

BREASTSCREEN AOTEAROA
INDEPENDENT MONITORING REPORT:

TREATMENT OF WOMEN WITH BSA DETECTED CANCERS
(WOMEN SCREENED JULY 2006-JUNE 2008)

Dr Andrew Page
School of Population Health
University of Queensland

Professor Richard Taylor
School of Public Health and Community Medicine
University of New South Wales

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MEMBERS OF THE BSA ADVISORY GROUP

Pru Wood	BreastCare Nurse
Barbara Holland	Consumer Reference Group Representative
Scott McWilliams	Data Manager
Prof Richard Taylor	Epidemiologist
Dr Mary Obele	GP Representative
Jo Kingi	Health Promoter
Joan Miles	Lead Provider Manager
Jeremy Nicoll	Medical Physicist
Marie-Therese Borland	Medical Radiation Technologist
Dr Juliet Walker	Pacific Representative
Dr Reena Ramsaroop	Pathologist
Dr Glyn Thomas	Radiologist
Mr David Moss	Surgeon
Margreet Simpson	Treatment Data Collector

EXECUTIVE SUMMARY

This report presents cross-sectional data for the 2 year period July 2006 -June 2008 and trend data from programme inception to June 2008 for BreastScreen Aotearoa treatment indicators. Screening and assessment indicators are located in a companion report.¹ BreastScreen Aotearoa (BSA) has offered government funded biennial mammography screening for all NZ women aged 50-64 years since 1999. In July 2004 the target age group was extended to include women aged 45-49 years and 65-69 years. For the period covered in this report data relating to women aged 50-69 years are presented. Trend data for key indicators are presented for women aged 50-64 years, however, a times-series has also been established for this aggregated target age group of women aged 50-69 years in the period following age extension. Some indicators in this report have 'expected' and 'desirable' targets. In the text of this Executive Summary quoted targets relate to 'expected' target values.

Treatment of women with BSA detected cancers is not carried out by BSA Lead Providers. Surgery is performed by 21 District Health Board (DHB) Services and private providers. Oncology services are provided by 6 Cancer Treatment Centres and private providers.

1. Early detection of DCIS or invasive breast cancer

DCIS

The proportion of DCIS of all cancers (invasive and DCIS) for women aged 50-69 years over the biennium was 22.8% (target range 10-25%).

Invasive cancer detection rate

The BSA biennial invasive cancer detection for women aged 50-69 years was 7.2 per 1,000 women screened for initial screens (achieving the target of ≥ 6.1 per 1,000), and 4.2 per 1,000 for subsequent screens (achieving the target of ≥ 3.45 per 1,000). This represented 1,275 invasive cancers detected by BSA for the 2-year period. The overall proportion of node negative cancers (of all invasive cancers) was 72.7% for initial screens and 79.1% for subsequent screens.

For women 50-69 years the overall proportion of screen detected invasive cancers ≤ 10 mm in size for the 2-year period was 27.3% for initial screens and 40.4% for subsequent screens. The corresponding detection rates per 10,000 women screened for invasive cancers ≤ 10 mm were above the target at 19.6 for initial screens (target ≥ 15.2 per 10,000 screens) and 16.9 for subsequent screens (target ≥ 10.45 per 10,000 screens).

For women 50-69 years the overall proportion of screen detected invasive cancers < 15 mm in size for the 2-year period was 41.8% for initial screens and 61.1% for subsequent screens. The corresponding detection rates per 10,000 women screened for invasive cancers < 15 mm were above the target at 30.1 for initial screens (target > 30.5 per 10,000 screens) and 25.5 for subsequent screens (target ≥ 17.3 per 10,000 screens).

2. Treatment

Target values were exceeded for DCIS cases and for invasive cases ≤ 20 mm having breast conserving surgery (BCS). The overall proportion of screen detected DCIS having BCS for women aged 50-69 years was 80.9%, and for invasive cancers having BCS was 74.8%, both of which were greater than the target value of $> 50\%$.

The overall proportion of invasive cancers having a surgical axillary procedure for women aged 50-69 years was 98.2%, which was on target (target value of 95%). The overall proportion of women aged 50-69 years who had surgery for DCIS, who did not have an axillary dissection, was 96.0%, which was also on target (target value $> 95\%$).

The overall proportion of women diagnosed with invasive cancer, who had breast conserving surgery (BCS), and went on to have radiotherapy, was 96.0%, which was on target (target value of $\geq 95\%$).

3. Provision of an appropriate and acceptable service

¹ Page A, Taylor R. BreastScreen Aotearoa: Independent Monitoring Report - Screening and assessment report of women attending BSA (Women screened July 2006 to June 2008). BreastScreen Aotearoa: Wellington 2009.

There is only one indicator in this section of the treatment report. The overall proportion of women receiving first surgical treatment within 20 working days was well below the target value of 90%. The biennial estimate for women 50-69 years was 64.7%. Trend data for this indicator show a continued decrease relative to earlier periods of the programme for all lead providers, with the exception of BSAL, BSM and BSCtoC where an increasing trend is apparent.

4. Specific summary comments for each Lead Provider

For the following summary comments, indicators for each Lead Provider are included where targets were significantly exceeded (given most targets were achieved or exceeded across Lead Providers) and also for targets not achieved. Specifically, indicators are noted if (i) Lead Providers significantly exceeded targets for biennial indicators (i.e. exceeded the target by $\geq 10\%$ and was statistically significant) or (ii) Lead Providers were significantly below target

BreastScreen Waitemata and North

BSWN were either on target or exceeded targets for almost all biennial indicators for women in the target age range of 50-69 years. In particular, BSWN significantly exceeded targets for invasive cancer detection (≤ 10 mm and < 15 mm) in women attending for a subsequent screen, the proportion of node negative cancers for both initial and subsequent screens, and the proportion of women with DCIS or invasive cancers having breast conserving surgery. The target was not achieved for the percentage of women receiving surgical treatment within 20 working days (70.7%, target 90%), continuing a decreasing trend from previous reporting periods.

BreastScreen Counties Manukau

BSCM were either on target or exceeded targets for almost all biennial indicators for women in the target age range of 50-69 years. In particular, BSCM significantly exceeded targets for the percentage of women with invasive cancers having breast conserving surgery. The target was not achieved for the percentage of women receiving surgical treatment within 20 working days (34.1%, target 90%), continuing a decreasing trend from previous reporting periods

BreastScreen Auckland Limited

BSAL were either on target or exceeded targets for almost all biennial indicators for women in the target age range of 50-69 years. In particular, BSAL significantly exceeded targets for invasive cancer detection (≤ 10 mm) for initial screens, and the percentage of women with DCIS or invasive cancers having breast conserving surgery. The target was not achieved for the percentage of women receiving surgical treatment within 20 working days (64.7%, target 90%), and the percentage of women with invasive cancer having breast conserving surgery who had radiotherapy (85.3%, target $\geq 95\%$).

BreastScreen Midland

BSM were either on target or exceeded targets for most biennial indicators for women in the target age range of 50-69 years. In particular, BSM significantly exceeded targets for invasive cancer detection (≤ 10 mm and < 15 mm) in women attending for a subsequent screen and the percentage of women with DCIS or invasive cancers having breast conserving surgery. The target was not achieved for the percentage of women receiving surgical treatment within 20 working days (59.8%, target 90%), and also the proportion of invasive cancer < 15 mm in women attending for an initial screen (21.2%, target $> 50\%$).

BreastScreen Coast to Coast

BSCtoC were either on target or exceeded targets for almost all biennial indicators for women in the target age range of 50-69 years. In particular, BSCtoC exceeded targets for invasive cancer detection (< 15 mm) in women attending for a subsequent screen, and the percentage of women with DCIS or invasive cancers having breast conserving surgery. The target was not achieved for the percentage of women receiving surgical treatment within 20 working days (69.4%, target 90%), and also the proportion of invasive cancer < 15 mm in women attending for an initial screen (28.1%, target $> 50\%$).

BreastScreen Central

BSC were either on target or exceeded targets for almost all biennial indicators for women in the target age range of 50-69 years. In particular, BSC exceeded targets for invasive cancer detection (≤ 10 mm and < 15 mm) in women

attending for a subsequent screen, and the percentage of women with DCIS or invasive cancers having breast conserving surgery. The target was not achieved for the percentage of women receiving surgical treatment within 20 working days (65.2%, target 90%), continuing a decreasing trend from previous reporting periods

BreastScreen South Limited

BSSL were either on target or exceeded targets for almost all biennial indicators for women in the target age range of 50-69 years. In particular, BSSL significantly exceeded targets for invasive cancer detection in women attending for initial screens (invasive cancers ≤ 10 mm) and subsequent screens (invasive cancers ≤ 10 mm and < 15 mm), and the percentage of women with DCIS or invasive cancers having breast conserving surgery. The target was not achieved for the percentage of women receiving surgical treatment within 20 working days (72.6%, target 90%).

BreastScreen Health Care

BSHC were either on target or exceeded targets for most biennial indicators for women in the target age range of 50-69 years. In particular, BSHC significantly exceeded targets for invasive cancer detection (≤ 10 mm) in women attending for a subsequent screen. The target was not achieved for the percentage of women receiving surgical treatment within 20 working days (63.6%, target 90%), continuing a decreasing trend from previous reporting periods

5. Conclusion

Overall, targets for key treatment indicators are being exceeded, or are close to being achieved. There is variation for some indicators across Lead Providers. Areas where target values were not met by BSA in the period covered in this report, and where differences between observed and expected values were of greatest magnitude, included:

- Percentage receiving first surgical treatment within 20 working days (5e)

BSA ADVISORY GROUP COMMENTS AND RECOMMENDATIONS

1. Epidemiologists feedback on initial cancer data

The BSA Advisory group notes the comments on interpretation of the initial cancer detection data contained in the report.

2. Data Completeness

The BSA Advisory group is pleased to note that data completeness is improving.

3. First Surgical Treatment

It is noted that the target for first surgical treatment within 20 days is not being met by any of the Lead Providers.

There has been analysis of Lead Provider feedback of reasons for delays in surgical timeliness for women screened from January 2006 to December 2007. In the majority of cases the reason for delay is the surgery waiting list (52%). Other reasons include: women's choice (13%), reconstructive surgery (10%) and delays in MRI or further imaging (6%).

FOREWORD: BSA MONITORING PROCESS

Data are sent monthly from the eight BreastScreen Aotearoa Lead Providers (LPs) to the Information Directorate of the Ministry of Health. The data are checked by the Information Directorate, amalgamated into a single file, and sent to the National Screening Unit (NSU). The NSU runs further checks and produces performance indicator tables by Lead Provider for the preceding 6 months and preceding 2 years of the reporting period.

