BreastCheck Statistical Report 2022

An tSeirbhís Náisiúnta Scagthástála
National Screening Service

BreastCheck
An Clár Náisiúnta Scagthástála Cíoch
The National Breast Screening Programme

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 them
- Your screening records will be treated in the strictest confidence and you will be assured of privacy during your appointment
- Information relevant to your care will be available for relatives and friends 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 7 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 staff and 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 Cioch
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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Key Results of 2022

155,916

number of women attended for screening

1,458

number of cancers detected

8,284

number of women re-called for assessment

99.3%

results of mammograms sent within three weeks

69%

hospital admission offered within three weeks of breast cancer diagnosis

9.4

cancers detected per 1,000 women screened

Statistical Report

Background

This report outlines the performance of BreastCheck in 2022. As with the 2021 statistical report, this report reflects the ongoing impact of the COVID-19 pandemic on breast screening and on programme performance[1]. Many of the measures taken by the programme in 2020 and 2021 to mitigate the impact of COVID-19, and to ensure optimum performance and efficiencies, continued into 2022. These measures are outlined in the 2021 statistical report[1] and have recently been published in academic press[2].

COVID-19 continued to impact healthcare services in 2022 and so caution is advised when comparing BreastCheck performance data with pre-COVID years. BreastCheck had not yet returned to its normal two-year screening intervals; however, almost all key performance indicators (KPIs) show improvements in comparison with 2021. Women's Charter targets regarding the proportion of women re-invited within two years of a previous screen, and women invited within two years of becoming known to the programme fell outside standards. Despite these challenges, most of our KPIs pertaining to individual cancer detection, diagnosis and treatment were within programme standards. The cancer detection rate is higher than in pre-COVID years.

Due to COVID-19, there was an extended interval between screening tests. As expected, this increased the number of women coming for assessments and the number of cancers detected, with resulting pressures on access to theatres and beds in host hospitals.

Screening activity overall

The figures reported relate to women invited to BreastCheck for screening between 01 January and 31 December 2022. Women invited in 2022 were screened or treated in 2022 and/or early 2023.

Programme standards, against which performance is measured, are based on the *European Guidelines for Quality Assurance in Breast Cancer Screening and Diagnosis*[3] and the *BreastCheck Guidelines for Quality Assurance in Mammography Screening*[4].

The number of women invited to BreastCheck in 2022 was 226,553 (Table 1, Figure 1). Of these, 221,637 were eligible for screening and 155,916 women attended for screening giving an uptake rate of 70.3 per cent, which is within the programme standard of 70 per cent.

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 2022 was 1.58, surpassing the target of 0.75. This reflects the continued high achievement in programme performance (Table 1).

Table 1: Screening activity overall 2022

Performance parameter	2022
Number of women invited	226,553
Number of eligible women invited*	221,637
Number of women who opted out of the programme	127
Number of women attended for screening	155,916
Eligible women uptake rate* (includes women who opted out of the programme)	70.3%
Number of women re-called for assessment	8,284
Number of open benign biopsies	278
Number of cancers detected	1,458
Cancers detected per 1,000 women screened	9.4
Number of invasive cancers	1,122
Number of ductal carcinoma in situ (DCIS)	336
Number; rate of invasive cancers < 15mm as % of invasive cancers detected	541; 48.2%
Number; rate of Invasive cancers ≤10mm as % of invasive cancers detected[5]	337; 30.0%
Number; rate of Invasive cancers > 20mm as % of all women screened[5]	288; 0.18%
Standardised detection ratio (SDR)^	1.58

