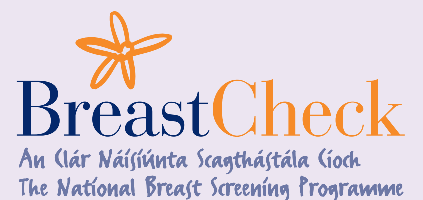
BreastCheck Statistical Report

2020

An tSeirbhís Náisiúnta Scagthástála
National Screening Service



BreastCheck Women's Charter

Screening commitment

- All staff will respect your privacy, dignity, religion, race and cultural beliefs
- Services and facilities will be arranged so that everyone, including people with special needs, can use the services
- Your screening records will be treated in the strictest confidence and you will be assured of privacy during your appointment
- Information will be available for relatives and friends relevant to your care in accordance with your wishes
- You will always have the opportunity to make your views known and to have them taken into account
- You will receive your first appointment within two years of becoming known to the programme
- Once you become known to the programme you will be invited for screening every two years while you are in the eligible age range
- You will be screened using high quality modern equipment which complies with Guidelines for Quality Assurance

We aim

- To give you at least seven days notice of your appointment
- To send you information about screening before your appointment
- To see you as promptly as possible to your appointment time
- To keep you informed about any unavoidable delays which occasionally occur
- To provide pleasant, comfortable surroundings during screening
- To ensure that we send results of your mammogram to you within three weeks

If re-call is required

We aim

- To ensure that you will be offered an appointment for an Assessment Clinic within two weeks of being notified of an abnormal result
- To ensure that you will be seen by a Consultant doctor who specialises in breast care
- To provide support from a Breast Care Nurse
- To ensure you get your results from the Assessment Clinic within one week
- To keep you informed of any delays regarding your results

If breast cancer is diagnosed

We aim

- To tell you sensitively and with honesty
- To fully explain the treatment available to you
- To encourage you to share in decision-making about your treatment
- To include your partner, friend or relative in any discussions if you wish
- To give you the right to refuse treatment, obtain a second opinion or choose alternative treatment, without prejudice to your beliefs or chosen treatment
- To arrange for you to be admitted for treatment by specialised trained staff within three weeks of diagnosis
- To provide support from a Breast Care Nurse before and during treatment
- To provide you with information about local and national cancer support groups and self-help groups

Tell us what you think

- Your views are important to us in monitoring the effectiveness of our services and in identifying areas where we can improve
- You have a right to make your opinion known about the care you received
- If you feel we have not met the standards of the Women's Charter, let us know by telling the people providing your care or in writing to the programme
- We would also like to hear from you if you feel you have received a good service. It helps us to know that we are providing the right kind of service - one that satisfies you
- Finally, if you have any suggestions on how our service can be improved, we would be pleased to see whether we can adopt them to further improve the way we care for you

You can help by

Keeping your appointment time

Giving at least three days notice if you wish to change your appointment

Reading any information we send you

Being considerate to others using the service and the staff

Please try to be well informed about your health

Let us know

If you change your address

If you have special needs

If you already have an appointment

Tell us what you think - your views are important.

Freephone 1800 45 45 55
www.breastcheck.ie

BreastCheck
An Clár Náisiúnta Scagthástála Cíoch
The National Breast Screening Programme

An tSeirbhís Náisiúnta Scagthástála
National Screening Service
Cuid d'Fheidhmeannacht na Seirbhíse Sláinte. Part of the Health Service Executive.

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Contents

Statistical Report **2**

Background 2

Screening activity overall 2

Screening activity by screening invitation type 4

Screening activity by age group 7

Cancers detected 8

Screening quality 9

Ductal carcinoma in situ (DCIS) 11

Screening outcome by age group 12

Cancers with non-operative diagnosis 2020 13

Interval cancers 2013-2016 14

BreastCheck Women's Charter 16

References **17**

Statistical Report

Background

The aim of BreastCheck is to detect breast cancers at the earliest possible stage, when the cancer is normally easier to treat and there are greater treatment options available. Although a mammogram will not pick up all cancers, evidence from the National Cancer Registry of Ireland[1] demonstrates that a much greater proportion of women diagnosed through screening in the screening age group are diagnosed at Stage I and Stage II (93%) compared to those in the same age group diagnosed through other routes (74%). This demonstrates a survival benefit and mortality reduction in women whose cancer is detected through screening by BreastCheck.

To the end of December 2020 the programme has provided more than 2 million mammograms and detected over 15,000 cancers.

The data in this report reflects the performance of BreastCheck in 2020. Arising from the COVID-19 pandemic, activity was paused for seven months. This is reflected in the low numbers of women that were invited and screened during this period. Additionally, and unsurprisingly, Women's Charter targets regarding proportions of women re-invited within two years of a previous screen or women invited within two years of becoming known to the programme, have been temporarily impacted. However, reassuringly, the majority of the programme's key performance indicators (KPIs) pertaining to cancer detection and treatment, and the detection of small cancers, were still met.

This report also presents data on interval cancers, which are a feature of every cancer screening programme. Because of the time that must be allowed for interval cancers to be diagnosed (two years) and validated, there is always a lag period in reporting interval cancers. The interval cancer rates presented in this report relate to women screened in the four-year period 2013 to 2016. For each of those years, the interval cancer rates were within international standards.

Screening activity overall

The figures reported relate to women invited by BreastCheck for screening between 1 January and 31 December 2020. Some of these women may have been screened or treated in 2020 and/or early 2021.