The tables are sent to the BSA Independent Monitoring Group (IMG) at the University of Queensland (Australia). The IMG produces an Independent Monitoring Report (IMR) including calculations of confidence intervals (CI's), time trend graphs, an analysis of data against national indicators and targets, explanatory notes and commentary. The IMG can request additional tabulations where it is felt appropriate. The IMG sends the first draft of IMR to NSU for verification and review, after which the IMR is updated.

The updated IMR draft is sent to members of the BSA Advisory Group (AG) prior to a collective meeting, where multidisciplinary and consumer context is added to comments regarding outliers. The draft report is then circulated to LPs for comment and a final version is produced. The NSU publishes the final report on the NSU website.

This BSA Independent Monitoring Report was reviewed by the BSA Advisory Group on 29 April, 2010.

TECHNICAL NOTES FOR INTERPRETING THIS REPORT

Developments in presentation of age extension data

A biennium has elapsed since BSA began collecting data for women aged 45-49 and 65-69 years. Interpreting trends in this report should take into consideration that indicators for a comparable age group are not available for periods prior to Jan 2005-Dec, 2006. Trend data are still presented for women age 50-64 years for the programme from the first reporting period in 2001 to the June 2006, after which time-series data are broken and a new series has been established for women aged 50-69 years.

Changes to BSA Lead Providers

BreastScreen Auckland and North was split into 3 separate Lead Providers during the previous reporting period: BSAL, BSCM, BSWN. The following table provides a listing of Lead Providers clarifying these changes.

Lead Provider	Abbreviation	Inception and period of programme
BreastScreen Auckland and North	BSAN	1999-June 2005
BreastScreen Auckland Limited	BSAL	July, 2005-Present
BreastScreen Counties Manukau	BSCM	October, 2005-Present
BreastScreen Waitemata and North	BSWN	February, 2006-Present
BreastScreen Midland	BSM	1999-Present
BreastScreen Coast to Coast	BSCtoC	1999-Present
BreastScreen Central	BSC	1999-Present
BreastScreen South Limited	BSSL	1999-Present
BreastScreen HealthCare	BSHC	1999-Present

Confidence Intervals (CI's)

95% CI's have been reported for all indicators in this report. From the Central Limit Theorem, the estimate for a particular indicator - for example, invasive cancer detection rate for the 2 year period - is assumed to come from a hypothetical distribution of values for that indicator. The overall average value of this hypothetical distribution is the universal or 'true' invasive cancer detection rate for the population being studied. The 95% confidence interval indicates that there is a 1 in 20 chance that the 'true' population rate (or proportion, or mean) lies outside the range of values contained by the 95% confidence interval. Thus, the wider the 95% confidence interval, the less precise the estimate is to the true population parameter. Additionally, different statistical distributions provide more accurate and appropriate estimations of the 95% confidence intervals, and depend upon the type of indicator being studied, and the frequency of the event. For this report, 95% confidence intervals for rare events occurring in a population have been calculated using the Poisson distribution. For indicators with small numbers where proportions represent cases and non-cases the 95% confidence interval is based on the Exact Binomial distribution.

Differences between observed and target values

Both the magnitude of differences, and their statistical significance, are used to assess the relation of observed to target values.

The magnitude of the difference between the observed value and the target value is important in the interpretation of each indicator. In this report, differences of $\geq 5\%$ in magnitude that are statistically significantly different from the target value, based on 95% confidence intervals, are noted as important differences, and are indicated by '✓✓' if better than the target, or 'xx' if worse than the target. Differences of $\geq 10\%$ that are statistically significant (from the target value) are indicated by '✓✓✓' if better than the target, or 'xxx' if worse than the target. Differences of $<5\%$ in magnitude from the target value and/or differences which are not significantly different from the target value are indicated by '✓' and are considered 'on target'.

For each indicator, differences in magnitude between the observed value and the target value need to be interpreted in the context and meaning of the indicator under investigation. If the standard is 80% then a 10% difference in magnitude would contain values ranging from 72%-88%. If the standard is 10%, then a 10% difference in magnitude would contain values ranging from 9%-11%. As a guide, slight differences can be considered to be of a relative magnitude of 0-5%, moderate differences of 5-9%, and large differences >10%.

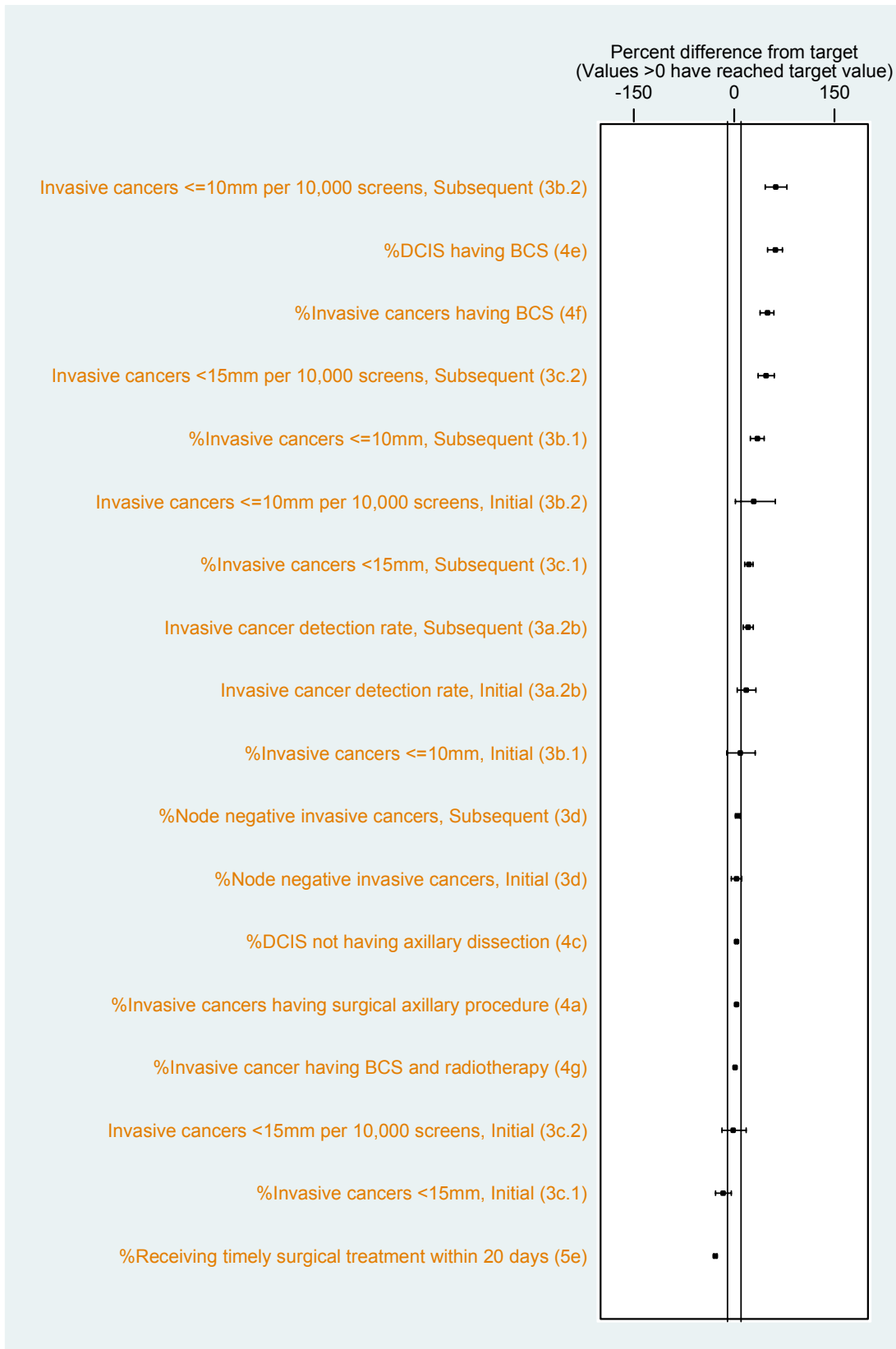
Target values relate only to biennial rates for women in the target age-group (50-69 years) for all indicators.

Initial cancer detection rates

As a mammographic screening program matures the proportion of visits for initial screening diminish and the proportion of subsequent visits increase. During the most recent screening period, for women 50-69 years, the proportion of initial screens are only 12% whereas the subsequent screens are 88% (see 1.a.2 below). As well as a reduction in absolute numbers with maturity (widening 95% CIs of rates), the age profile of women changes from all age groups 50-69 years at the beginning of the program, to mostly younger age groups (new entrants to the program) at maturity. Since the breast cancer incidence rate in younger women is lower than older women, the cancer detection rate from screening will decrease as the age profile of the initial screens becomes younger. The above should be borne in mind when interpreting cancer detection rates from initial screens.

