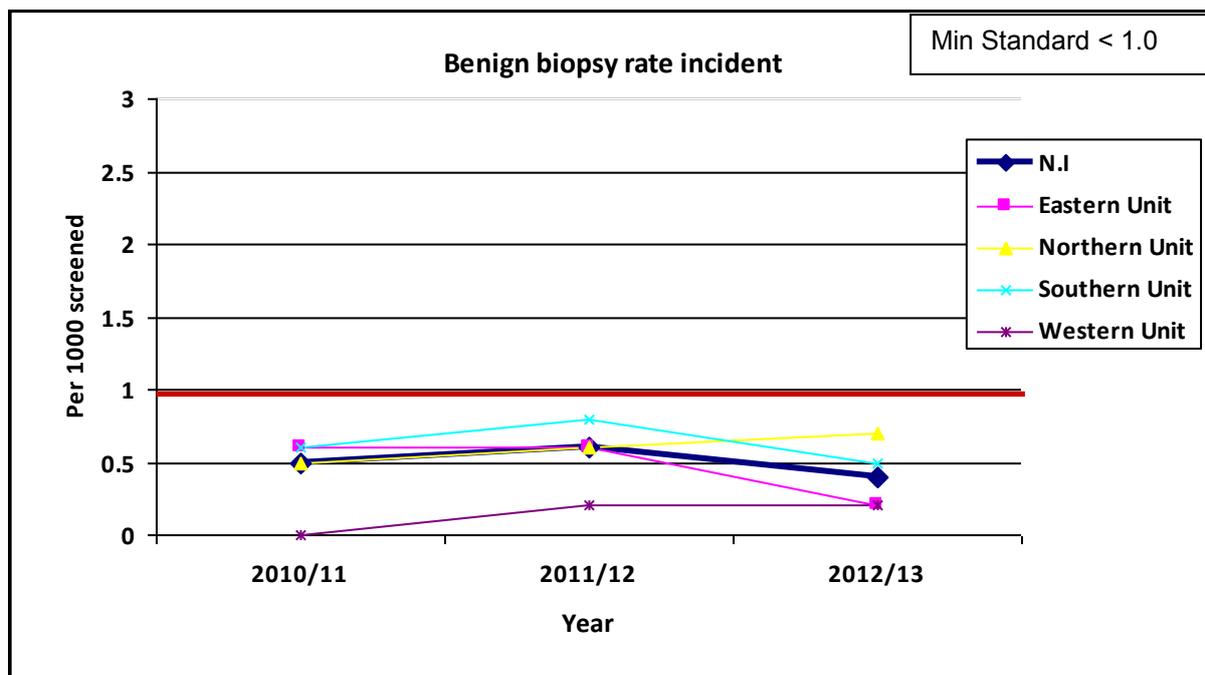
21 Repeat Surgical Operations

26% of women with invasive cancer required a repeat surgical operation.

Most women diagnosed with breast cancer by the Northern Ireland Screening Programme require a single surgical operation to remove the disease. Some women need repeat surgery e.g. to ensure complete removal of the cancer following the initial pathology report. However, the objective is to minimise the number of therapeutic operations.

Table 7 below shows that the reoperation rate in 2012/13 for women with invasive cancer was 26% in Northern Ireland. This is slightly higher than the UK average of 23% (range 16%-27%)

The reoperation rate for women with non-invasive, or micro-invasive, cancers is 21%, which is lower than the UK average of 25% (range 21%-33%).

Table 7: Repeat operations of surgically treated invasive and non/micro-invasive cancers*

	Invasive			Non/micro invasive		
	Total	Re-op	%	Total	Re-op	%
Eastern Unit	157	43	27	26	5	19
Northern Unit	65	17	26	16	3	19
Southern Unit	60	17	28	5	1	20
Western Unit	86	18	21	20	5	25
Northern Ireland	368	95	**26**	67	14	**21**
UK	14381	3373	23	3793	965	25

excludes previous cancers and no surgery cases

22 Screening Round Length

> **83.2% of women were offered an appointment for mammography screening within 36 months of their previous normal screen**

The screening round length is the interval between each offered invitation for screening mammography. The NHSBSP Publication No. 60 (Version 2) *Consolidated Guidance on Standards for the NHS Breast Screening Programme* states that, to ensure women are re-called for screening at appropriate intervals, the percentage of eligible women whose first offered appointment is within 36 months of their previous screen should be 90% or more.

Measurement of screening round length provides an indicator of the efficiency with which a screening programme is managed. The long-term effectiveness of the programme is dependent on women in the target age group continuing to be screened at regular intervals.