* *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

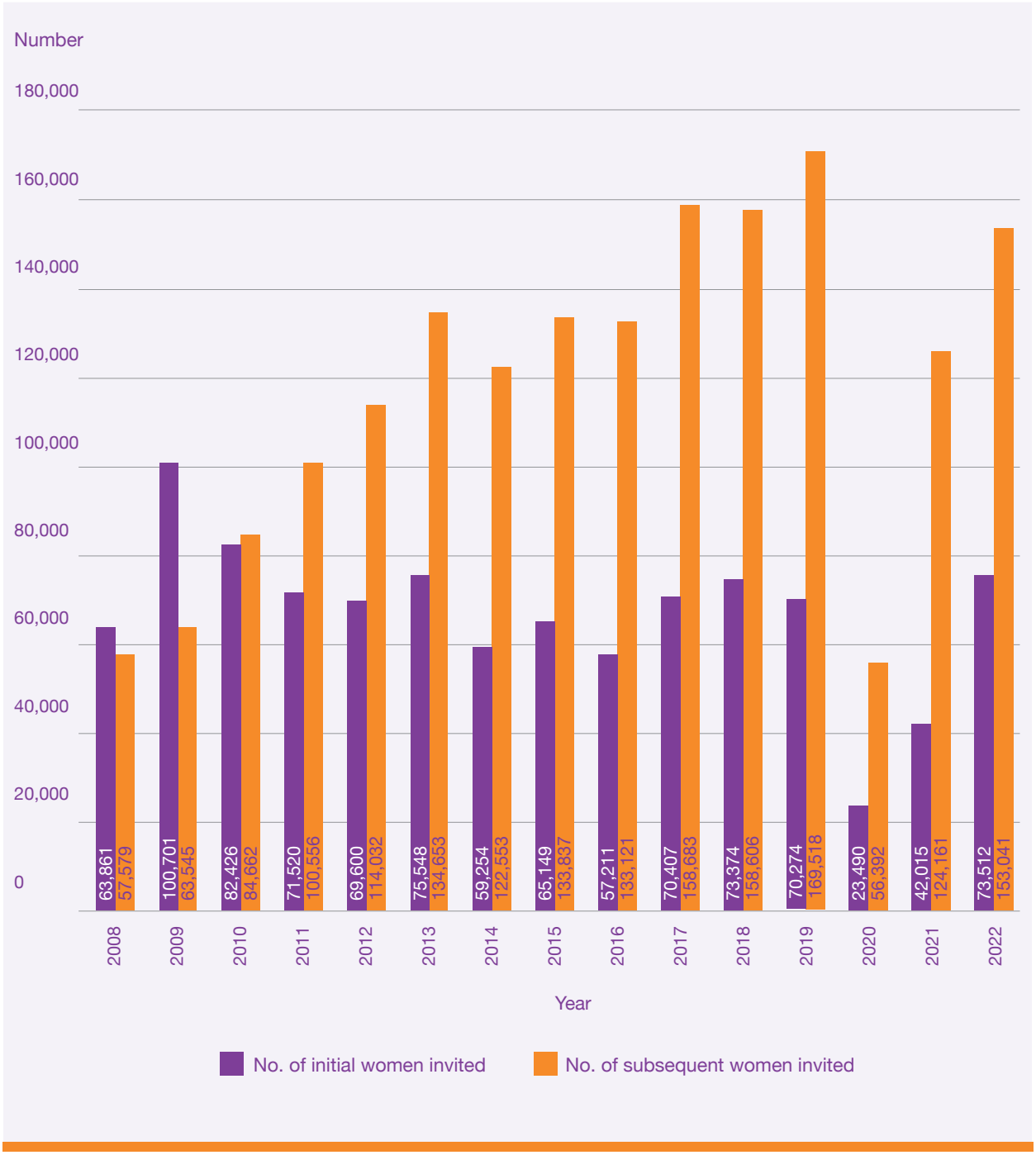
Excluded – Women in follow-up care for breast cancer; women who are not contactable by post; women who have a physical/mental disability that precludes screening, despite BreastCheck attempts to screen all eligible women with a terminal illness; or other reasons.

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 (X-ray of the breast). Subsequent women are women who have previously attended BreastCheck and are being invited for the second or subsequent time. Figure 1 shows the numbers of initial and subsequent women invited since BreastCheck became a national programme in 2008. In 2022, the number of both initial and subsequent women being invited increased from the previous year, as we continued to return to normal invitation rates post-COVID-19 (Figure 1).

Figure 1: Numbers invited 2008-2022 – initial and subsequent women



In 2022 the eligible uptake rate for those invited for the first time was 68.8 per cent. This rate is similar to the 68.4 per cent in 2021 and 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). The uptake rate among PNAs is consistently low (7 per cent), and 2022 is no exception. This figure has decreased from 9.8 per cent in 2021. This is attributed to persistent non-attendance by some women who neither attend nor opt out of the programme, and so continue to be invited to have their first BreastCheck mammogram.