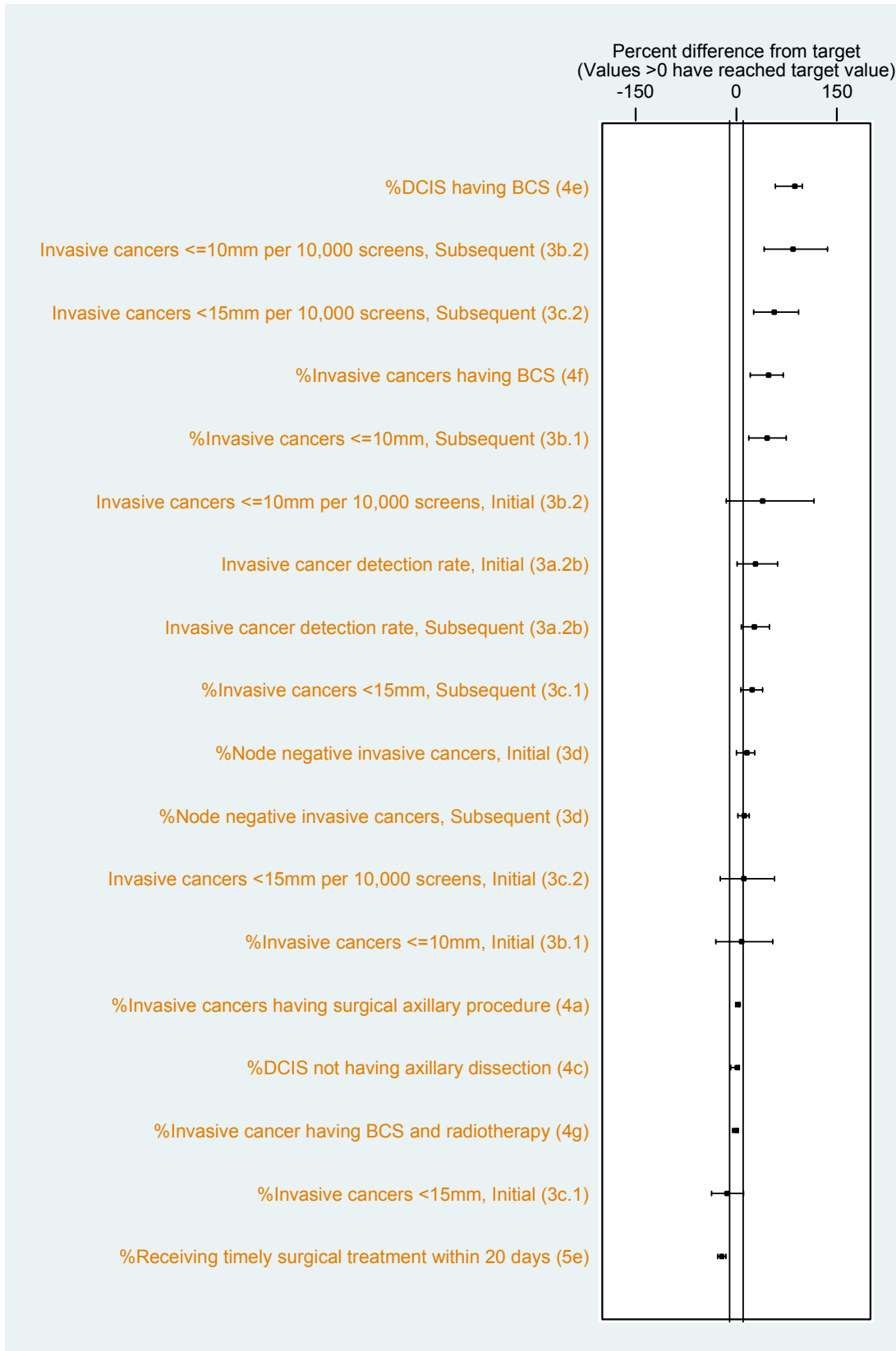
AT A GLANCE: BIENNIAL INDICATORS FOR WOMEN 50-69 YEARS

Figure 1: Biennial indicators ‘on target’, ‘better than target’, or ‘worse than target’ for BSA as measured by percent difference between observed and target value (Table reference in brackets)



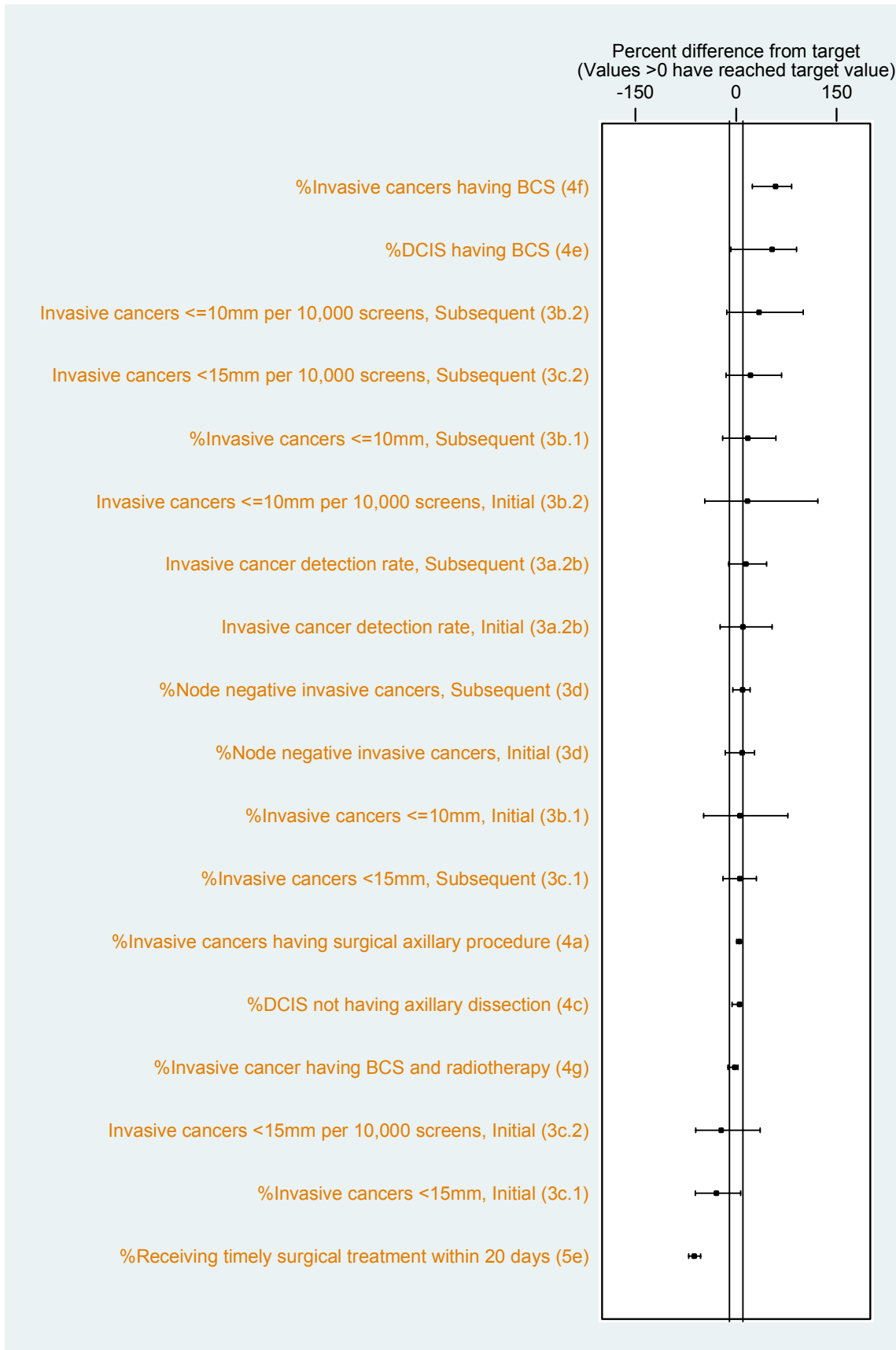
NB: The vertical line represent a $\pm 10\%$ difference between the observed value and the target value

Figure 2: Biennial indicators ‘on target’, ‘better than target’, or ‘worse than target’ for BSWN as measured by percent difference between observed and target value (Table reference in brackets).



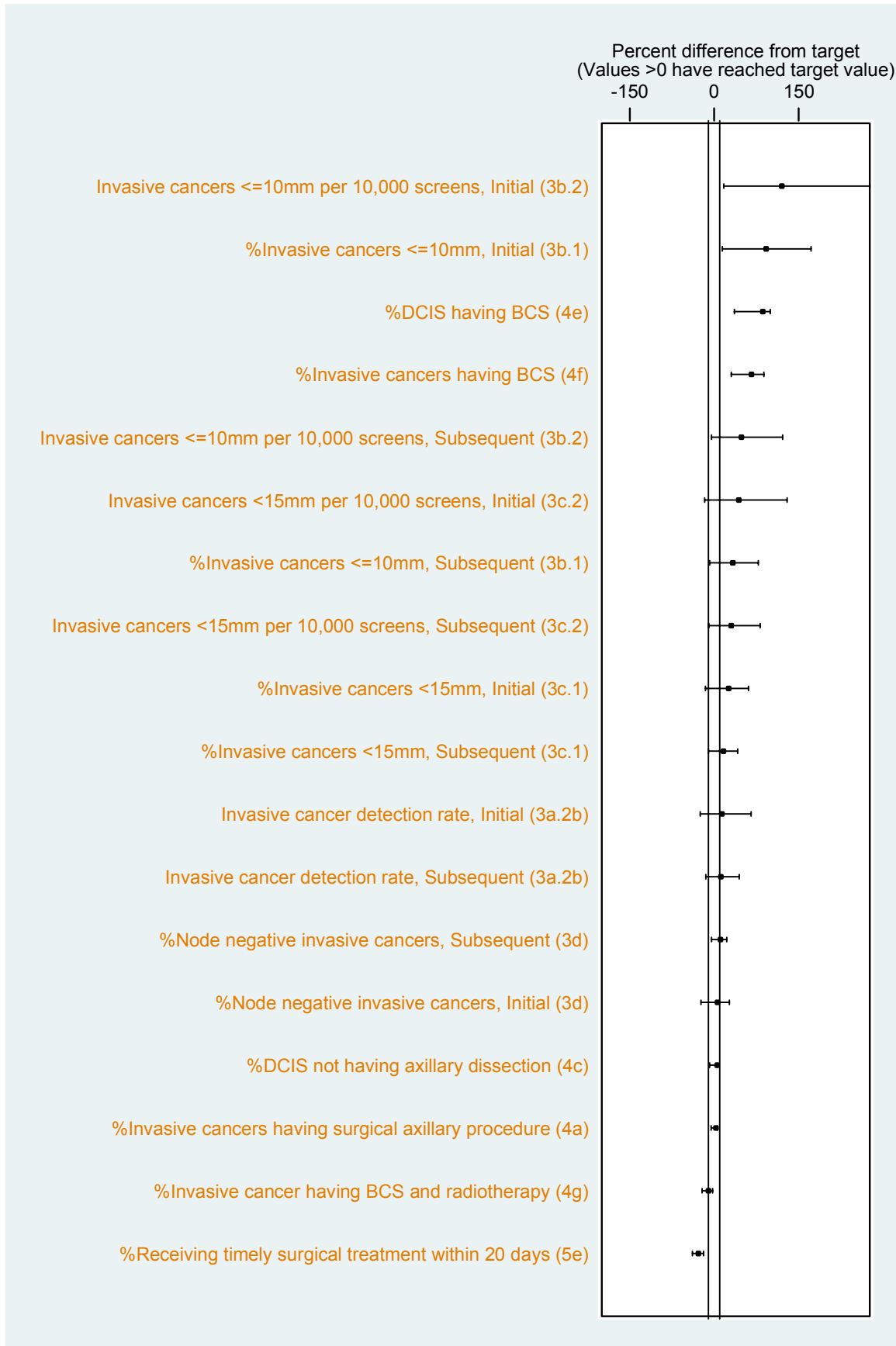
NB: The vertical line represent a $\pm 10\%$ difference between the observed value and the target value

Figure 3: Biennial indicators ‘on target’, ‘better than target’, or ‘worse than target’ for BSCM as measured by percent difference between observed and target value (Table reference in brackets)..