Programme standards, against which performance is measured, are based on the *European Guidelines for Quality Assurance in Breast Cancer Screening and Diagnosis*,[2] and the *BreastCheck Guidelines for Quality Assurance in Mammography Screening.*[3]

During 2020, 79,882 women were invited by BreastCheck for screening (Table 1, Figure 1). Of these, 77,691 were eligible for screening and 57,836 women attended for screening. This reflects a screening uptake rate based on the eligible population of 74.4 per cent, which is well above the standard of 70 per cent. The eligible population uptake rate represents an increase of 2.8 per cent when compared to statistics from 2019 (71.6 percent). BreastCheck can only be effective in achieving its goal of reducing

the number of mortalities from breast cancer in the population if at least 70 per cent of eligible women attend for screening. The standardised detection ratio (SDR) is a useful composite score by which to measure the overall performance of a screening programme. The overall SDR of BreastCheck in 2020 was 1.45, surpassing the target of 0.75, which reflects continued high achievement in programme performance (Table 1).

Table 1: Screening activity overall 2020

Performance parameter	2020
Number of women invited	79,882
Number of eligible women invited*	77,691
Number of women who opted out of the programme	690
Number of women attended for screening	57,836
Eligible women uptake rate* (includes women who opted out of the programme)	74.4%
Number of women re-called for assessment	2,672
Number of open benign biopsies	81
Number of cancers detected	476
Cancers detected per 1,000 women screened	8.2
Number of invasive cancers	367
Number of ductal carcinoma in situ (DCIS)	109
Number of invasive cancers < 15mm	177
Standardised detection ratio (SDR)^	1.45

* *Eligible refers to the known target population less those women excluded or suspended by the programme based on certain eligibility criteria.*

^ *Calculated for women aged 50-64*

Details of the ineligible categories

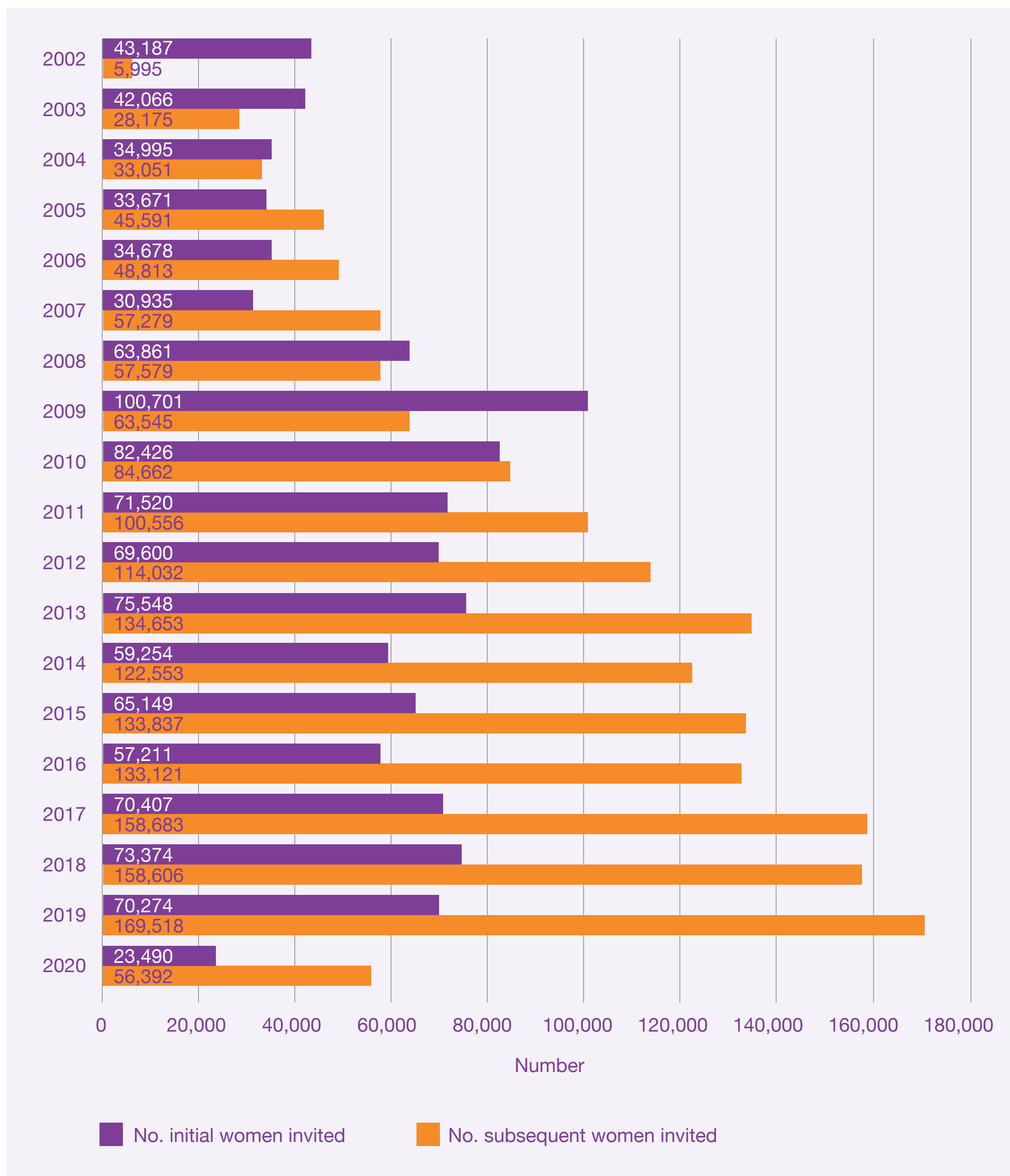
Excluded – Women in follow-up care for breast cancer; women who are not contactable by mail; women who have a physical/mental disability (while BreastCheck attempts to screen all eligible women, certain forms of physical or mental disability may preclude screening); women with a terminal illness; or other reasons.