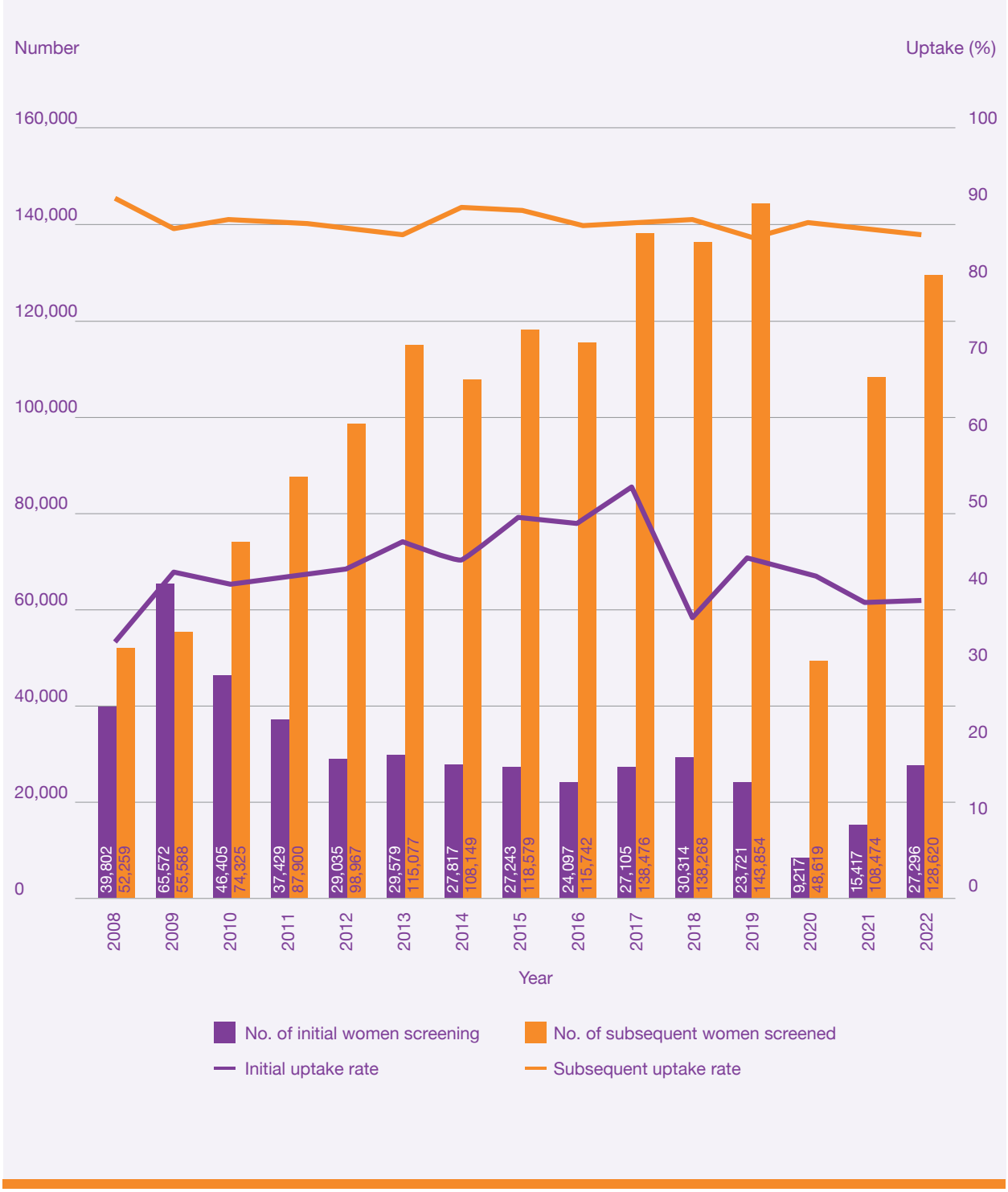
The uptake rates among those women who have previously attended and are re-invited for subsequent screening (85.6 per cent) is similar to 2021 (86.5 per cent).

Table 2: Screening activity by screening invitation type 2022

Performance parameter	First invited population	Previous nonattenders	Subsequent population
Number of women invited	38,183	35,329	153,041
Number of eligible women invited	36,097	35,329	150,211
Number of women screened	24,836	2,460	128,620
Eligible women uptake rate (including women who opted out of the programme)	68.8%	7.0%	85.6%

Figure 2 shows the screening and uptake rates 2008-2022 for initial and subsequent women. The number of initial and subsequent women screened has increased compared to the previous year as COVID-19 restrictions continued to ease.

Figure 2: Numbers screened 2008-2022 – 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). This finding has been a feature of the programme since its inception.