Figure 38 shows the percentage of women screened within 36 months, by quarter, for the year 2012/13.   The minimum standard was not met during the first two quarters or for the year as a whole (see figure 40). Figure 39 shows the data broken down by unit. Both the Eastern and the Southern units had problems maintaining their round length in 2012/13 and this affected the Northern Ireland figure.

Figure 38: Screening round length by quarter for Northern Ireland 2012/13
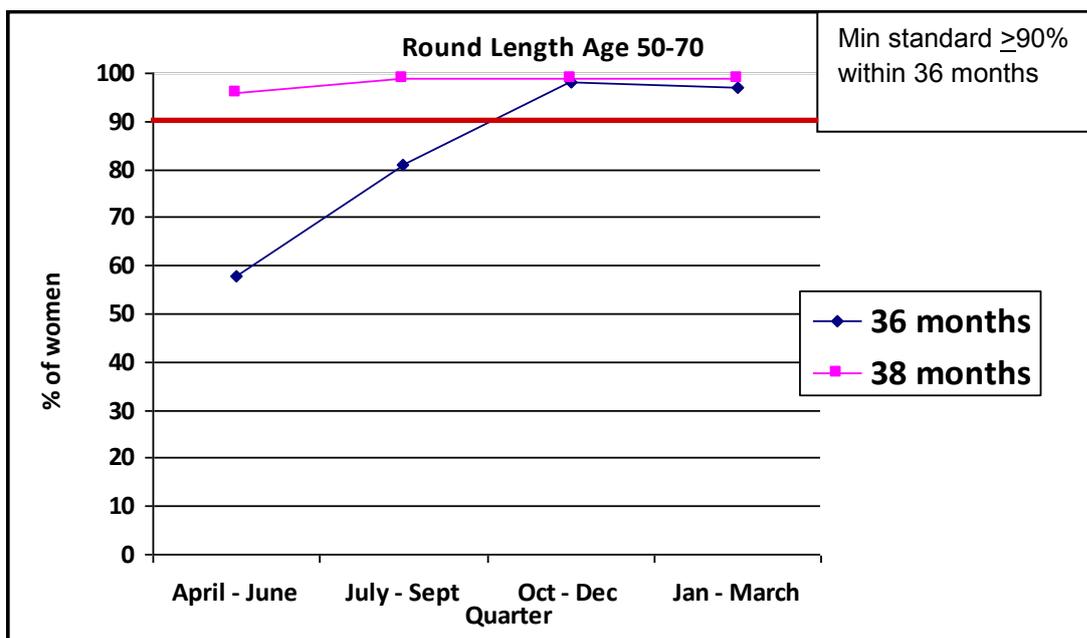
Figure 39: Screening round length 50-70 by quarter for each unit 2012/13
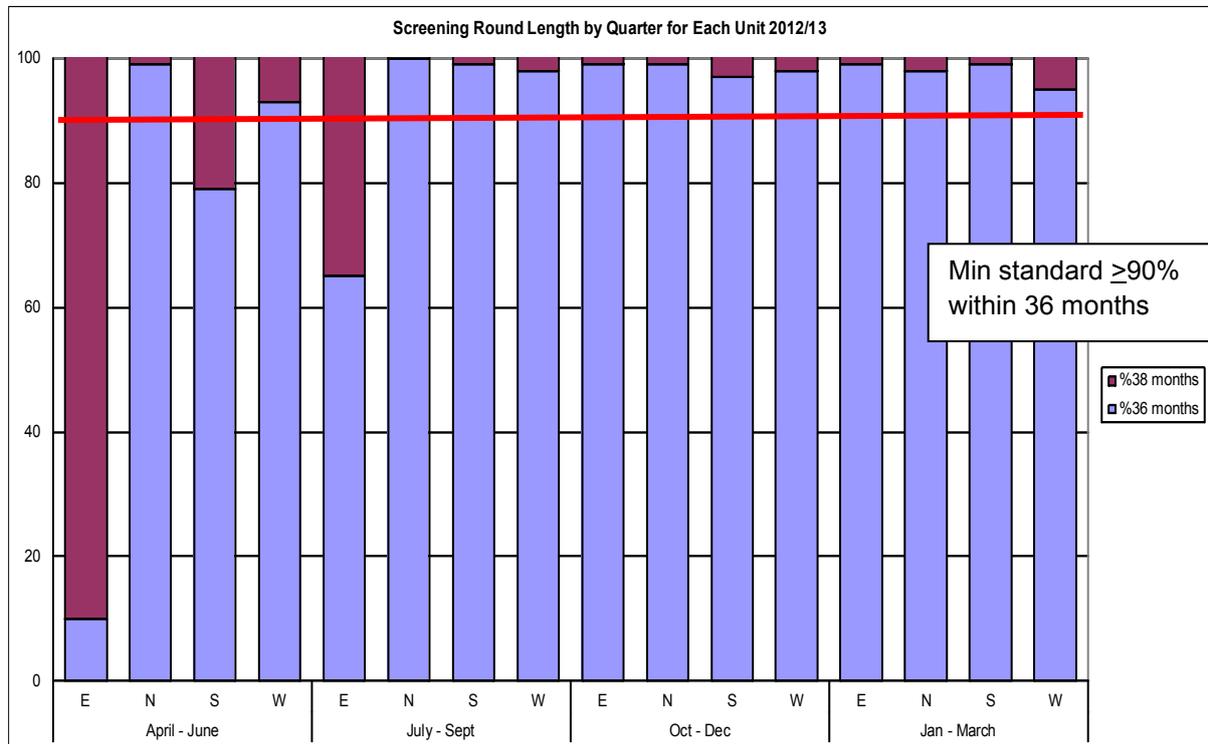
The Eastern Unit's round length began to slip in June 2011. QARC worked with the unit and the Belfast HSC Trust to agree an action plan to bring it back to standard. This was achieved in the third quarter of 2012/13.