Suspended – Women on an extended holiday or working abroad; women who had a mammogram within the last year; women who opt to wait until the next round of screening; women who wished to defer their appointment; women who did not wish to reschedule their appointment; or other reasons.

Screening activity by screening invitation type

Initial women are those who have been invited to have their first BreastCheck mammogram. In 2020, the number of initial women invited decreased from 2019 (Figure 1) as the programme was suspended for seven months due to COVID-19. There was a similar finding in relation to the number of subsequent women invited in 2019. Subsequent women are women who have previously attended BreastCheck and are being invited for the second or subsequent time.

Figure 1: Numbers invited 2002-2020 – initial and subsequent women



The eligible women uptake rate decreased in 2020 to 48% of those invited for the first time (63.2 per cent in 2019), and remains below the standard of 70 per cent (Table 2).

Those who have previously been invited but did not attend are known as previous non-attenders (PNAs). These women neither attend nor opt out of the programme, and so continue to be invited to have their first BreastCheck mammogram. The uptake rate among PNAs is low but has increased from 2019 (6.4 per cent) at 10.3 per cent.

The uptake rates among those women who have previously attended and are re-invited for subsequent screening remains high at over 87 per cent.

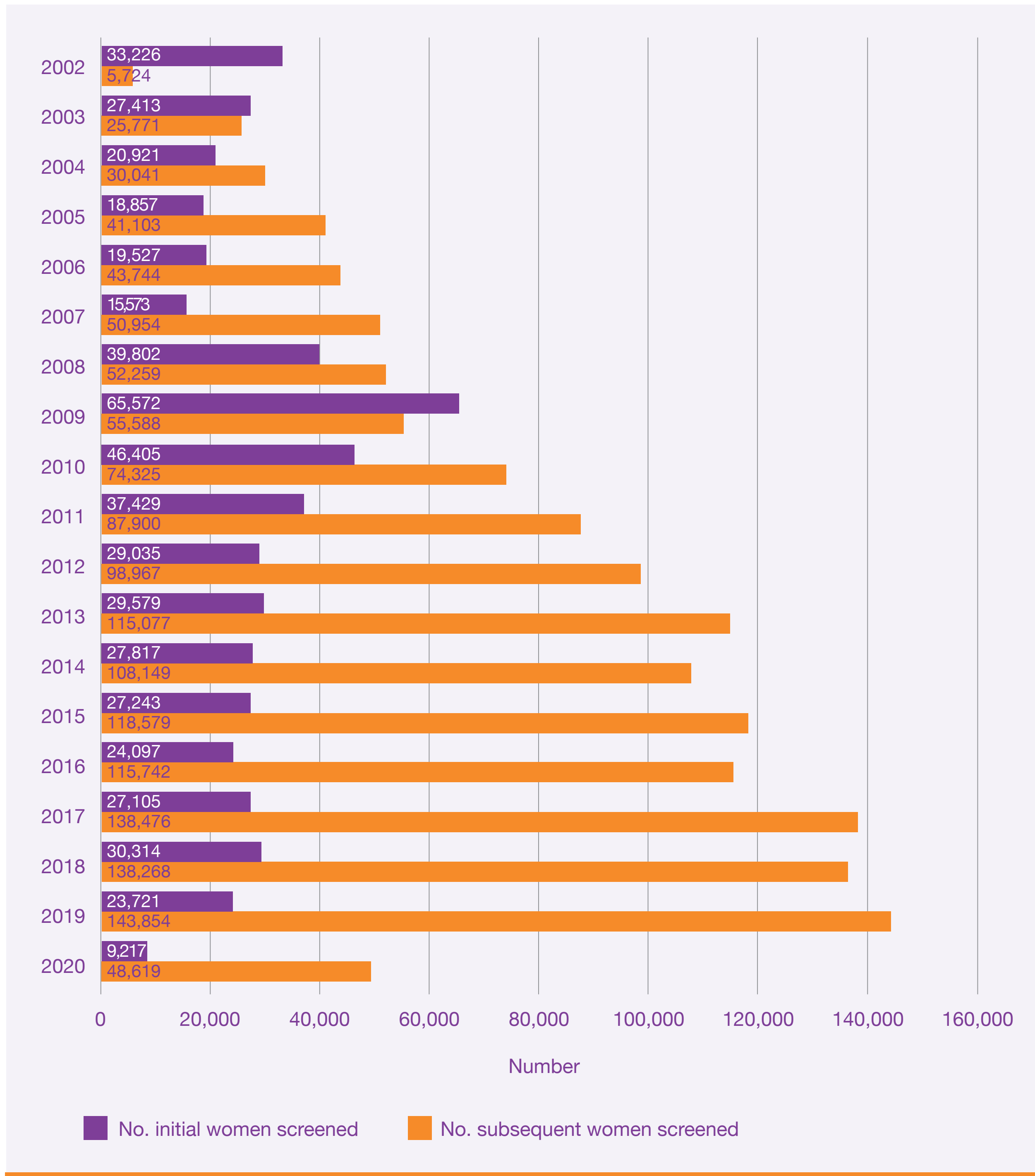
Table 2: Screening activity by screening invitation type 2020

Performance parameter	First invited population	Previous nonattenders	Subsequent population
Number of women invited	19,827	3,663	56,392
Number of eligible women invited	18,364	3,663	55,664
Number of women screened	8,840	377	48,619
Eligible women uptake rate (including women who opted out of the programme)	48.1%	10.3%	87.3%

** Opted out of the programme in a previous round but remain in the target population.*

In 2020 the number of initial and subsequent women screened has decreased compared to the previous year (Figure 2). Once again this is a result of programme suspension due to COVID-19 restrictions.