Table 3: First invited population 2022

Performance parameter	Age group				
	50-54	55-59	60-64	65-69	Total
Number of women invited	33,657	2,081	1,456	948	38,142
Number of eligible women invited	32,170	1,798	1,256	835	36,059
Number of women screened	23,342	863	373	235	24,813
Eligible women uptake rate (including women who opted out of the programme)	72.6%	48.0%	29.7%	28.1%	68.8%

The uptake rate among previous non-attenders decreases markedly with age, reflecting not only a difference due to age but also the effect of previous non-attenders in the calculation of rates in the older age groups (Table 4). Additionally, changes to scheduling for previous non-attenders resulted in lower uptake.

Table 4: Previous non-attenders population 2022

Performance parameter	Age group				
	50-54	55-59	60-64	65-69	Total
Number of previous non-attenders invited	6,459	13,133	9,249	6,484	35,325
Number of women screened	1,202	933	228	95	2,458
Eligible women uptake rate (including women who opted out of the programme)	18.6%	7.1%	2.5%	1.5%	7.0%

Among those invited for subsequent screening, there are continuing high uptake rates in all age groups (Table 5).

Table 5: Subsequent invited population 2022

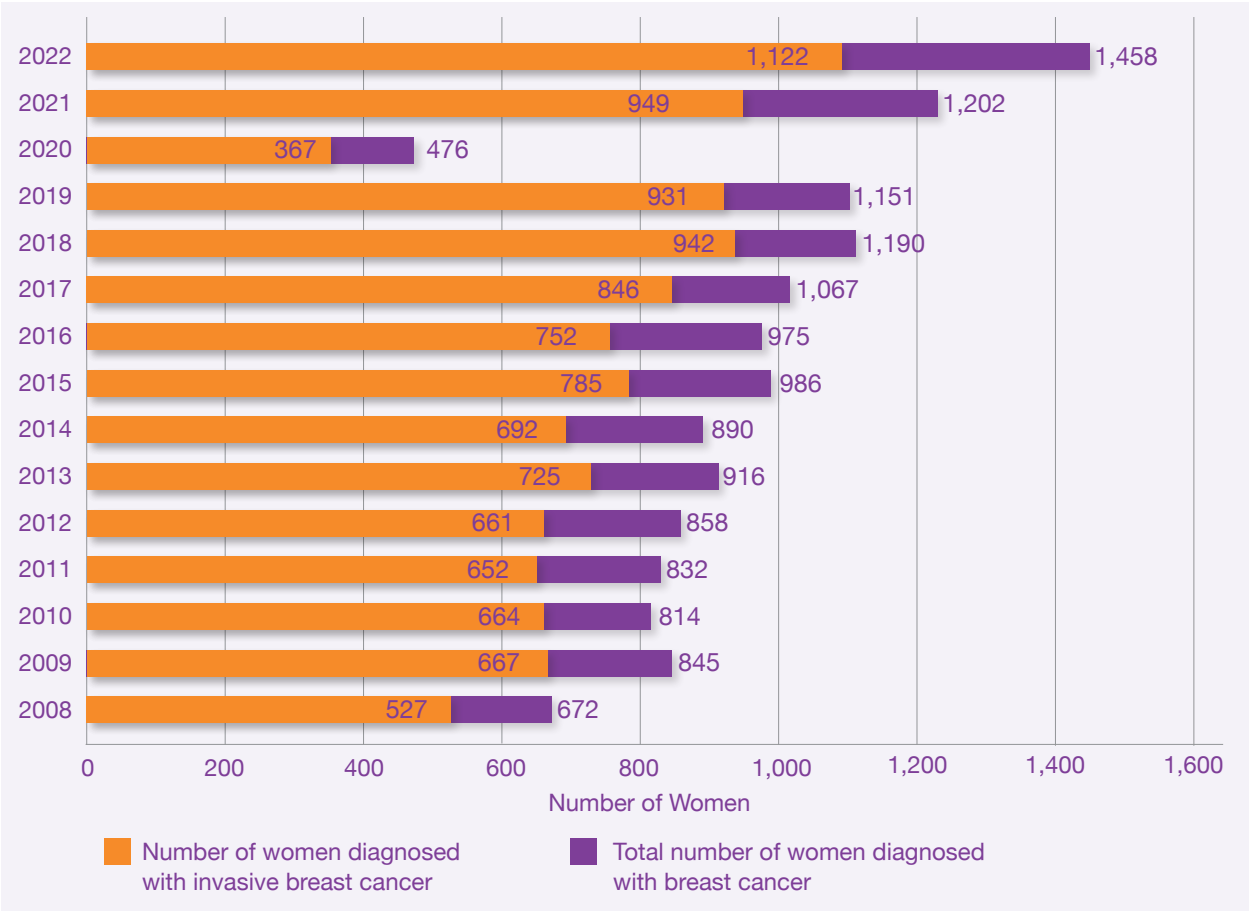
Performance parameter	Age group				
	50-54	55-59	60-64	65-69	Total
Number of women invited	12,427	46,658	44,219	49,726	153,030
Number of eligible women invited	12,161	45,782	43,513	48,744	150,200
Number of women screened	10,949	40,080	36,768	40,812	128,609
Eligible women acceptance rate (including women who opted out of the programme)	90.0%	87.5%	84.5%	83.7%	85.6%