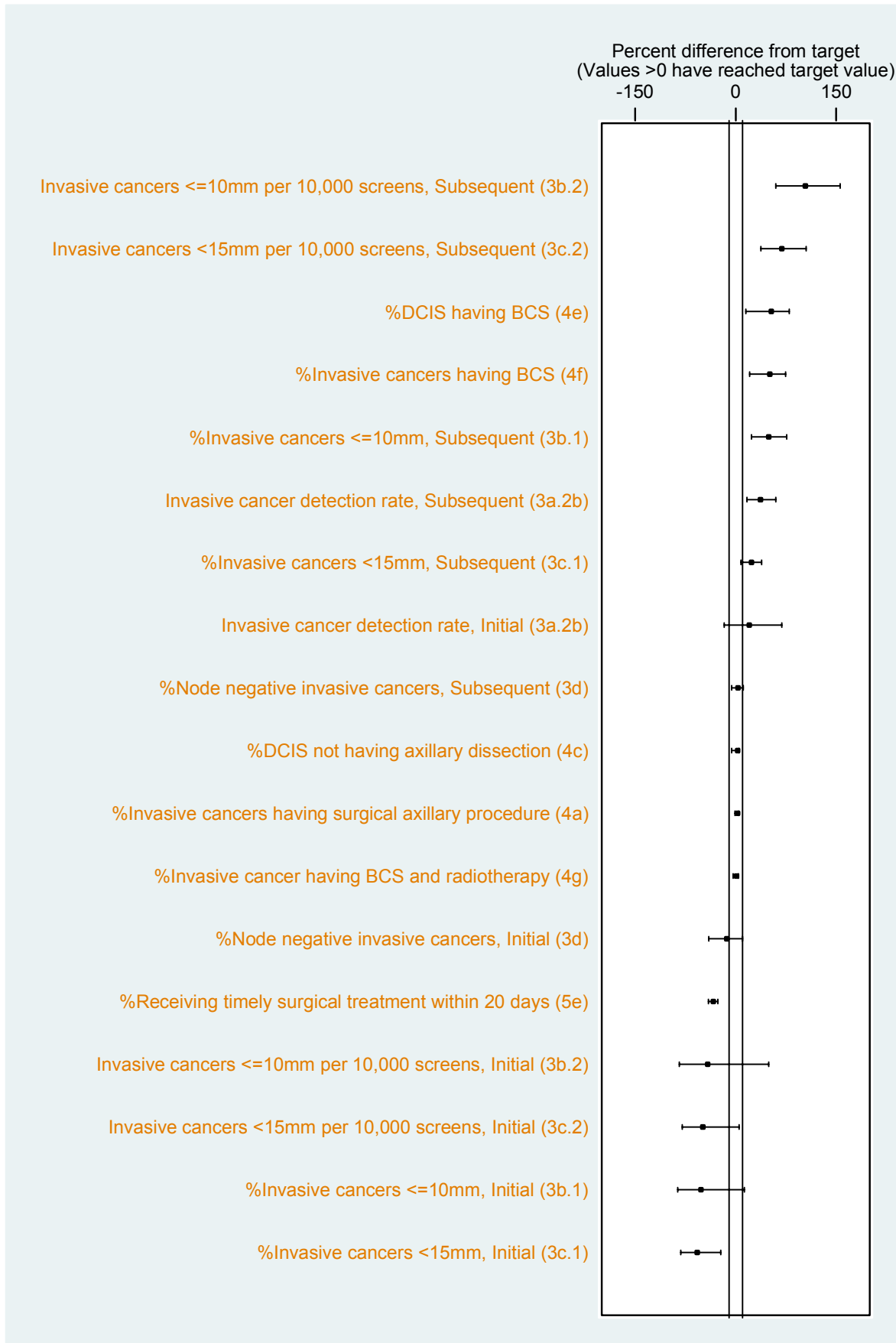
NB: The vertical line represent a \pm 10% difference between the observed value and the target value

Figure 4: Biennial indicators ‘on target’, ‘better than target’, or ‘worse than target’ for BSAL as measured by percent difference between observed and target value (Table reference in brackets).



NB: The vertical line represent a \pm 10% difference between the observed value and the target value

Figure 5: Biennial indicators ‘on target’, ‘better than target’, or ‘worse than target’ for BSM as measured by percent difference between observed and target value (Table reference in brackets)



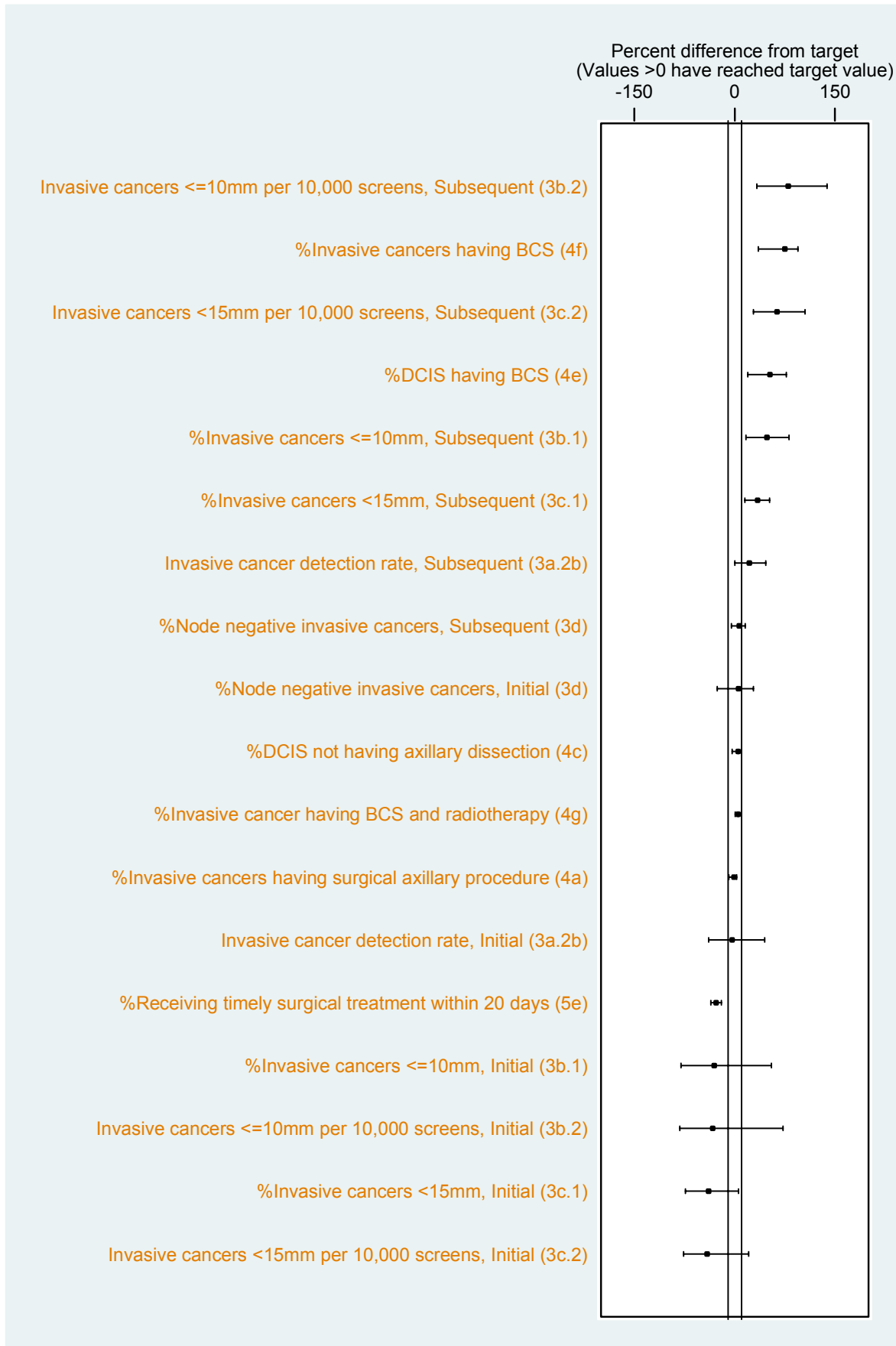
NB: The vertical line represent a $\pm 10\%$ difference between the observed value and the target value

Figure 6: Biennial indicators ‘on target’, ‘better than target’, or ‘worse than target’ for BSCtoC as measured by percent difference between observed and target value (Table reference in brackets)



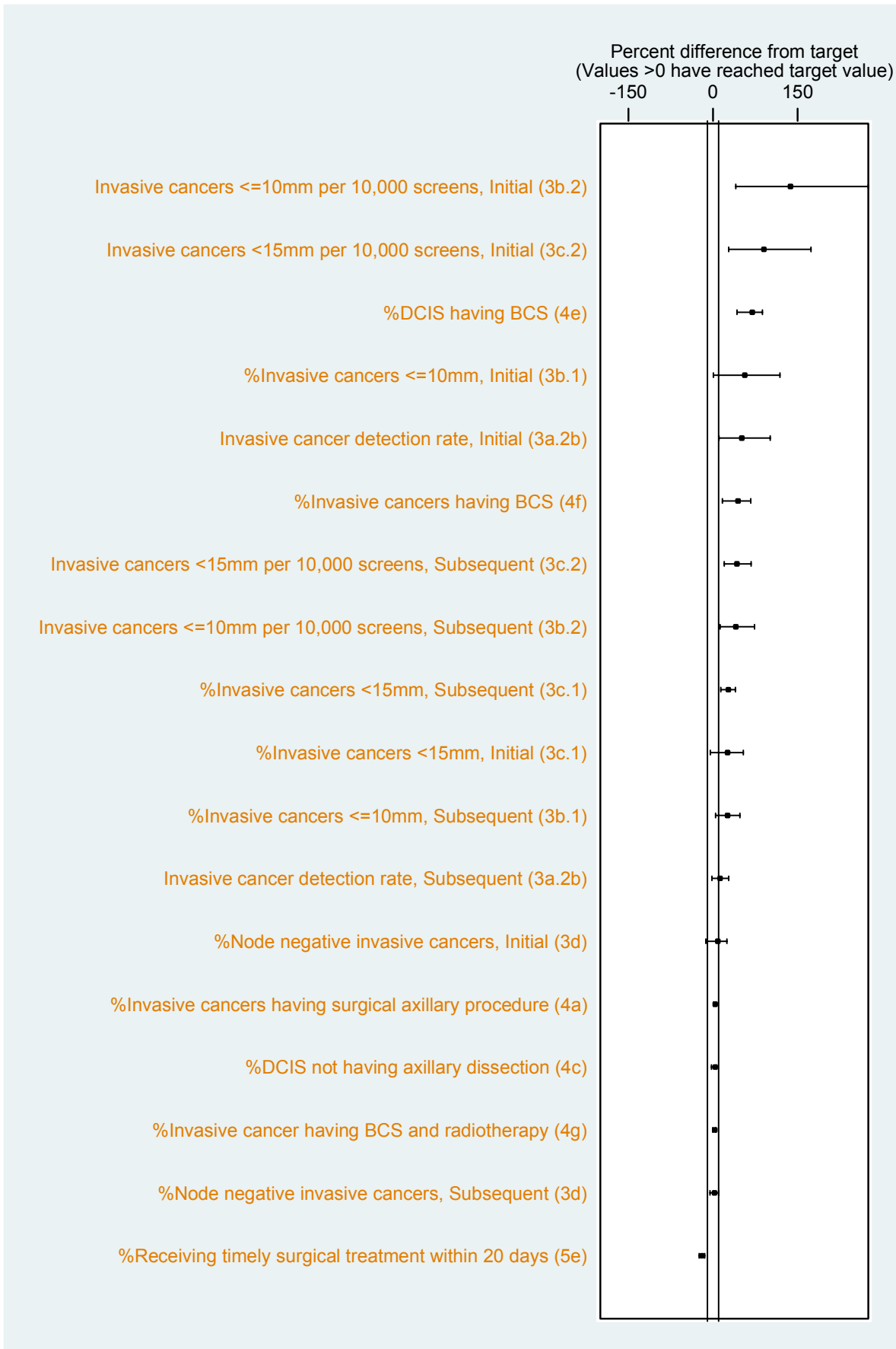
NB: The vertical line represent a $\pm 10\%$ difference between the observed value and the target value