A number of factors had contributed to slippage of the Southern Unit's round length, including staff leave. The unit brought its round length back to standard in the second quarter of 2012/13.

Figure 40: Northern Ireland round length 2006/07 to 2012/13

N.I Round Length 2006-2013 50-64 years

Min standard >90% within 36 months

◆ <36 months
■ <38 months

*The figures for 2012/13 are for women aged 50-70. All other figures are for women aged 50-64.
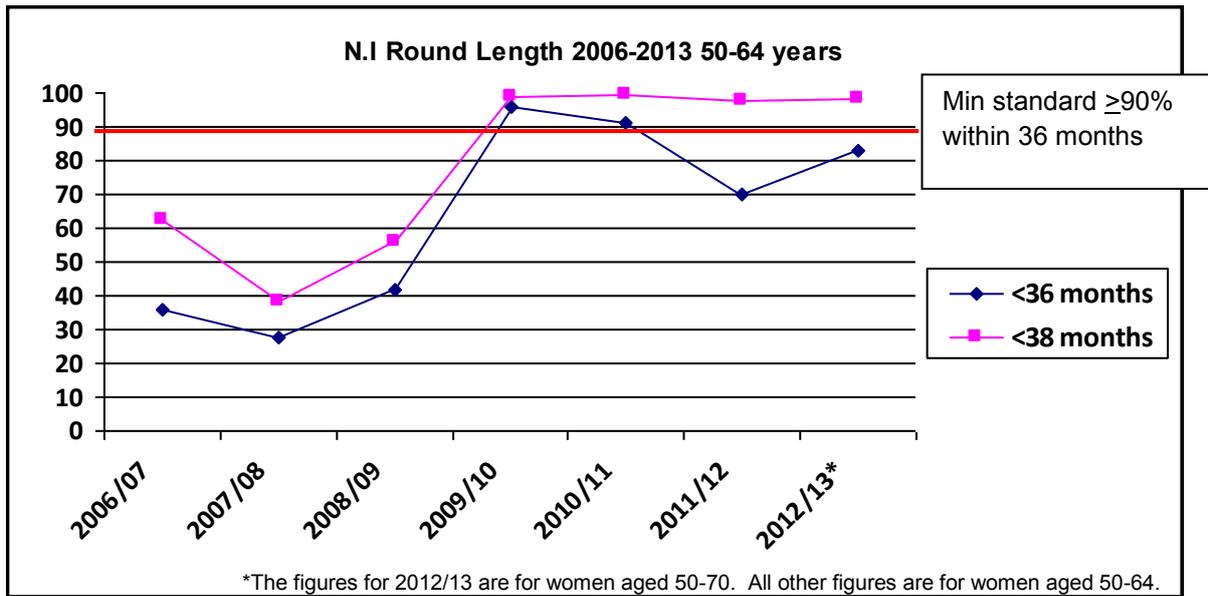
Figure 40 shows the round length for Northern Ireland over the six year period 2006/07 to 2012/13. Figure 41 shows the breakdown by unit. There have been problems maintaining the round length. A wide range of factors can affect it including staffing issues and closing a unit for refurbishment. QARC is working with units to ensure that they have robust round length plans in place to minimise the likelihood of falling below the standard. However, it is recognised that the replacement of all mammography equipment throughout Northern Ireland with new digital equipment, in 2014, will adversely impact on the round length.