Cancers detected

Of the women invited in 2022 and screened for either the first or a subsequent time, 1,458 were diagnosed with a cancer, of which 1,122 were invasive (Figure 3). This was the highest number of cancers diagnosed in a single year since the start of the programme in 2008. This likely reflects the impact of COVID-19 pauses which led to many women being offered an appointment within a three-year period, rather than a two-year period.

The high number of cancers detected led to further challenges along the screening pathway including increased demands for diagnostic and surgical interventions.

Figure 3: Number of women diagnosed with breast cancer overall and the proportion with an invasive breast cancer 2008-2022



Screening quality

Programme standards for screening quality are based on the *European Guidelines for Quality Assurance in Breast Cancer Screening and Diagnosis*[3] and the *BreastCheck Guidelines for Quality Assurance in Mammography Screening*[4] which govern aspects of the screening process as well as diagnosis, pathology and surgery.

Women invited in 2022 had to wait longer for an invitation due to the impact of COVID-19 with many women waiting up to three years for an appointment rather than the usual two years. This impacts the programme KPIs. Among women screened for the first time, the re-call rate remains above the standard at 11.5 per cent. The benign open biopsy rate for these women is above the programme standard at 4.9 (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 above the required standards. Over 47 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 at 28.1 per cent is outside the expected range of 10 to 20 per cent of cancers detected. The SDR is above the expected standard for first screening (Table 6).

Table 6: Screening quality: first screen

Performance parameter	2022	Standard
Number of women screened for first time	27,296	
Number of women re-called for assessment	3,141	
Re-call rate	11.5%	<7%
Number of benign open biopsies	135	
Benign open biopsy rate per 1,000 women screened	4.9	<3.6
Number of women diagnosed with cancer	303	
Cancer detection rate per 1,000 women screened	11.1	> 7
Number of women with ductal carcinoma in situ (DCIS)	85	
Pure DCIS detection rate per 1,000 women screened	3.11	
Women diagnosed with DCIS as % of all women diagnosed with cancer*	28.1%	10-20%
Number of women diagnosed with invasive cancer	218	
Invasive cancer detection rate per 1,000 women screened	7.99	
Invasive cancer detection rate per 1,000 women screened for women aged 50-51	6.33	>2.9
Invasive cancer detection rate per 1,000 women screened for women aged 52-64	8.54	>5.2
Number; rate of Invasive cancers <15mm as % of invasive cancers detected	103; 47.2%	≥40%
Number; rate of Invasive cancers ≤10mm as % of invasive cancers detected[5]	57; 26.1%	≥20%
Number; rate of Invasive cancers > 20mm as % of all women screened[5]	66; 0.24%	
Standardised detection ratio (SDR)^	1.56	0.75

* *See Table 8 for details of DCIS grade*

^ *Calculated for 50-64 years*

Among women attending for subsequent screening, the recall rate is lower at 4 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 at 21.7 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 subsequent screening (Table 7).

Table 7: Screening quality: Subsequent screen

Performance parameter	2022	Standard
Number of women returning for subsequent screen	128,620	
Number of women re-called for assessment	5,143	
Re-call rate	4.0%	<5%
Number of benign open biopsies	143	
Benign open biopsy rate per 1,000 women screened	1.1	<2
Number of women diagnosed with cancer	1,155	
Cancer detection rate per 1,000 women screened	9.0	≥3.5
Number of women with ductal carcinoma in situ (DCIS)	251	
Pure DCIS detection rate per 1,000 women screened	1.95	
Women diagnosed with DCIS as % of all women diagnosed with cancer*	21.7%	10-20%
Number of women diagnosed with invasive cancer	904	
Invasive cancer detection rate per 1,000 women screened	7.03	
Number; rate of Invasive cancers <15mm as % of invasive cancers detected	438; 48.5%	≥40%
Number; rate of Invasive cancers ≤10mm as % of invasive cancers detected[5]	280; 31.0%	≥25%
Number; rate of Invasive cancers > 20mm as % of all women screened[5]	222; 0.17%	
Standardised detection ratio (SDR)^	1.59	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.