Figure 7: Biennial indicators ‘on target’, ‘better than target’, or ‘worse than target’ for BSC as measured by percent difference between observed and target value (Table reference in brackets)



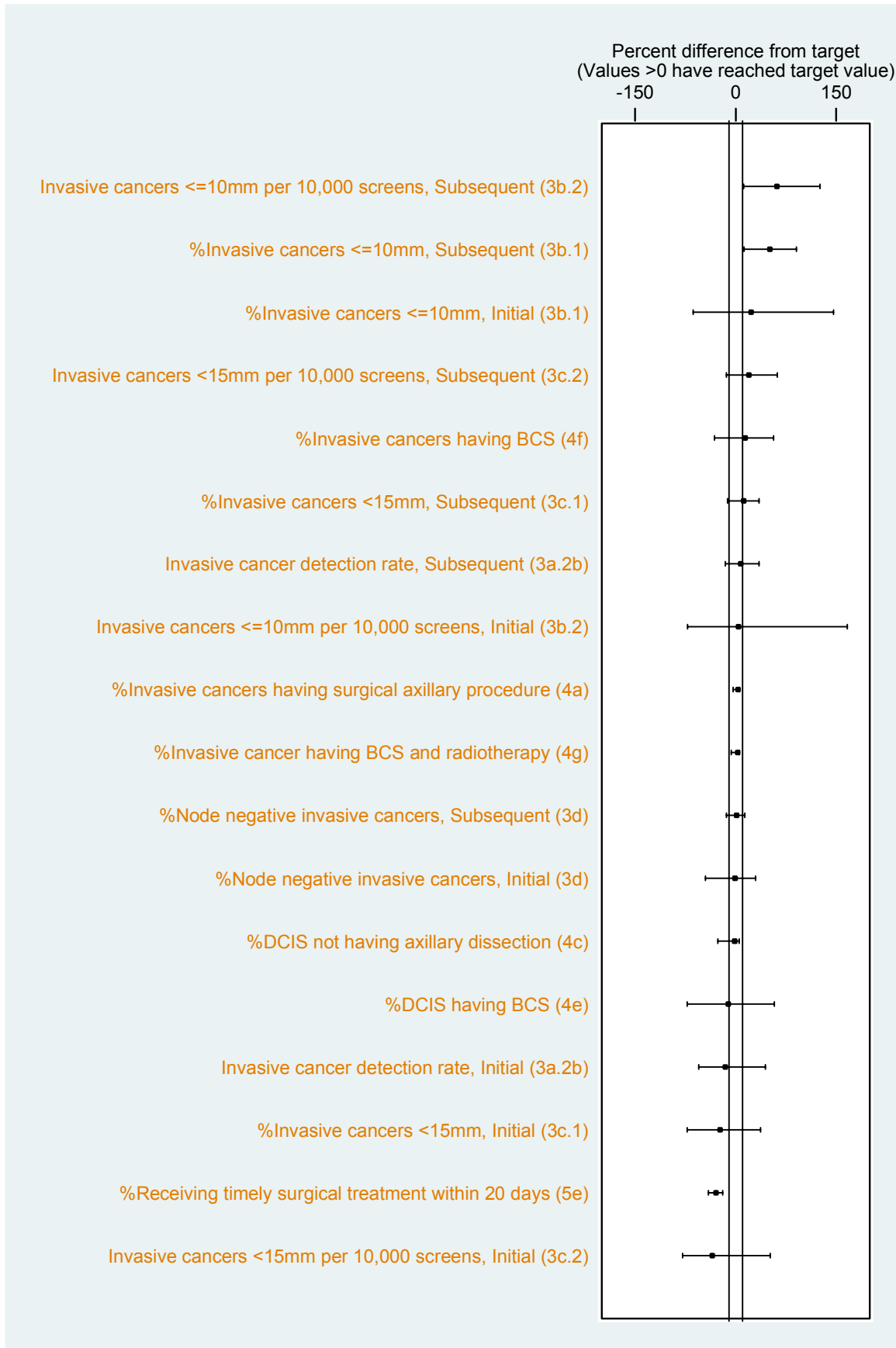
NB: The vertical line represent a $\pm 10\%$ difference between the observed value and the target value

Figure 8: Biennial indicators ‘on target’, ‘better than target’, or ‘worse than target’ for BSSL as measured by percent difference between observed and target value (Table reference in brackets)



NB: The vertical line represent a $\pm 10\%$ difference between the observed value and the target value

Figure 9: Biennial indicators ‘on target’, ‘better than target’, or ‘worse than target’ for BSHC as measured by percent difference between observed and target value (Table reference in brackets)



NB: The vertical line represent a $\pm 10\%$ difference between the observed value and the target value

3. EARLY DETECTION OF DCIS OR INVASIVE BREAST CANCER

3.a.3. Treatment data completeness, 2 years

Description:

Lead Providers have 9 months to complete treatment data entry for women referred to treatment.

Target:

≥ 90%

Table 3a.3: Treatment data completeness

	Women referred for Treatment	% Staging Complete	% Surgical Complete	% Endocrine Complete	% Radiotherapy Complete	% Chemotherapy Complete
<i>45-49 years</i>						
BSWN	64	98.4	98.4	98.4	98.4	98.4
BSCM	33	97.0	100.0	100.0	100.0	100.0
BSAL	47	95.7	100.0	100.0	100.0	100.0
BSM	50	98.0	98.0	98.0	100.0	100.0
BSCtoC	33	100.0	100.0	100.0	100.0	100.0
BSC	34	100.0	100.0	100.0	100.0	100.0
BSSL	68	92.6	100.0	100.0	100.0	100.0
BSHC	22	100.0	100.0	100.0	100.0	100.0
BSA Total	351	97.2	99.4	99.4	99.7	99.7
<i>50-69 years</i>						
BSWN	280	99.6	99.3	99.6	99.6	99.6
BSCM	146	95.9	98.6	97.3	99.3	99.3
BSAL	122	97.5	100.0	99.2	99.2	99.2
BSM	253	99.6	99.6	99.2	99.2	99.2
BSCtoC	218	99.5	100.0	100.0	100.0	100.0
BSC	184	100.0	100.0	100.0	100.0	100.0
BSSL	359	99.2	99.7	100.0	100.0	100.0
BSHC	110	97.3	98.2	98.2	98.2	98.2
BSA Total	1,672	98.9	99.5	99.4	99.6	99.6

Description:

Follow-up data is collected on all BSA women who have had treatment. This must occur within minimum 5-year interval following treatment.

Table 3a.4: Data collection completeness for patient status records, women 50-69 years

6 Month Period	Data Collection Due by	BSWN	BSCM	BSAL	BSM	BSCtoC	BSC	BSSL	BSHC
<i>50-69 years</i>									
1999 Jan-Jun	<i>Jun-04</i>	Data not yet available		98.3	100.0	95.2	100.0	91.9	100.0
1999 Jul-Dec	<i>Dec-04</i>			100.0	100.0	100.0	100.0	93.0	100.0
2000 Jan-Jun	<i>Jun-05</i>			99.2	97.1	100.0	100.0	98.7	96.6
2000 Jul-Dec	<i>Dec-05</i>			98.6	100.0	96.6	96.3	96.1	100.0
2001 Jan-Jun	<i>Jun-06</i>			100.0	100.0	100.0	97.8	96.8	100.0
2001 Jul-Dec	<i>Dec-06</i>			100.0	92.1	100.0	97.5	96.5	94.4
2002 Jan-Jun	<i>Jun-07</i>			95.5	83.7	96.6	96.3	96.9	95.0
2002 Jul-Dec	<i>Dec-07</i>			98.9	84.1	100.0	90.9	97.5	78.3
2003 Jan-Jun	<i>Jun-08</i>			99.0	87.5	97.0	71.4	100.0	83.3
2003 Jul-Dec	<i>Dec-08</i>			97.2	73.8	100.0	86.7	93.8	83.3
2004 Jan-Jun	<i>Jun-09</i>			96.6	27.9	42.9	32.4	70.2	92.3
2004 Jul-Dec	<i>Dec-09</i>			40.9	22.7	17.3	22.6	22.7	53.9

3.a.2b. Invasive cancer detection, 2 years

Description:

The number of women who have invasive breast cancer detected within BSA, expressed as a rate per 1000 women screened.

This is influenced by the background incidence of cancer in the population in the absence of screening. All other things being equal, the higher the cancer incidence, the higher the cancer detection rate will be.

Target:

Initial (Prevalent) round: ≥ 6.1 per 1000 women screened

Subsequent (Incident) round: ≥ 3.45 per 1000 women screened.