Figure 41: Unit round length 2006/07 to 2012/13
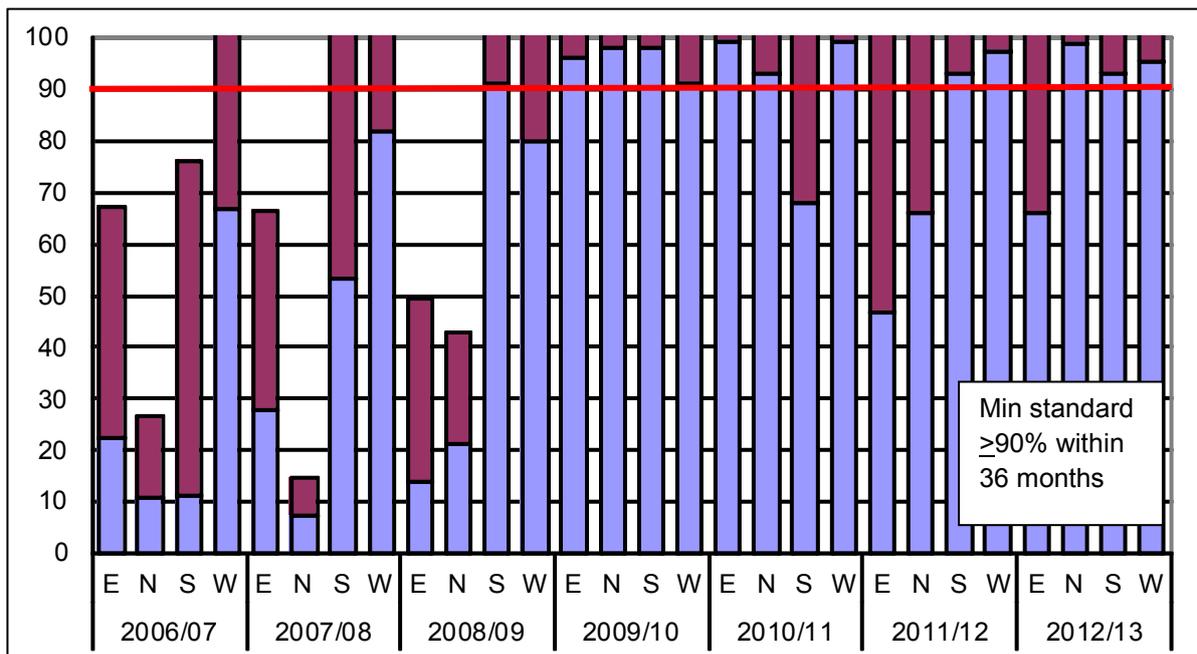
Min standard >90% within 36 months

Summary of KC62 source tables and age groups to be used in the calculation of standards (50-70)

Objective	Criteria	Calculation	Minimum Standard	Target
1. To maximise the number of eligible women who attend for screening	The percentage of eligible women who attend for screening	Tables: A, B, C1, C2 Age: 50-70	≥70% of invited women to attend for screening	80%
2. To maximise the number of cancers detected	(a) The rate of invasive cancers detected in eligible women invited and screened	Table: A Age: 50-52	Prevalent Screen ≥3.6 per 1,000	Prevalent Screen ≥5.1 per 1,000
		Table: C1 Age: 53-70	Incident screen ≥4.1 per 1,000	Incident screen ≥5.7 per 1,000
	(b) The rate of cancers detected which are in situ carcinoma	Table: A Age: 50-52	Prevalent screen ≥0.5 per 1,000	
		Table: C1 Age: 53-70	Incident screen ≥0.6 per 1,000	
	(c) SDR	Tables: A and B Age: 50-70	Prevalent screen ≥1.0	Prevalent screen ≥1.4
		Table: C1 Age: 50-70	Incident screen ≥1.0	Incident screen ≥1.4
		Tables: A, B, C1 Age: 50-70	Overall ≥1.0	Overall ≥1.4
3. To maximise the number of small invasive cancers detected	The rate of invasive cancers less than 15mm in diameter detected in eligible women invited and screened	Table: A Age: 50-52	Prevalent screen ≥2.0 per 1,000	Prevalent screen ≥2.8 per 1,000
		Table: C1 Age: 53-70	Incident screen ≥2.3 per 1,000	Incident screen ≥3.1 per 1,000
7. To minimise the number of women screened who are referred for further tests	(a) The percentage of women who are referred for assessment	Table: A Age: 50-52	Prevalent screen <10%	Prevalent screen <7%
		Table: C1 Age: 53-70	Incident screen <7%	Incident screen <5%
	(b) The percentage of women screened who are placed on short-term recall	Table: T Age: 50-70	<0.25%	<0.12%
8. To ensure that the majority of cancers, both palpable and impalpable, receive a nonoperative tissue diagnosis of cancer	The percentage of women who have a non-operative diagnosis of cancer by cytology or needle histology after a maximum of two visits	Table: T Age: 50-70	≥85%	≥90%
9. To minimise the number of unnecessary operative procedures	The rate of benign biopsies	Table: A Age: 50-52	Prevalent screen <1.5 per 1,000	Prevalent screen <1.0 per 1,000
		Table: C1 Age: 53-70	Incident screen <1.0 per 1,000	Incident screen <0.75 per 1,000