Figure 2: Numbers screened 2002-2020 – initial and subsequent women



Screening activity by age group

Among women invited for the first time, uptake remains highest in younger women aged 50 to 54, with smaller numbers and rates in higher age-groups (Table 3).

Table 3: First invited population 2020

Performance parameter	Age group				
	50-54	55-59	60-64	65+	Total
Number of women invited	14,034	2,518	1,618	1,641	19,811
Number of eligible women invited	13,099	2,306	1,429	1,512	18,346
Number of women screened	8,219	363	138	109	8,829
Eligible women uptake rate (including women who opted out of the programme)	62.7%	15.7%	9.7%	7.2%	48.1%

Among previous non-attenders there is an obvious decrease in uptake with age. This reflects not only a difference due to age but also the effect of persistent non-attenders in the calculation of rates in the older age groups (Table 4). Among those invited for subsequent screening, there are continuing high uptake rates in all age groups (Table 5).

Table 4: Previous non-attenders population 2020

Performance parameter	Age group				
	50-54	55-59	60-64	65+	Total
Number of previous non-attenders invited	840	1,179	738	906	3,663
Number of women screened	244	97	22	14	377
Eligible population uptake rate	29.0%	8.2%	3.0%	1.5%	10.3%

Table 5: Subsequent invited population 2020

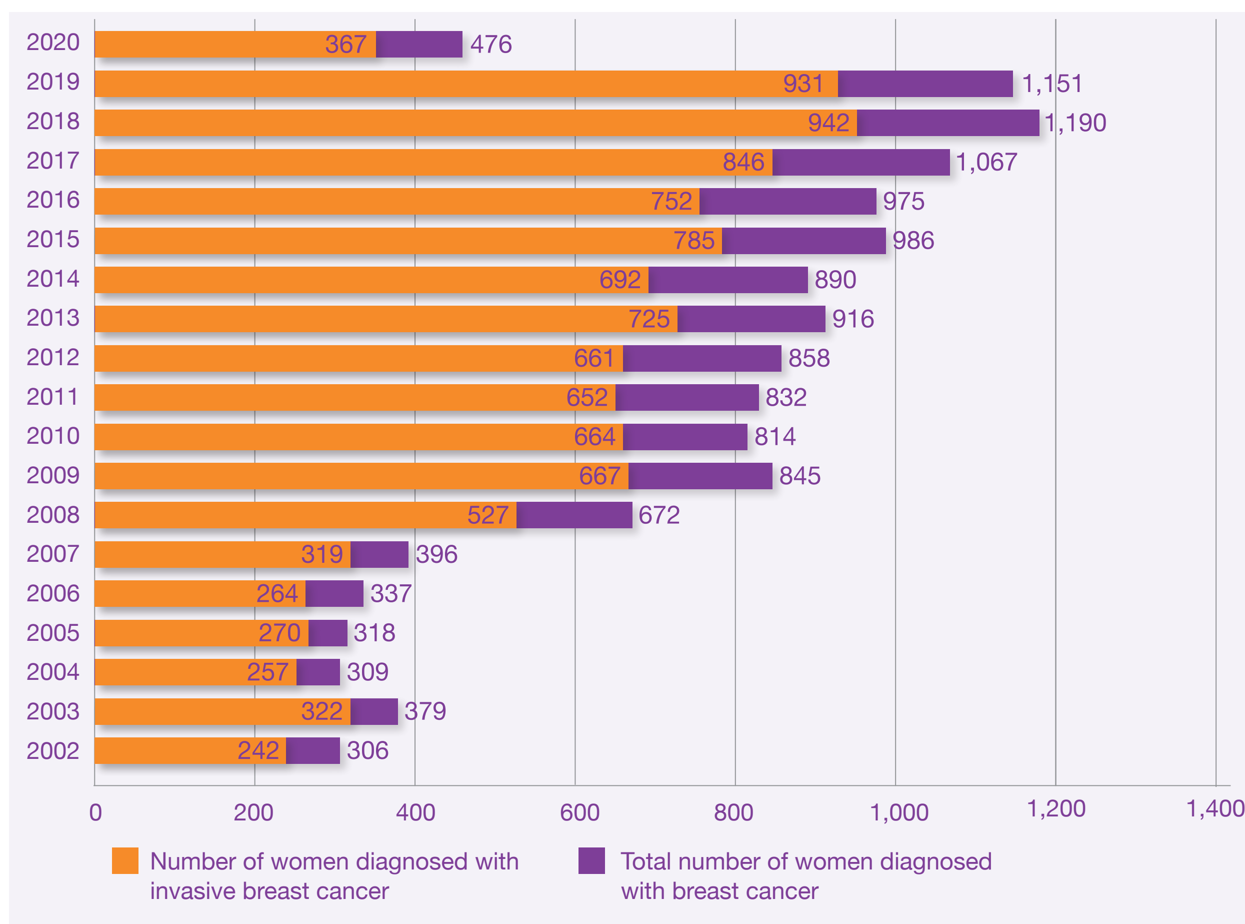
Performance parameter	Age group				
	50-54	55-59	60-64	65+	Total
Number of women invited	8,708	14,741	16,139	16,797	56,385
Number of ineligible women*	37	77	86	498	698
Number of eligible women invited	8,585	14,513	15,967	16,592	55,657
Number of women screened	6,710	13,061	14,312	14,530	48,613
Eligible women uptake rate (including women who opted not to consent)	78.2%	90.0%	89.6%	87.6%	87.3%

* *Identified as ineligible in previous round of screening or in this round, but remain in the target population*

Cancers detected

Of those women invited in 2020 for either the first or a subsequent time, 476 were diagnosed with a cancer, of which 367 were invasive (Figure 3). These numbers are much reduced compared to other years due to programme suspension however the rates of cancers detected amongst screened women remains stable.