Not every woman with DCIS will develop an invasive cancer. It is not possible to safely indicate in advance which DCIS will develop into an invasive cancer. As a result, some women will get treatment for a DCIS that would never have become an invasive cancer.

Evidence has shown that intermediate and high-grade DCIS are more likely to progress to invasive cancers if left untreated. The majority of DCIS detected by BreastCheck are in these categories.

The total DCIS diagnosed in 2022 accounted for 23 per cent of total cancers detected, or 2.2 per 1,000 women screened. Low-grade DCIS, which is the category least likely to develop into an invasive cancer, represents 14 per cent of the total DCIS diagnosed in 2022 (Table 8).

Table 8: Grade of DCIS 2022

Tumour Grade	First screen	Subsequent screen	Total
Low N (%)	20 (24.4%)	27 (10.8%)	47 (14.0%)
Intermediate N (%)	23 (28.0%)	62 (24.7%)	85 (25.3%)
High N (%)	39 (47.6%)	155 (61.8%)	194 (57.7%)
Not assessable N (%)	3 (3.7%)	7 (2.8%)	10 (3.0%)
Total (N)	85	251	336

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 age is a significant risk factor for breast cancer. However, the small number of women over 60 screened for the first time distorts rates in the older age groups (Tables 9 & 10).

Benign open biopsy rates are highest among younger women screened for the first time (Table 9).

Table 9: Screening outcome: First screen by age group 2022

Performance parameter	Age group				
	50-54	55-59	60-64	65-69	Total
Number of women screened	24,554	1,796	601	330	27,271
Rate of women re-called for assessment	11.4%	12.9%	12.0%	11.5%	11.5%
Benign open biopsy rate per 1,000 women screened	5.05	4.45	3.33	3.03	4.95
Overall cancer detection rate per 1,000 women screened	10.35	17.26	19.97	15.15	11.1

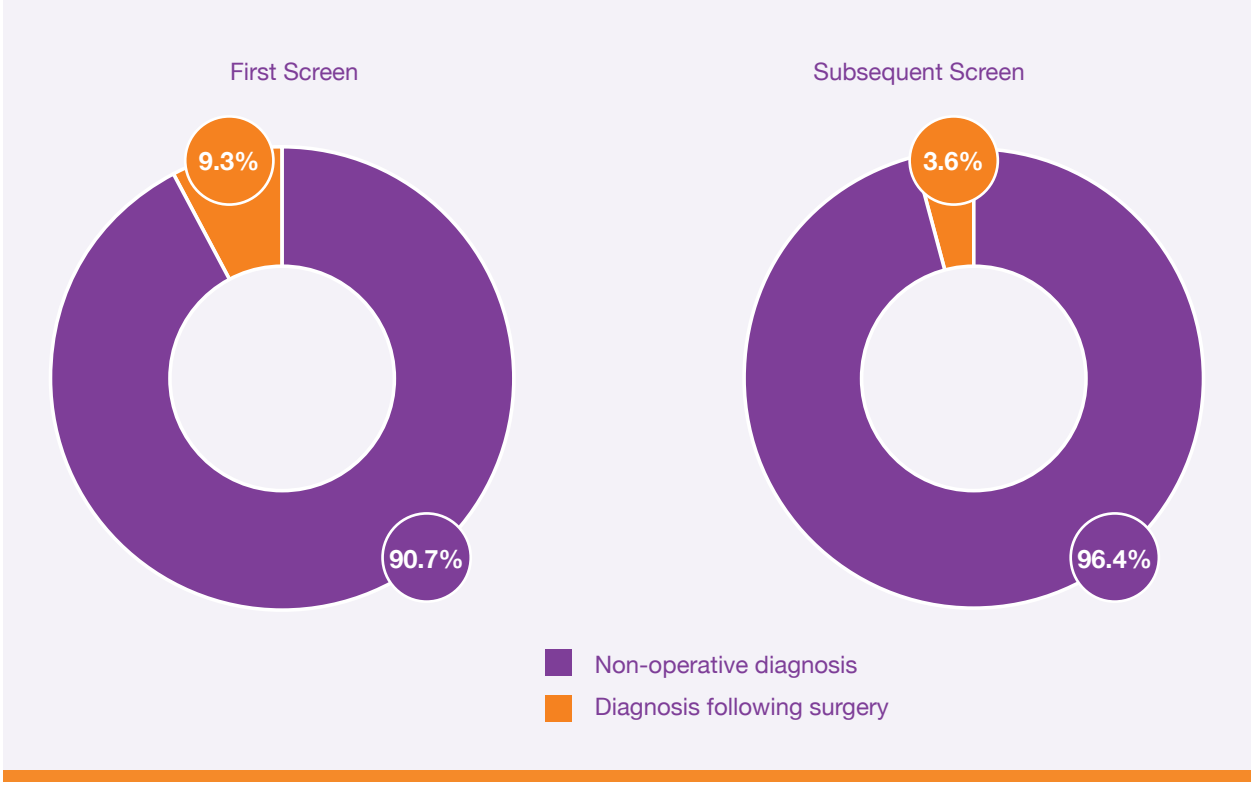
Table 10: Screening outcome: Subsequent screen by age group 2022