APPENDIX 2 - KC62 Data 2012/13 for women aged 50-70

Northern Ireland Breast Screening Service
KC62 Data 2012/13

Activity Data		Invited	Screened	As-sessed	Early Recall	Benign	Total Cancers	DCIS	Inv. Ca	Inv. Ca <
All Ages	Prevalent (A&B)	25750	13341	1029	11	15	77	16	60	24
	Incident (C1&C2)	60258	50156	1307	18	18	348	49	298	158
	Early recalls	49	49	49	4	0	4	2	2	1
	Self/GP referrals	0	1363	67	0	1	14	2	12	4
	Total	86057	64909	2452	33	34	443	69	372	187
50-70	Prevalent (A:50-	12396	9059	699	7	9	51	13	38	14
	Incident (C1:53-70	51555	45559	1152	15	17	313	44	269	145
	Early recalls	49	49	49	4	0	4	2	2	1
	Self/GP referrals	0	756	43	0	1	6	1	5	1
	Total	64000	55423	1943	26	27	374	60	314	161

Performance against National Standards					National Standards	
Routine Screen Women aged 50 - 70		2010/11	2011/12	2012/13	Minimum	Target
Uptake %	Prevalent	74.6	72.6	73.1	≥70%	80%
	Incident	89.5	88.6	88.4		
	Overall (A-	75.8	73.3	73.9		
Technical recall/repeats%	Overall	1.5	1.0	0.9	<3%	<2%
Recall to Assessment %	Prevalent	8.9	7.4	7.7	<10%	<7%
	Incident	2.7	2.5	2.5	<7%	<5%
Early Recall %	Overall	0.05	0.07	0.04	<0.25%	≤0.12%
Benign open biopsy rate per 1000 women	Prevalent	1.5	1.2	1.0	<1.5	<1.0
	Incident	0.5	0.6	0.4	<1.0	<0.75
DCIS per 1000 women screened	Prevalent	2.1	1.6	1.4	≥0.5	NA
	Incident	1.3	1.3	1.0	≥0.6	NA
Invasive cancers per 1000 women screened	Prevalent	6.4	4.0	4.2	≥3.6	≥5.1
	Incident	4.8	5.8	5.9	≥4.1	≥5.7
Invasive cancers <15mm per 1000 women screened	Prevalent	3.8	2.2	1.5	≥2.0	≥2.8
	Incident	2.8	3.4	3.2	≥2.3	≥3.1
Pre-operative diagnosis rate %	Overall	95.0	95.9	96.5	≥85%	≥90%
Standardised Detection Ratios Invasive cancers (annual - all sizes)	Prevalent	1.6	1.2	1.1	≥1.00	≥1.4
	Incident	1.2	1.4	1.4		
	Overall	1.3	1.4	1.4		
Standardised Detection Ratios Invasive cancers < 15mm (3 yr average)	Overall	1.3	1.3	1.2	≥1.0	≥1.4
Rolling three year Standardised Detection Ratios Invasive cancers (all sizes)	Prevalent	1.47	1.4	1.3	≥1.0	≥1.4
	Incident	1.26	1.3	1.4		
	Overall	1.31	1.3	1.3		
Round Length ≤	Overall	81.2	64.6	83.2	≥90% first offered appts within 36 months	100%
< 38 months	Overall	89.4	90.4	98.1		
Screening to Results - (Date of screen)	Overall	98.0	98.0	97.1	≥90% within 2 weeks	100%
Screening to Assessment (DoFOA)	Overall	96.9	94.9	90.6	≥90% within 3	100%