Figure 3: Number of women diagnosed with breast cancer overall and the proportion with an invasive breast cancer 2002-2020



Screening quality

Programme standards for screening quality are based on the *European Guidelines for Quality Assurance in Breast Cancer Screening and Diagnosis*[2] and the BreastCheck *Guidelines for Quality Assurance in Mammography Screening*[3] which govern aspects of the screening process as well as diagnosis, pathology and surgery.

Among women screened for the first time, the re-call rate remains above the standard at 10.6 per cent and is similar to 2019 (10.3 per cent). The benign open biopsy rate is above the programme standard for women being screened for the first time at 4.34 (standard is less than 3.6 per 1,000 women screened). The invasive cancer detection rates for women aged 50 to 51 years, and 52 to 64 years, are well above the required standards. Over 40 per cent of all invasive cancers detected in this first screened group are small (less than 15mm). The percentage of ductal carcinoma in situ (DCIS) as a proportion of all cancers among women screened for the first time has decreased slightly since 2019 (25.1 per cent), and at 23.1 per cent is outside the expected range of 10 to 20 per cent of cancers detected (Table 6).

Table 6: Screening quality: first screen

Performance parameter	2020	Standard
Number of women screened for first time	9,217	
Number of women re-called for assessment	976	
Re-call rate	10.6%	<7%
Number of benign open biopsies	40	
Benign open biopsy rate per 1,000 women screened	4.34	<3.6
Number of women diagnosed with cancer	91	
Cancer detection rate per 1,000 women screened	9.87	>7
Number of women with ductal carcinoma in situ (DCIS)	21	
Pure DCIS detection rate per 1,000 women screened	2.28	
Women diagnosed with DCIS as % of all women diagnosed with cancer*	23.1%	10-20%
Number of women diagnosed with invasive cancer	70	
Invasive cancer detection rate per 1,000 women screened	7.59	
Invasive cancer detection rate per 1,000 women screened for women aged 50-51	7.06	>2.9
Invasive cancer detection rate per 1,000 women screened for women aged 52-64	10.65	>5.2
Number of women with invasive cancers <15 mm	29	
Women with invasive cancers <15 mm as % of all women with invasive cancers	41.4%	≥40
Standardised detection ratio (SDR)^	1.65	>0.75

** See Table 8 for details of DCIS grade*

^Calculated for 50-64 years

Among women attending for subsequent screening, the re-call rate is lower at 3.5 per cent, which is as expected (Table 7). Almost 50 per cent of invasive cancers detected amongst these women are less than 15mm. The percentage of ductal carcinoma in situ (DCIS) as a proportion of all cancers among women attending for subsequent screening is outside the standard and has increased since 2019 (17.6 per cent). The rate of benign open biopsy is within the programme standards for women at subsequent screening. The SDR is above the expected standard for both first screening and subsequent screening (Table 6 and Table 7).

Table 7: Screening quality: Subsequent screen

Performance parameter	2020	Standard
Number of women returning for subsequent screen	48,619	
Number of women re-called for assessment	1,696	
Re-call rate	3.5%	<5%
Number of benign open biopsies	41	
Benign open biopsy rate per 1,000 women screened	0.84	<2
Number of women diagnosed with cancer	385	
Cancer detection rate per 1,000 women screened	7.92	≥3.5
Number of women with ductal carcinoma in situ (DCIS)	88	
Pure DCIS detection rate per 1,000 women screened	1.81	
Women diagnosed with DCIS as % of all women diagnosed with cancer*	22.9	10-20
Number of women diagnosed with invasive cancer	297	
Invasive cancer detection rate per 1,000 women screened	6.11	
Number of women with invasive cancers <15mm	148	
Women with invasive cancers <15 mm as % of all women with invasive cancers	49.8	≥40
Standardised detection ratio^	1.38	>0.75

** See Table 8 for details of DCIS grade*

^Calculated for 50-64 years

Ductal carcinoma in situ (DCIS)

DCIS is an early form of breast cancer where the cancer cells are inside the milk ducts and have not spread within or outside the breast. DCIS can also be described as pre-cancerous, pre-invasive, non-invasive or intraductal. If DCIS is not treated, the cells may spread from the ducts into the surrounding breast tissue and become an invasive cancer (one that can spread to other parts of the body). DCIS can be low, intermediate or high grade. It is thought that low grade DCIS is less likely to become an invasive cancer than high-grade DCIS.

In women screened both for the first time and for a subsequent time, the proportion of low grade DCIS represented just 9.2 per cent of all DCIS detected (Table 8). This corresponds to 22.9 per cent of total cancers detected, or 1.9 per 1,000 women screened. Evidence has shown that many intermediate and high grade DCIS may progress to invasive cancers over time if left untreated; these represent the majority of DCIS detected by BreastCheck.