Table 3a.2b: Invasive cancers (2 years) for initial and subsequent screens, women 45-69 years

	Initial			Subsequent						
	Number	Women screened	Rate per 1,000 (95%CI)	Number	Women screened	Rate per 1,000 (95%CI)				
45-49 years										
BSWN	43	11,988	3.6 (2.6-4.8)	3	1,710	1.8 (0.4-5.1)				
BSCM	21	6,932	3.0 (1.9-4.6)	2	316	6.3 (0.8-22.9)				
BSAL	31	5,277	5.9 (4.0-8.3)	1	958	1.0 (0.0-5.8)				
BSM	30	6,648	4.5 (3.0-6.4)	7	3,148	2.2 (0.9-4.6)				
BSCtoC	17	6,879	2.5 (1.4-4.0)	5	2,729	1.8 (0.6-4.3)				
BSC	19	5,641	3.4 (2.0-5.3)	13	2,364	5.5 (2.9-9.4)				
BSSL	33	15,269	2.2 (1.5-3.0)	8	6,209	1.3 (0.6-2.5)				
BSHC	12	4,240	2.8 (1.5-4.9)	7	1,980	3.5 (1.4-7.3)				
BSA Total	206	62,874	3.3 (2.8-3.8)	46	19,414	2.4 (1.7-3.2)				
50-69 years										
BSWN	74	9,428	7.8 (6.2-9.9)	✓✓✓	*	144	32,846	4.4 (3.7-5.2)	✓✓✓	*
BSCM	34	5,065	6.7 (4.6-9.4)	✓	ns	68	17,158	4.0 (3.1-5.0)	✓	ns
BSAL	27	3,883	7.0 (4.6-10.1)	✓	ns	60	15,502	3.9 (3.0-5.0)	✓	ns
BSM	33	4,504	7.3 (5.0-10.3)	✓	ns	165	34,883	4.7 (4.0-5.5)	✓✓✓	*
BSCtoC	32	4,906	6.5 (4.5-9.2)	✓	ns	143	32,060	4.5 (3.8-5.3)	✓✓✓	*
BSC	23	3,908	5.9 (3.7-8.8)	✓	ns	110	26,184	4.2 (3.5-5.1)	✓✓✓	*
BSSL	46	4,987	9.2 (6.8-12.3)	✓✓✓	*	228	58,828	3.9 (3.4-4.4)	✓	ns
BSHC	13	2,526	5.1 (2.7-8.8)	✓	ns	75	20,252	3.7 (2.9-4.6)	✓	ns
BSA Total	282	39,207	7.2 (6.4-8.1)	✓✓✓	*	993	237,713	4.2 (3.9-4.4)	✓✓✓	*

Poisson 95% Confidence Intervals presented

* Statistically different from target value, ns Not significant

✓ On target, difference of <5% better or worse than target value based on point estimate or 95% Confidence Interval not significantly different from target

✓✓ Difference of $\geq 5-9\%$ magnitude better than target value and statistically significant

✓✓✓ Difference of $\geq 10\%$ magnitude better than target value and statistically significant

xx Difference of $\geq 5-9\%$ magnitude worse than target value and statistically significant

xxx Difference of $\geq 10\%$ magnitude worse than target value and statistically significant

3.b. Detection of invasive cancers ≤ 10 mm, 2 years

Description:

Proportion and rate of primary invasive breast cancer of diameter ≤ 10 mm.

Target:

Initial (Prevalent) round: ≥ 25%, which gives a rate of ≥ 15.2 per 10,000 screens

Subsequent (Incident) round: ≥ 30%, which gives a rate of ≥ 10.45 per 10,000 screens

Table 3b.1: Proportion of invasive cancers less than or equal to 10 mm in women aged 45-69 years, 2 years

	Initial			Subsequent						
	Invasive cancers ≤10 mm	Total invasive cancers	% (95%CI)	Invasive cancers ≤10 mm	Total invasive cancers	% (95%CI)				
45-49 years										
BSWN	14	43	32.6 (19.1-48.5)	1	3					
BSCM	4	21	19.0 (5.4-41.9)	1	2					
BSAL	5	31	16.1 (5.5-33.7)	1	1					
BSM	5	30	16.7 (5.6-34.7)	2	7					
BSCtoC	8	17	47.1 (23.0-72.2)	2	5					
BSC	6	19	31.6 (12.6-56.6)	4	13					
BSSL	12	33	36.4 (20.4-54.9)	0	8					
BSHC	2	12	16.7 (2.1-48.4)	0	7					
BSA Total	56	206	27.2 (21.2-33.8)	11	46					
50-69 years										
BSWN	20	74	27.0 (17.4-38.6)	✓	ns	63	144	43.8 (35.5-52.3)	✓✓✓	*
BSCM	9	34	26.5 (12.9-44.4)	✓	ns	24	68	35.3 (24.1-47.8)	✓	ns
BSAL	13	27	48.1 (28.7-68.1)	✓✓✓	*	24	60	40.0 (27.6-53.5)	✓	ns
BSM	4	33	12.1 (3.4-28.2)	✓	ns	74	165	44.8 (37.1-52.8)	✓✓✓	*
BSCtoC	5	32	15.6 (5.3-32.8)	✓	ns	47	143	32.9 (25.2-41.2)	✓	ns
BSC	4	23	17.4 (5.0-38.8)	✓	ns	49	110	44.5 (35.1-54.3)	✓✓✓	*
BSSL	18	46	39.1 (25.1-54.6)	✓✓✓	*	86	228	37.7 (31.4-44.4)	✓✓✓	*
BSHC	4	13	30.8 (9.1-61.4)	✓	ns	34	75	45.3 (33.8-57.3)	✓✓✓	*
BSA Total	77	282	27.3 (22.2-32.9)	✓	ns	401	993	40.4 (37.3-43.5)	✓✓✓	*

Exact Binomial 95% Confidence Intervals presented

* Statistically different from target value, ns Not significant

✓ On target, difference of <5% better or worse than target value based on point estimate or 95% Confidence Interval not significantly different from target

✓✓ Difference of ≥ 5-9% magnitude better than target value and statistically significant

✓✓✓ Difference of ≥ 10% magnitude better than target value and statistically significant

xx Difference of ≥ 5-9% magnitude worse than target value and statistically significant

xxx Difference of ≥ 10% magnitude worse than target value and statistically significant

Table 3b.2: Invasive cancers, less than or equal to 10 mm in women aged 45-69 years, per 10,000 screens, 2 years

	Initial			Subsequent		
	Invasive cancers ≤10 mm	Women screened	Rate per 10,000 (95%CI)	Invasive cancers ≤10 mm	Women screened	Rate per 10,000 (95%CI)
<i>45-49 years</i>						
BSWN	14	11,988	11.7 (6.4-19.6)	1	1,710	
BSCM	4	6,932	5.8 (1.6-14.8)	1	316	
BSAL	5	5,277	9.5 (3.1-22.1)	1	958	
BSM	5	6,648	7.5 (2.4-17.6)	2	3,148	
BSCtoC	8	6,879	11.6 (5.0-22.9)	2	2,729	
BSC	6	5,641	10.6 (3.9-23.2)	4	2,364	
BSSL	12	15,269	7.9 (4.1-13.7)	0	6,209	
BSHC	2	4,240	4.7 (0.6-17.0)	0	1,980	
BSA Total	56	62,874	8.9 (6.7-11.6)	11	19,414	
<i>50-69 years</i>						
BSWN	20	9,428	21.2 (13.0-32.8)	✓	ns	63 32,846 19.2 (14.7-24.5) ✓✓✓ *
BSCM	9	5,065	17.8 (8.1-33.7)	✓	ns	24 17,158 14.0 (9.0-20.8) ✓ ns
BSAL	13	3,883	33.5 (17.8-57.3)	✓✓✓	*	24 15,502 15.5 (9.9-23.0) ✓ ns
BSM	4	4,504	8.9 (2.4-22.7)	✓	ns	74 34,883 21.2 (16.7-26.6) ✓✓✓ *
BSCtoC	5	4,906	10.2 (3.3-23.8)	✓	ns	47 32,060 14.7 (10.8-19.5) ✓✓✓ *
BSC	4	3,908	10.2 (2.8-26.2)	✓	ns	49 26,184 18.7 (13.8-24.7) ✓✓✓ *
BSSL	18	4,987	36.1 (21.4-57.0)	✓✓✓	*	86 58,828 14.6 (11.7-18.1) ✓✓✓ *
BSHC	4	2,526	15.8 (4.3-40.5)	✓	ns	34 20,252 16.8 (11.6-23.5) ✓✓✓ *
BSA Total	77	39,207	19.6 (15.5-24.5)	✓✓✓	*	401 237,713 16.9 (15.3-18.6) ✓✓✓ *

Poisson 95% Confidence Intervals presented

* Statistically different from target value, ns Not significant

✓ On target, difference of <5% better or worse than target value based on point estimate or 95% Confidence Interval not significantly different from target

✓✓ Difference of ≥ 5-9% magnitude better than target value and statistically significant

✓✓✓ Difference of ≥ 10% magnitude better than target value and statistically significant

xx Difference of ≥ 5-9% magnitude worse than target value and statistically significant

xxx Difference of ≥ 10% magnitude worse than target value and statistically significant

3.c. Detection of invasive cancers <15 mm

3.c.1. Proportion of invasive cancers <15 mm, women aged 45-69 years, 2 years

Description:

Proportion and rate of primary invasive breast cancer of diameter <15 mm

Target:

Initial (Prevalent) round: >50%, which gives a rate of >30.5 per 10,000 screens

Subsequent (Incident) round: >50%, which gives a rate of ≥ 17.3 per 10,000 screens

Table 3c.1: Proportion of invasive cancers <15 mm, 2 years

	Initial			Subsequent						
	Invasive cancers <15 mm	Total invasive cancers	% (95%CI)	Invasive cancers <15 mm	Total invasive cancers	% (95%CI)				
<i>45-49 years</i>										
BSWN	19	43	44.2 (29.1-60.1)	2	3					
BSCM	6	21	28.6 (11.3-52.2)	1	2					
BSAL	10	31	32.3 (16.7-51.4)	1	1					
BSM	8	30	26.7 (12.3-45.9)	4	7					
BSCtoC	10	17	58.8 (32.9-81.6)	3	5					
BSC	9	19	47.4 (24.4-71.1)	8	13					
BSSL	16	33	48.5 (30.8-66.5)	4	8					
BSHC	4	12	33.3 (9.9-65.1)	0	7					
BSA Total	82	206	39.8 (33.1-46.8)	23	46					
<i>50-69 years</i>										
BSWN	32	74	43.2 (31.8-55.3)	✓	ns	89	144	61.8 (53.3-69.8)	✓✓✓	*
BSCM	12	34	35.3 (19.7-53.5)	✓	ns	36	68	52.9 (40.4-65.2)	✓	ns
BSAL	17	27	63.0 (42.4-80.6)	✓	ns	35	60	58.3 (44.9-70.9)	✓	ns
BSM	7	33	21.2 (9.0-38.9)	xxx	*	102	165	61.8 (53.9-69.3)	✓✓✓	*
BSCtoC	9	32	28.1 (13.7-46.7)	xxx	*	84	143	58.7 (50.2-66.9)	✓✓✓	*
BSC	7	23	30.4 (13.2-52.9)	✓	ns	74	110	67.3 (57.7-75.9)	✓✓✓	*
BSSL	29	46	63.0 (47.5-76.8)	✓	ns	145	228	63.6 (57.0-69.8)	✓✓✓	*
BSHC	5	13	38.5 (13.9-68.4)	✓	ns	42	75	56.0 (44.1-67.5)	✓	ns
BSA Total	118	282	41.8 (36.0-47.8)	xxx	*	607	993	61.1 (58.0-64.2)	✓✓✓	*

Exact Binomial 95% Confidence Intervals presented

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✓✓✓ Difference of ≥ 10% magnitude better than target value and statistically significant

xx Difference of ≥ 5-9% magnitude worse than target value and statistically significant

xxx Difference of ≥ 10% magnitude worse than target value and statistically significant