Belfast Health & Social Care Trust Breast Screening Service
KC62 Data 2012/13

Activity Data		Invited	Screened	Assessed	Early Recall	Benign	Total Cancers	DCIS	Inv. Ca	Inv. Ca <
All Ages	Prevalent (A&B)	12303	5751	497	9	9	33	10	23	11
	Incident (C1&C2)	25702	20731	524	13	4	146	16	129	70
	Early recalls	35	35	35	0	0	3	1	2	1
	Self/GP referrals	0	531	22	0	0	6	0	6	2
	Total	**38040**	**27048**	**1078**	**22**	**13**	**188**	**27**	**160**	**84**
50-70	Prevalent (A:50-52 only)	5695	3935	343	6	5	26	9	17	8
	Incident (C1:53-70 only)	21812	18841	458	10	4	130	15	115	64
	Early recalls	35	35	35	0	0	3	1	2	1
	Self/GP referrals	0	334	15	0	0	4	0	4	1
	Total	**27542**	**23145**	**851**	**16**	**9**	**163**	**25**	**138**	**74**

Performance against National Standards					National Standards	
Routine Screen Women aged 50 - 70		2010/11	2011/12	2012/13	**Minimum**	**Target**
Uptake %	Prevalent (A)	73.8	69.2	69.1	>70%	80%
	Incident (C1)	89.4	87.5	86.4		
	Overall (A-C2)	74.2	69.3	69.8		
Technical recall/repeats%	Overall	1.5	1.1	1.3	<3%	<2%
Recall to Assessment %	Prevalent	9.3	8.3	8.7	<10%	<7%
	Incident	2.7	2.4	2.4	<7%	<5%
Early Recall %	Overall	0.12	0.14	0.07	<0.25%	≤0.12%
Benign open biopsy rate per 1000 women	Prevalent	1.2	1.7	1.3	<1.5	<1.0
	Incident	0.6	0.6	0.2	<1.0	<0.75
DCIS per 1000 women screened	Prevalent	2.4	1.2	2.3	>0.5	NA
	Incident	1.3	1.7	0.8	>0.6	NA
Invasive cancers per 1000 women screened	Prevalent	7.5	4.5	4.3	>3.6	>5.1
	Incident	5.0	5.3	6.1	>4.1	>5.7
Invasive cancers <15mm per 1000 women screened	Prevalent	4.0	2.4	2.0	>2.0	>2.8
	Incident	2.7	3.1	3.4	>2.3	≥3.1
Pre-operative diagnosis rate %	Overall	96.4	96.4	96.7	>85%	>90%
Standardised Detection Ratios Invasive cancers (annual - all sizes)	Prevalent	1.86	1.4	1.1	>1.00	>1.4
	Incident	1.23	1.3	1.5		
	Overall	1.37	1.3	1.4		
Standardised Detection Ratios Invasive	Overall	1.33	1.3	1.4	>1.0	>1.4
Rolling three year Standardised Detection Ratios Invasive cancers (all sizes)	Prevalent	1.64	1.6	1.4	>1.0	>1.4
	Incident	1.31	1.2	1.4		
	Overall	1.40	1.3	1.4		
Round Length ≤ 36 months	Overall	87.5	41.1	66.2	>90% first offered appts within 36 months	100%
≤ 38 months	Overall	87.8	86.5	96.9		
Screening to Results - (Date of screen)	Overall	99.0	98.0	95.9	>90% within 2 weeks	100%
Screening to Assessment (DoFOA)	Overall	96.9	93.9	83.0	>90% within 3 weeks	100%

Northern Health & Social Care Trust Breast Screening Service
KC62 Data 2012/13

Activity Data		Invited	Screened	Assessed	Early Recall	Benign	Total Cancers	DCIS	Inv. Ca	Inv. Ca < 15mm
All Ages	Prevalent (A&B)	3795	2172	228	0	4	11	1	9	5
	Incident (C1&C2)	11921	10267	322	1	7	71	15	56	32
	Early recalls	4	4	4	0	0	0	0	0	0
	Self/GP referrals	0	173	7	0	0	0	0	0	0
	Total	15720	12616	561	1	11	82	16	65	37
50-70	Prevalent (A:50-52 only)	1875	1460	163	0	2	6	0	6	3
	Incident (C1:53-70 only)	10296	9354	282	1	7	65	14	51	28
	Early recalls	4	4	4	0	0	0	0	0	0
	Self/GP referrals	0	97	5	0	0	0	0	0	0
	Total	12175	10915	454	1	9	71	14	57	31