However, not every woman with DCIS will develop an invasive cancer, even if it is not treated. But it is impossible to tell which DCIS will develop into invasive cancer and which will not. As a result, some women will get treatment for a DCIS that would never have become an invasive cancer.

Table 8: Grade of DCIS 2020

Tumour Grade	First screen	Subsequent screen	Total
Low	2 (9.5%)	8 (9.1%)	10 (9.2%)
Intermediate	2 (9.5%)	20 (22.7%)	22 (20.2%)
High	17 (81.0%)	55 (62.5%)	72 (66.1%)
Not assessable	0 (0.0%)	5 (5.7%)	5 (4.6%)
Total	21	88	109

Screening outcome by age group

In women screened both for the first time and for a subsequent time, the overall cancer detection rate generally rises with increasing age, reflecting the fact that increasing age is an important risk factor for breast cancer. However, the very small number of women over 60 screened for the first time distorts rates in the older age groups (Tables 9 & 10).

Benign open biopsy is a surgical procedure for a non-cancerous lesion. The benign open biopsy rates are highest among women screened for the first time (Table 9).

Table 9: Screening outcome: First screen by age group 2020

Performance parameter	Age group				
	50-54	55-59	60-64	65+	Total
Number of women screened	8,463	460	160	123	9,206
Percentage of women re-called for assessment	10.6	10.9	8.8	13.0	10.6
Benign open biopsy rate per 1,000 women screened	4.14	6.52	6.25	8.13	4.34
Overall cancer detection rate per 1,000 women screened	9.57	19.57	0.00	8.13	9.88

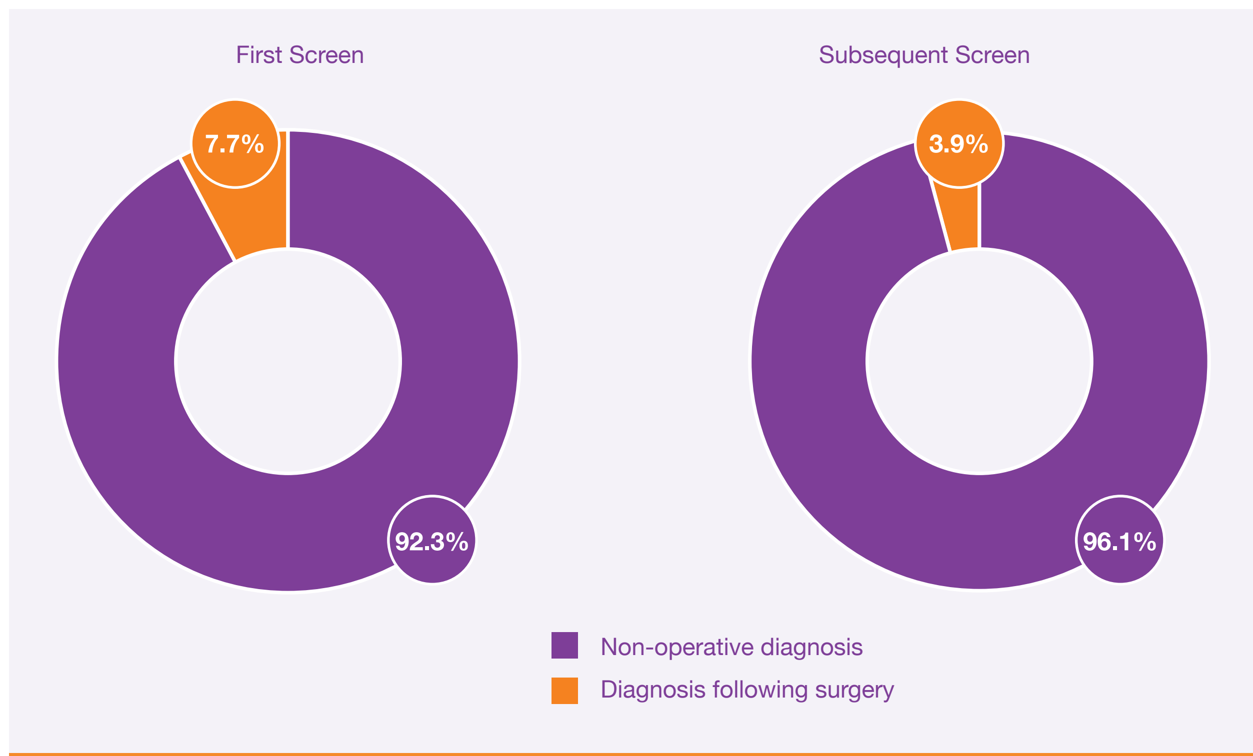
Table 10: Screening Outcome: Subsequent screen by age group 2020

Performance parameter	Age group				
	50-54	55-59	60-64	65+	Total
Number of women screened	6,710	13,061	14,312	14,530	48,613
Percentage of women re-called for assessment	4.2	3.6	3.1	3.4	3.5
Benign open biopsy rate per 1,000 women screened	0.89	1.23	0.91	0.41	0.84
Overall cancer detection rate per 1,000 women screened	5.66	6.58	7.90	10.19	7.92

Cancers with non-operative diagnosis 2020

Over 92 per cent of first screened women, and 96 per cent of subsequently screened women with cancer, were diagnosed by radiologists at the assessment clinic prior to any surgery (Figure 4). This is well above the standard of greater than or equal to 70 per cent. A non-operative diagnosis means that a woman will know her diagnosis prior to any surgical intervention and can plan her surgical treatment in advance with the breast cancer surgeon. This has been an important feature of BreastCheck since its inception, highlighting the quality and expertise of both the radiology and pathology functions of the programme.