Performance parameter	Age group				
	50-54	55-59	60-64	65-69	Total
Number of women screened	10,949	40,080	36,768	40,812	128,609
Rate of women re-called for assessment	4.8%	4.2%	3.5%	3.2%	3.7%
Benign open biopsy rate per 1,000 women screened	1.46	1.17	1.01	0.91	1.1
Overall cancer detection rate per 1,000 women screened	6.30	8.13	8.38	7.96	9.0

Cancers with non-operative diagnosis 2022

Over 90 per cent of first-screened and 96 per cent of subsequently screened women with cancer were diagnosed by core biopsy performed 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.

Figure 4: Cancers with non-operative diagnosis 2022



Interval cancers 2008-2018

Interval cancers are a feature of every cancer screening programme and arise in the interval following a negative screen. Although screening 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 when reporting interval cancer rates. The interval cancer rates presented in this report update this data to include women screened in the period 2017 to 2018. Internationally, there are benchmarks to measure acceptable rates of interval cancers in breast screening.

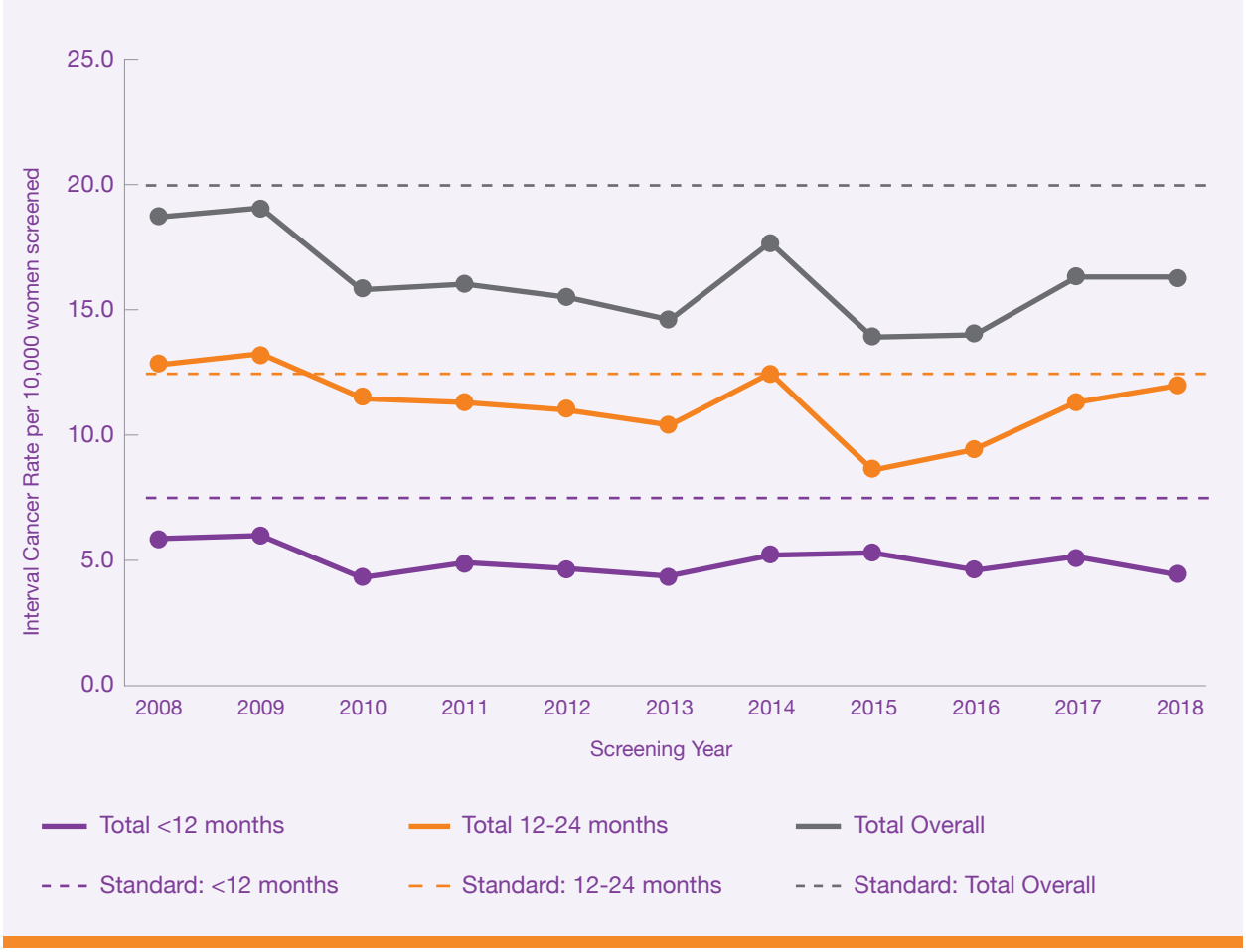
Internationally accepted rates

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

This is shown in Figure 5. For all years reported the overall interval cancer rates are within international standards.

Figure 5: Interval Cancers 2008 – 2018 as a rate per 10,000 screen-negative women



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*.

This is shown in Figure 6. For all years the interval cancer rate within 12 months of previous screening was within international standards. Since 2010 the reported the interval cancer rates between 12 and 24 months from previous screening are within international standards.

Figure 6: Interval Cancers 2008 – 2018: As a proportion of the underlying (expected) breast cancer incidence rate

* *For 2013 to 2016, background incidence rate = 25.15 (based on breast cancer incidence for women aged 50-64 2005 & 2006 yearly average for South and West). Received from NCRI, February 2018*

BreastCheck Women's Charter

We seek to achieve or surpass all standards outlined in our Women's Charter, which is underpinned by the *Guidelines for Quality Assurance in Mammography Screening*[4]. The recovery period from COVID-19 required a phased re-introduction of screening with careful planning of invitations and screening capacity. This meant many women were offered an appointment within a three-year period, rather than a two-year period. Despite these challenges we performed well against many Charter commitments during 2022.