Performance against National Standards / **National Standards**

Routine Screen Women aged 50 - 70		2010/11	2011/12	2012/13	Minimum	Target
Uptake %	Prevalent (A)	78.2	75.7	77.9	>70%	80%
	Incident (C1)	91.7	89.6	90.9		
	Overall (A-C2)	79.8	77.2	79.3		
Technical recall/repeats%	Overall	2.0	1.1	0.9	<3%	<2%
Recall to Assessment %	Prevalent	13.2	11.0	11.2	<10%	<7%
	Incident	3.3	3.0	3.0	<7%	<5%
Early Recall %	Overall	0.0	0.04	0.01	<0.25%	≤0.12%
Benign open biopsy rate per 1000 women	Prevalent	1.1	1.1	1.4	<1.5	<1.0
	Incident	0.5	0.6	0.7	<1.0	<0.75
DCIS per 1000 women screened	Prevalent	2.3	3.2	0.0	>0.5	NA
	Incident	1.5	1.0	1.5	>0.6	NA
Invasive cancers per 1000 women screened	Prevalent	8.0	3.8	4.1	>3.6	>5.1
	Incident	5.4	5.0	5.5	>4.1	>5.7
Invasive cancers <15mm per 1000 women screened	Prevalent	5.7	2.7	2.1	>2.0	>2.8
	Incident	3.3	2.8	3.0	>2.3	≥3.1
Pre-operative diagnosis rate %	Overall	94.2	94.8	98.7	>85%	>90%
Standardised Detection Ratios Invasive cancers (annual - all sizes)	Prevalent	1.7	1.3	1.0	>1.00	>1.4
	Incident	1.3	1.2	1.3		
	Overall	1.4	1.2	1.3		
Standardised Detection Ratios Invasive cancers < 15mm (3 yr average)	Overall	1.3	1.4	1.4	>1.0	>1.4
Rolling three year Standardised Detection Ratios Invasive cancers (all sizes)	Prevalent	1.4	1.4	1.4	>1.0	>1.4
	Incident	1.2	1.3	1.3		
	Overall	1.3	1.3	1.3		
Round Length ≤ 36 months	Overall	84.1	64.2	99.0	>90% first offered appts within 36 months	100%
≤ 38 months	Overall	90.3	95.1	99.2		
Screening to Results - (Date of screen)	Overall	98.0	99.0	98.9	>90% within 2 weeks	100%
Screening to Assessment (DoFOA)	Overall	98.6	98.3	98.9	>90% within 3 weeks	100%

Southern Health & Social Care Trust Breast Screening Service
KC62 Data 2012/13

Activity Data		Invited	Screened	As-sessed	Early Recall	Benign	Total Can-cers	DCIS	Inv. Ca	Inv. Ca < 15mm
All Ages	Prevalent (A&B)	4805	2599	155	1	1	15	2	13	5
	Incident (C1&C2)	10979	9214	248	3	4	49	2	47	23
	Early recalls	1	1	1	0	0	0	0	0	0
	Self/GP referrals	0	276	16	0	0	2	1	1	0
	Total	15785	12090	420	4	5	66	5	61	28
50-70	Prevalent (A:50-52 only)	2452	1841	102	0	1	8	1	7	2
	Incident (C1:53-70 only)	9490	8383	221	3	4	42	1	41	21
	Early recalls	1	1	1	0	0	0	0	0	0
	Self/GP referrals	0	154	13	0	0	2	1	1	0
	Total	11943	10379	337	3	5	52	3	49	23

Performance against National Standards					National Standards	
Routine Screen Women aged 50 - 70		2010/11	2011/12	2012/13	Minimum	Target
Uptake %	Prevalent (A)	73.8	75.8	75.1	≥70%	80%
	Incident (C1)	89.1	88.7	88.3		
	Overall (A-C2)	76.1	75.6	74.9		
Technical recall/repeats%	Overall	1.6	1.2	0.8	<3%	<2%
Recall to Assessment %	Prevalent	6.1	5.6	5.5	<10%	<7%
	Incident	2.7	3.5	2.6	<7%	<5%
Early Recall %	Overall	0.0	0.00	0.03	<0.25%	≤0.12%
Benign open biopsy rate per 1000 women	Prevalent	2.5	0.6	0.5	<1.5	<1.0
	Incident	0.6	0.8	0.5	<1.0	<0.75
DCIS per 1000 women screened	Prevalent	1.9	1.3	0.5	≥0.5	NA
	Incident	1.7	1.2	0.1	≥0.6	NA
Invasive cancers per 1000 women screened	Prevalent	3.7	5.7	3.8	≥3.6	≥5.1
	Incident	4.2	7.1	4.9	≥4.1	≥5.7
Invasive cancers <15mm per 1000 women screened	Prevalent	1.9	1.9	1.1	≥2.0	≥2.8
	Incident	2.2	3.9	2.5	≥2.3	≥3.1
Pre-operative diagnosis rate %	Overall	89.7	94.8	93.9	≥85%	≥90%
Standardised Detection Ratios Invasive cancers (annual - all sizes)	Prevalent	1.2	1.57	1.3	≥1.00	≥1.4
	Incident	1.0	1.79	1.2		
	Overall	1.1	1.73	1.2		
Standardised Detection Ratios Invasive cancers < 15mm (3 yr average)	Overall	1.2	1.3	1.2	≥1.0	≥1.4
Rolling three year Standardised Detection Ratios Invasive cancers (all sizes)	Prevalent	1.3	1.4	1.3	≥1.0	≥1.4
	Incident	1.3	1.4	1.3		
	Overall	1.3	1.4	1.3		
Round Length months ≤ 36	Overall	58.5	84.0	93.3	≥90% first offered appts within 36	100%
≤ 38 months	Overall	88.6	89.6	99.2		
Screening to Results - (Date of screen)	Overall	97.0	95.0	95.4	≥90% within 2 weeks	100%
Screening to Assessment (DoFOA)	Overall	97.7	91.1	92.6	≥90% within 3 weeks	100%