Figure 4: Cancers with non-operative diagnosis 2020



Interval cancers

Interval cancers are a feature of every cancer screening programme and arise in the interval following a negative screen. Although programmes seek to minimise interval cancers they cannot be entirely avoided. Due to the time that must be allowed for interval cancers to be diagnosed (two years) and validated there is always a lag period in reporting interval cancers. The interval cancer rates presented in this report relate to women screened in the period 2008 to 2016. Internationally there are benchmarks to measure acceptable rates of interval cancers.

Internationally accepted rates

Interval cancers can be looked at in two ways.

1. As a rate per 10,000 screen-negative women

   Rates are reported as 12 month and 24-month interval cancer rates of the programme, per 10,000 women with a negative screening outcome.

   For BreastCheck the standards are:

   Year 1 <7.5 per 10,000 women screened

   Year 2 <12.5 per 10,000 women screened

2. As a proportion of the underlying (expected) breast cancer incidence rate if there were no screening programmes. The international standards are as follows:

   Year 1 <30% is desirable

   Year 2 <50% is desirable[4,5]

For all years reported the interval cancer rates are within international standards.

Figure 5: Interval Cancers 2008 – 2016: Interval cancer rates per 10,000 women screened

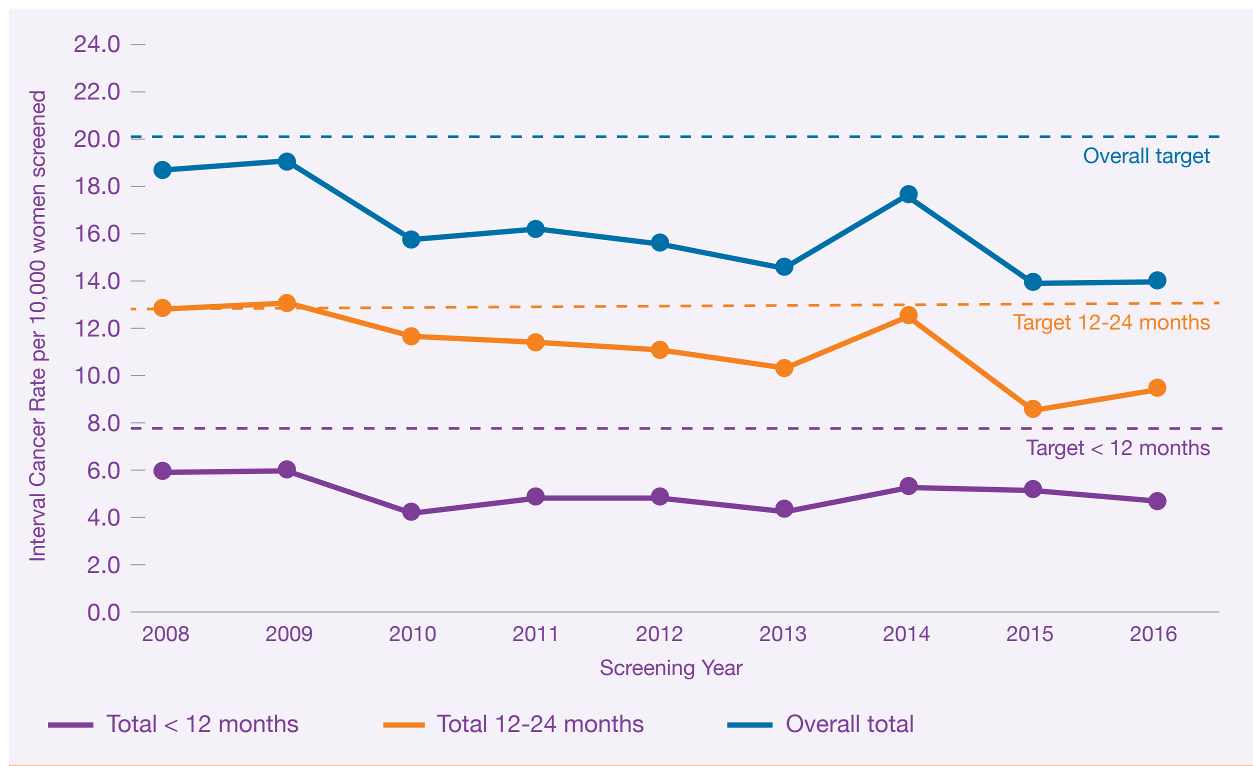
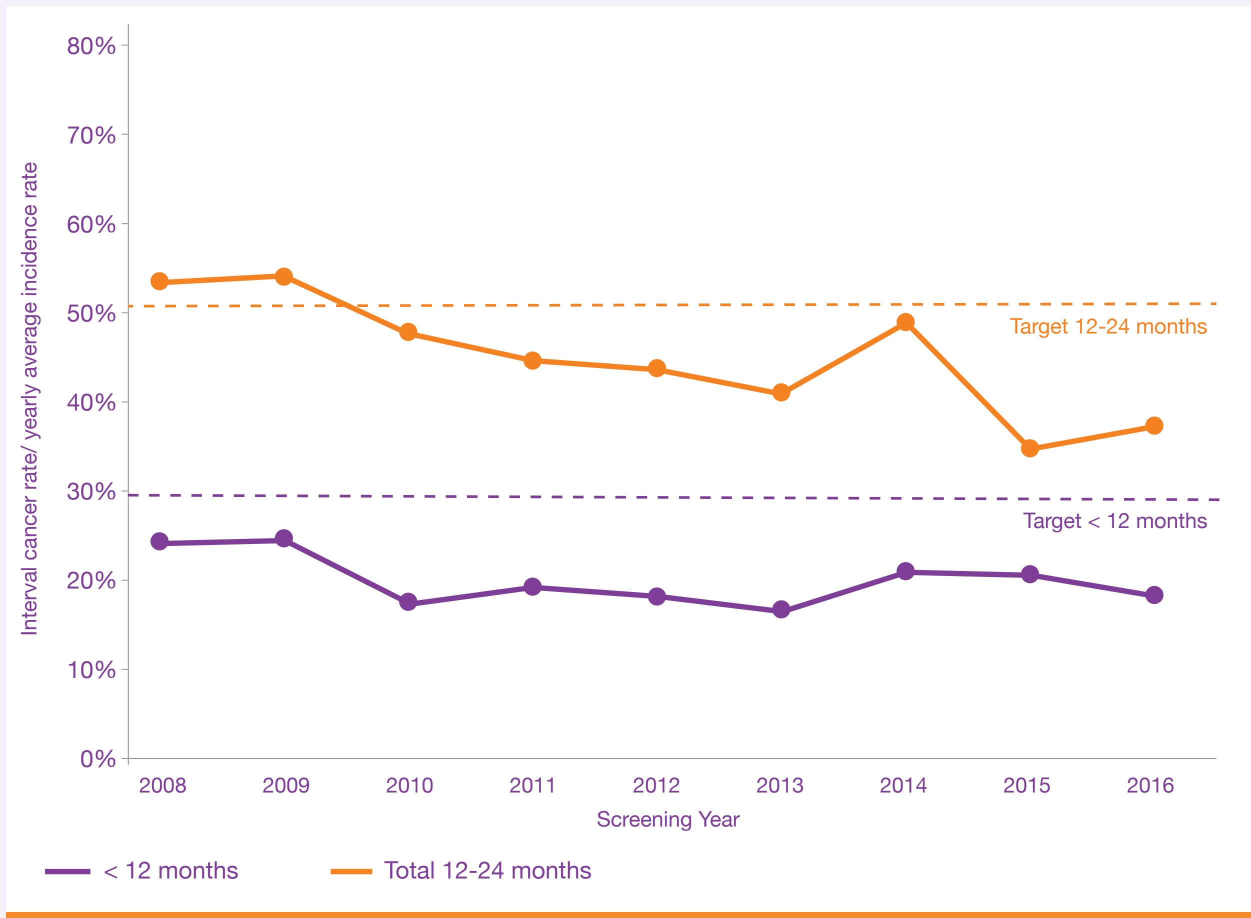