Table 3c.2: Invasive cancers <15 mm, per 10,000 screens, 2years

	Initial			Subsequent					
	Invasive cancers <15 mm	Women screened	Rate per 10,000 (95%CI)	Invasive cancers <15 mm	Women screened	Rate per 10,000 (95%CI)			
<i>45-49 years</i>									
BSWN	19	11,988	15.8 (9.5-24.8)	2	1,710				
BSCM	6	6,932	8.7 (3.2-18.8)	1	316				
BSAL	10	5,277	19.0 (9.1-34.9)	1	958				
BSM	8	6,648	12.0 (5.2-23.7)	4	3,148				
BSCtoC	10	6,879	14.5 (7.0-26.7)	3	2,729				
BSC	9	5,641	16.0 (7.3-30.3)	8	2,364				
BSSL	16	15,269	10.5 (6.0-17.0)	4	6,209				
BSHC	4	4,240	9.4 (2.6-24.2)	0	1,980				
BSA Total	82	62,874	13.0 (10.4-16.2)	23	19,414	11.8 (7.5-17.8)			
<i>50-69 years</i>									
BSWN	32	9,428	33.9 (23.2-47.9)	✓	ns	89	32,846	27.1 (21.8-33.3)	✓✓✓ *
BSCM	12	5,065	23.7 (12.2-41.4)	✓	ns	36	17,158	21.0 (14.7-29.0)	✓ ns
BSAL	17	3,883	43.8 (25.5-70.1)	✓	ns	35	15,502	22.6 (15.7-31.4)	✓ ns
BSM	7	4,504	15.5 (6.2-32.0)	✓	ns	102	34,883	29.2 (23.8-35.5)	✓✓✓ *
BSCtoC	9	4,906	18.3 (8.4-34.8)	✓	ns	84	32,060	26.2 (20.9-32.4)	✓✓✓ *
BSC	7	3,908	17.9 (7.2-36.9)	✓	ns	74	26,184	28.3 (22.2-35.5)	✓✓✓ *
BSSL	29	4,987	58.2 (38.9-83.5)	✓✓✓	*	145	58,828	24.6 (20.8-29.0)	✓✓✓ *
BSHC	5	2,526	19.8 (6.4-46.2)	✓	ns	42	20,252	20.7 (14.9-28.0)	✓ ns
BSA Total	118	39,207	30.1 (24.9-36.0)	✓	ns	607	237,713	25.5 (23.5-27.6)	✓✓✓ *

Poisson 95% Confidence Intervals presented

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✓✓✓ Difference of ≥ 10% magnitude better than target value and statistically significant

xx Difference of ≥ 5-9% magnitude worse than target value and statistically significant

xxx Difference of ≥ 10% magnitude worse than target value and statistically significant

Figure 3c.1: Proportion invasive cancers < 15 mm, initial screens, 2 years

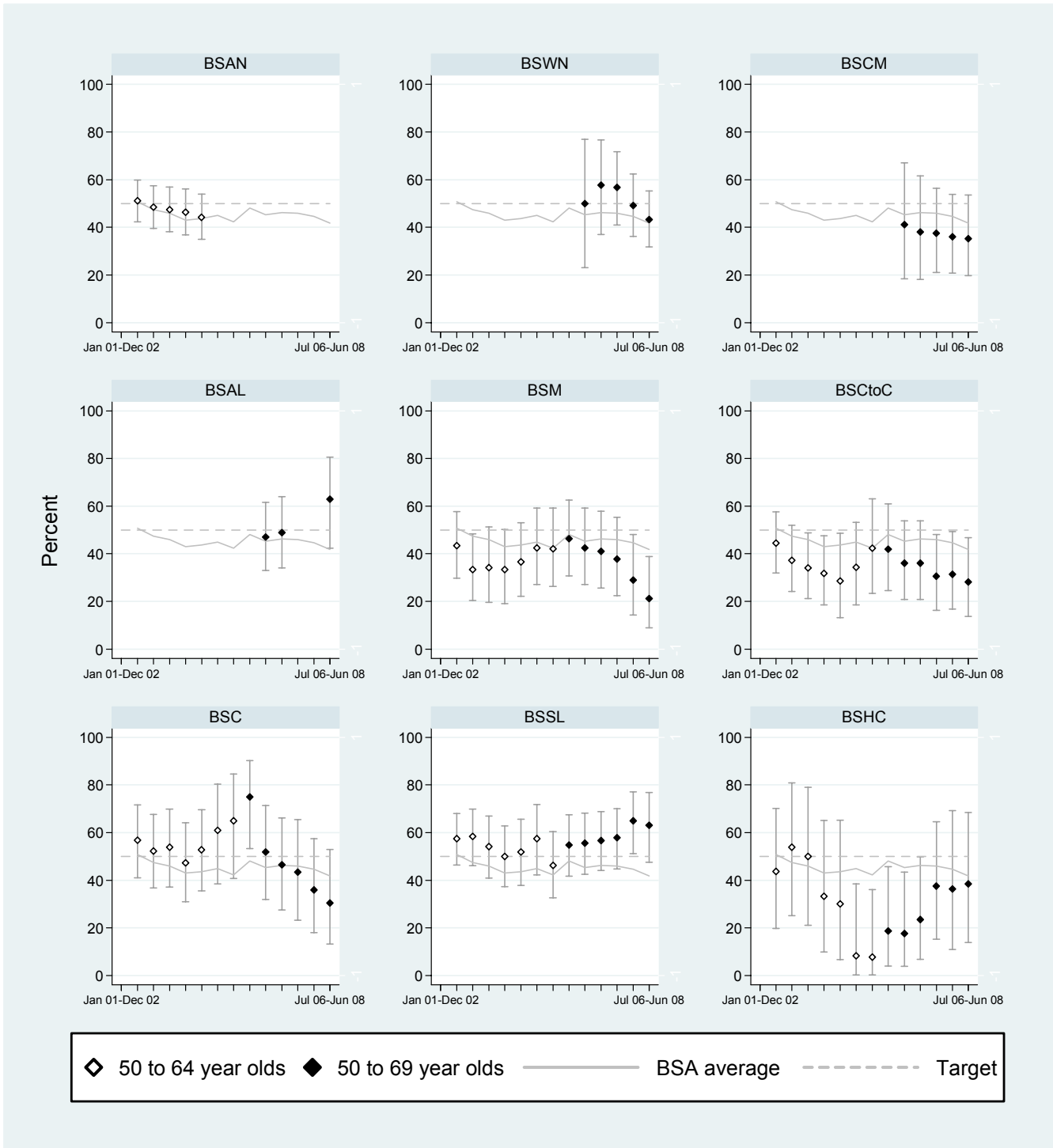


Figure 3c.1: Proportion invasive cancers < 15 mm, subsequent screens, 2 years

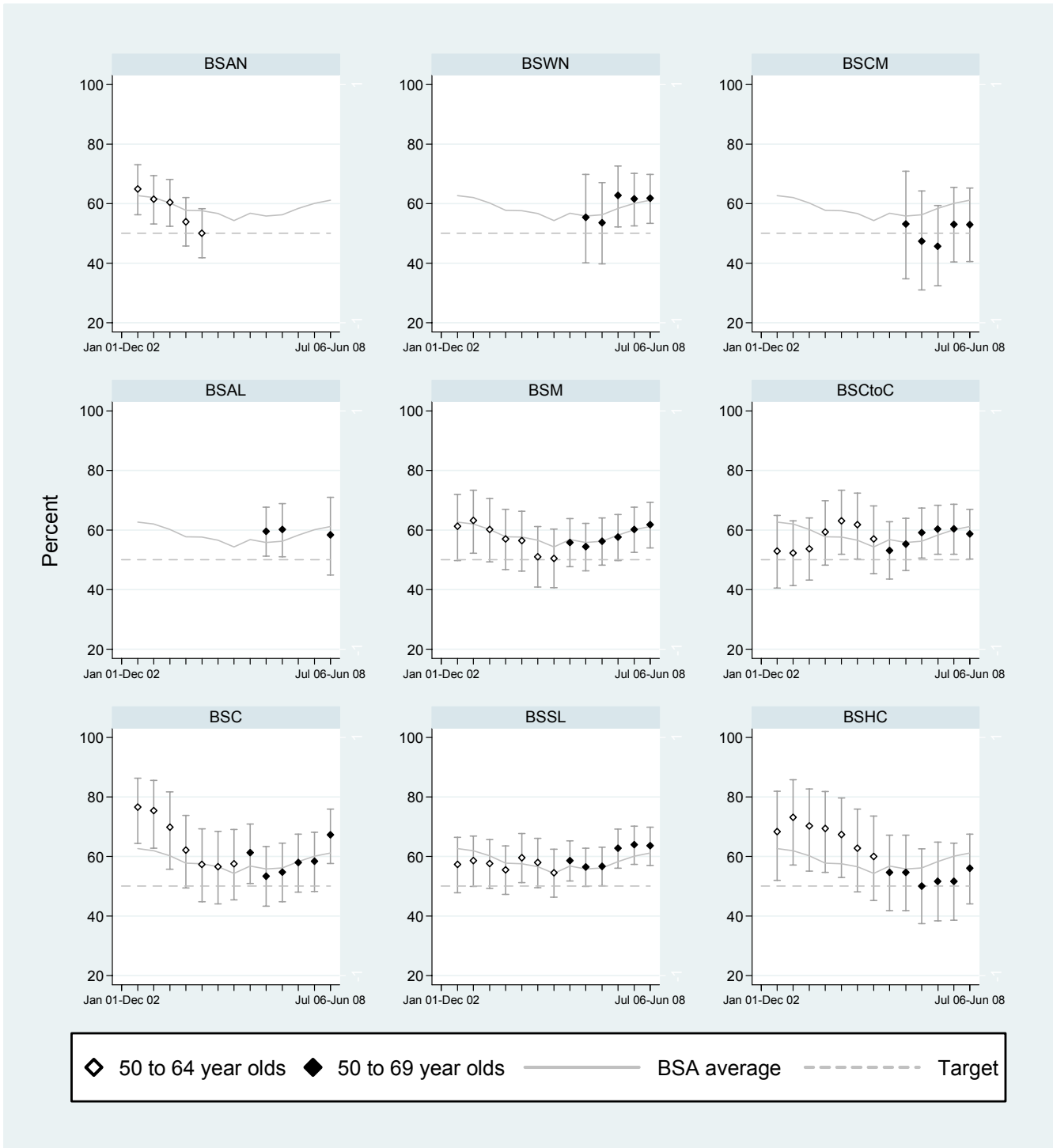


Figure 3c.2: Invasive cancers < 15 mm per 10,000 women screened, initial screens, 2 years