Western Health & Social Care Trust Breast Screening Service
KC62 Data 2012/13

Activity Data		Invited	Screened	As-sessed	Early Recall	Benign	Total Can-cers	DCIS	Inv. Ca	Inv. Ca < 15mm
All Ages	Prevalent (A&B)	4847	2819	149	1	1	18	3	15	3
	Incident (C1&C2)	11656	9944	213	1	3	82	16	66	33
	Early recalls	9	9	9	4	0	1	1	0	0
	Self/GP referrals	0	383	22	0	1	6	1	5	2
	Total	**16512**	**13155**	**393**	**6**	**5**	**107**	**21**	**86**	**38**
50-70	Prevalent (A:50-52 only)	2374	1823	91	1	1	11	3	8	1
	Incident (C1:53-70 only)	9957	8981	191	1	2	76	14	62	32
	Early recalls	9	9	9	4	0	1	1	0	0
	Self/GP referrals	0	171	10	0	1	0	0	0	0
	Total	**12340**	**10984**	**301**	**6**	**4**	**88**	**18**	**70**	**33**

Performance against National Standards					National Standards	
Routine Screen Women aged 50 - 70		2010/11	2011/12	2012/13	Minimum	Target
Uptake %	Prevalent (A)	72.3	74.9	76.8	≥70%	80%
	Incident (C1)	87.0	89.6	90.2		
	Overall (A-C2)	73.6	76.3	77.4		
Technical recall/repeats%	Overall	0.4	0.7	1.0	<3%	<2%
Recall to Assessment %	Prevalent	5.6	3.3	5.0	<10%	<7%
	Incident	1.9	1.8	2.1	<7%	<5%
Early Recall %	Overall	0.03	0.03	0.02	<0.25%	≤0.12%
Benign open biopsy rate per 1000 women	Prevalent	1.6	1.0	0.5	<1.5	<1.0
	Incident	0.0	0.2	0.2	<1.0	<0.75
DCIS per 1000 women screened	Prevalent	1.6	1.0	1.6	≥0.5	NA
	Incident	0.8	1.0	1.6	≥0.6	NA
Invasive cancers per 1000 women screened	Prevalent	5.5	2.0	4.4	≥3.6	≥5.1
	Incident	4.3	6.5	6.9	≥4.1	≥5.7
Invasive cancers <15mm per 1000 women screened	Prevalent	3.1	1.5	0.5	≥2.0	≥2.8
	Incident	2.9	4.0	3.6	≥2.3	≥3.1
Pre-operative diagnosis rate %	Overall	100.0	96.6	95.9	≥85%	≥90%
Standardised Detection Ratios Invasive cancers (annual - all sizes)	Prevalent	1.5	0.5	1.2	≥1.00	≥1.4
	Incident	1.0	1.6	1.6		
	Overall	1.1	1.3	1.5		
Standardised Detection Ratios Invasive cancers < 15mm (3 yr average)	Overall	1.2	1.3	1.4	≥1.0	≥1.4
Rolling three year Standardised Detection Ratios Invasive cancers (all sizes)	Prevalent	1.34	1.2	1.0	≥1.0	≥1.4
	Incident	1.16	1.2	1.5		
	Overall	1.20	1.2	1.4		
Round Length ≤ 36 months	Overall	91.9	93.6	95.4	≥90% first offered appts within 36 months	100%
≤ 38 months	Overall	92.0	94.1	98.6		
Screening to Results - (Date of screen)	Overall	98.0	98.0	99.1	≥90% within 2 weeks	100%
Screening to Assessment (DoFOA)	Overall	90.6	97.0	97.0	≥90% within 3 weeks	100%