Figure 6: Interval Cancers 2008 – 2016: Interval cancer rates as % of underlying breast cancer incidence



BreastCheck Women's Charter

BreastCheck seeks to achieve or surpass all standards outlined in the programme's Women's Charter, which is underpinned by the Guidelines for Quality Assurance in Mammography Screening.[3] The programme performed well against the majority of commitments identified in the Charter during 2020.

Most women received seven days' notice of an appointment and received their mammogram results within three weeks. Over ninety per cent of women re-called for assessment following a screening mammogram were offered an assessment appointment within two weeks of an abnormal mammogram result (Table 11). The percentage of women with cancer offered hospital admission within three weeks of diagnosis has risen in recent years, and is now above the standard of 90 per cent.

The impact of the COVID-19 pandemic and resulting pausing of the programme has impacted invitations to the programme, with the percentage of women re-invited within 24 months of invitation at previous rounds at 33.5 per cent, which has decreased from 2019 (51 per cent), and remains below the programme target of 90 per cent. However, over 71.2 per cent of women (91 per cent in 2019) were re-invited for screening within 27 months of invitation at previous round. The proportion of eligible women invited for screening within two years of becoming known to the programme is 83.1 per cent (82 per cent in 2019) and is below the programme standard.

Table 11: BreastCheck Women's Charter parameters

Performance parameter	2020	Women's Charter Standard
Women who received seven days' notice of appointment	97.5%	≥90%
Women who were sent results of mammogram within three weeks	99.2%	≥90%
Women offered an appointment for assessment clinic within two weeks of notification of abnormal mammographic result	90.3%	≥90%
Women given results from assessment clinic within one week	89.0%	≥90%
Women offered hospital admission for treatment within three weeks of diagnosis of breast cancer	93.5%	≥90%
Women re-invited for screening within 24 months of invitation at previous round	33.5%	≥90%
Women re-invited for screening within 27 months of invitation at previous round	71.2%	
Women eligible for screening invited for screening within two years of becoming known to the programme	83.1%	≥90%
Women eligible for screening invited for screening within 27 months of becoming known to the programme	92.9%	

References

1. *Cancer Trends. 38. Breast, cervical and colorectal cancer 1994-2019*; National Cancer Registry Ireland, 2022. https://www.ncri.ie/sites/ncri/files/pubs/Trendsreport_breast_cervical_colorectal_22092022.pdf (ncri.ie)
2. *European Guidelines for Quality Assurance in Breast Cancer Screening and Diagnosis,* Fourth Edition, European Commission, Belgium; 2006
3. *Guidelines for Quality Assurance in Mammography Screening,* Fourth Edition, BreastCheck, Dublin; 2015
4. *EUREF, the European Reference Organisation for Quality Assured Breast Screening and Diagnostic Services.* Available from: https://www.euref.org
5. For 2013 to 2016, background incidence rate = 25.15 (based on 2005 & 2006 yearly average for South and West areas). Personal communication NCRI.

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