Most women received seven days' notice of an appointment and received their mammogram results within three weeks. Over 77 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).

Almost 70 per cent of women with a cancer diagnosis were offered hospital admission within three weeks of diagnosis. While this is below the standard (90%), the performance reflects the high number of women diagnosed with breast cancer through the screening programme during the period. Access to hospital beds and theatre was challenging in 2022 as the screening programme dealt with the increased case load and additional post-COVID constraints on beds and theatre within the host hospitals.

As detailed above, previous COVID restrictions have resulted in additional women being invited in the reporting period and a temporary longer screening interval. Consequently 8.2 per cent of women were re-invited within two years of their previous round invite, which is below the Charter standard. However, 37.3 per cent were re-invited within three years and over 90 per cent re-invited within 45 months of having been invited in the previous round. The proportion of eligible women invited for screening within two years of becoming known to the programme is 39.4 per cent, which is below the programme standard of ≥90%. However, 76 per cent of women in this category were invited within three years and over 90 per cent invited within 41 months.

Table 11: BreastCheck Women's Charter parameters

Performance parameter	2022	Women's Charter Standard
Women who received seven days' notice of appointment	95.6%	≥90%
Women who were sent results of mammogram within three weeks	99.3%	≥90%
Women offered an appointment for Assessment Clinic within two weeks of notification of abnormal mammographic result	77.9%	≥90%
Women given results from Assessment Clinic within one week	73.7%	≥90%
Women offered hospital admission for treatment within three weeks of diagnosis of breast cancer	69.0%	≥90%
Women re-invited for screening within two years of invitation at previous round	8.2%	≥90%
Women re-invited for screening within three years of invitation at previous round	37.3%	
Eligible women invited for screening within two years of becoming known to the programme	39.4%	≥90%
Eligible women invited for screening within three years of becoming known to the programme	76.1%	

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