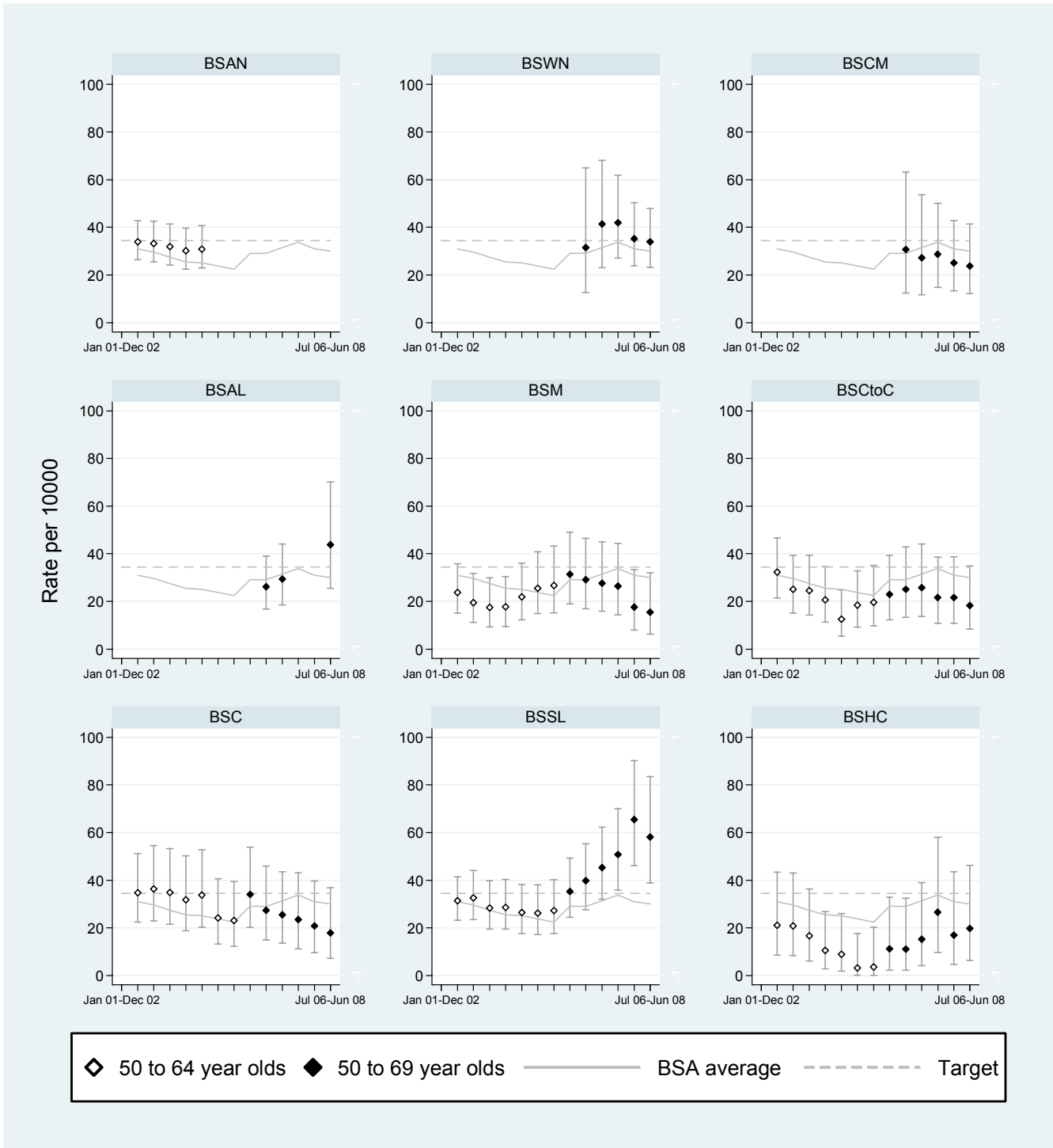
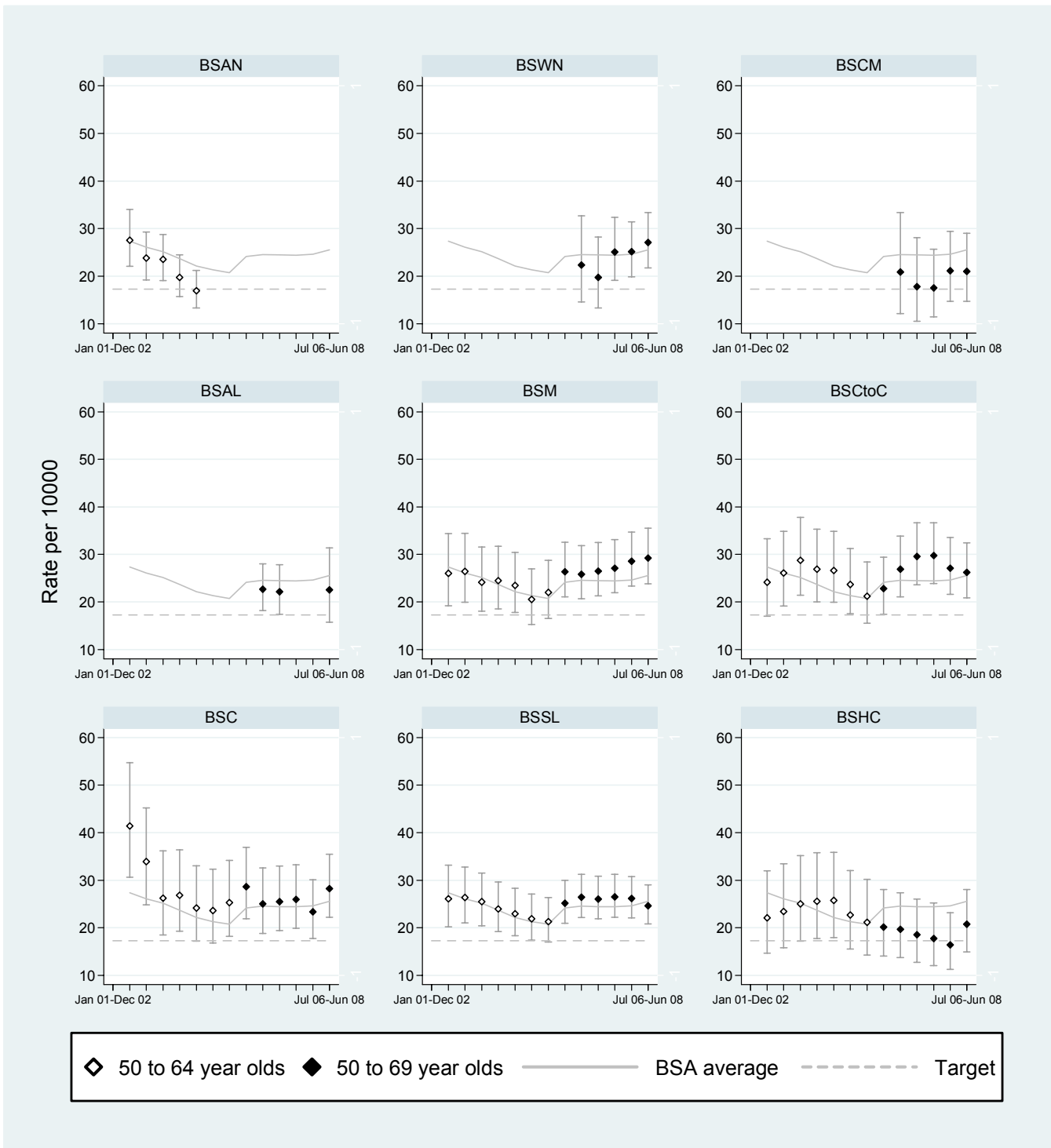


Figure 3c.2: Invasive cancers < 15 mm per 10,000 women screened, subsequent screens, 2 years



3.d. Nodal involvement

Description:

The proportion of women with invasive screen detected breast cancer who do not have nodal involvement.

Note: This is calculated as 1 minus the proportion of women with invasive screen detected breast cancer who do have nodal involvement.

Target:

Initial (Prevalent) round: >70%

Subsequent (Incident) round: >75%

3.d. Proportion of node negative invasive cancers women aged 45-69 years

Table 3d: Proportion of node negative invasive cancers women aged 45-69 years, 2 years

	Initial			Subsequent						
	Invasive cancers, node negative	Total invasive cancers	% (95%CI)	Invasive cancers, node negative	Total invasive cancers	% (95%CI)				
<i>45-49 years</i>										
BSWN	31	43	72.1 (56.3-84.7)	3	3					
BSCM	14	21	66.7 (43.0-85.4)	1	2					
BSAL	18	31	58.1 (39.1-75.5)	1	1					
BSM	17	30	56.7 (37.4-74.5)	5	7					
BSCtoC	13	17	76.5 (50.1-93.2)	2	5					
BSC	14	19	73.7 (48.8-90.9)	7	13					
BSSL	22	33	66.7 (48.2-82.0)	5	8					
BSHC	7	12	58.3 (27.7-84.8)	3	7					
BSA Total	136	206	66.0 (59.1-72.5)	27	46					
<i>50-69 years</i>										
BSWN	60	74	81.1 (70.3-89.3)	✓✓✓	*	121	144	84.0 (77.0-89.6)	✓✓✓	*
BSCM	26	34	76.5 (58.8-89.3)	✓	ns	56	68	82.4 (71.2-90.5)	✓	ns
BSAL	20	27	74.1 (53.7-88.9)	✓	ns	50	60	83.3 (71.5-91.7)	✓	ns
BSM	20	33	60.6 (42.1-77.1)	✓	ns	128	165	77.6 (70.4-83.7)	✓	ns
BSCtoC	18	32	56.3 (37.7-73.6)	✓	ns	109	143	76.2 (68.4-82.9)	✓	ns
BSC	17	23	73.9 (51.6-89.8)	✓	ns	88	110	80.0 (71.3-87.0)	✓	ns
BSSL	35	46	76.1 (61.2-87.4)	✓	ns	176	228	77.2 (71.2-82.5)	✓	ns
BSHC	9	13	69.2 (38.6-90.9)	✓	ns	57	75	76.0 (64.7-85.1)	✓	ns
BSA Total	205	282	72.7 (67.1-77.8)	✓	ns	785	993	79.1 (76.4-81.5)	✓✓	*

Exact Binomial 95% Confidence Intervals presented

* Statistically different from target value, ns Not significant

✓ On target, difference of <5% better or worse than target value based on point estimate or 95% Confidence Interval

✓✓ Difference of ≥ 5-9% magnitude better than target value and statistically significant

✓✓✓ Difference of ≥ 10% magnitude better than target value and statistically significant

xx Difference of ≥ 5-9% magnitude worse than target value and statistically significant

xxx Difference of ≥ 10% magnitude worse than target value and statistically significant

3.e. DCIS diagnosis

Description:

The percentage of all women with screen detected cancer, who are diagnosed as having ductal carcinoma *in situ* (DCIS) as their primary lesion.

Target:

10-25% of all cancers detected by the programme are DCIS.

3.e. DCIS, women aged 45-69 years

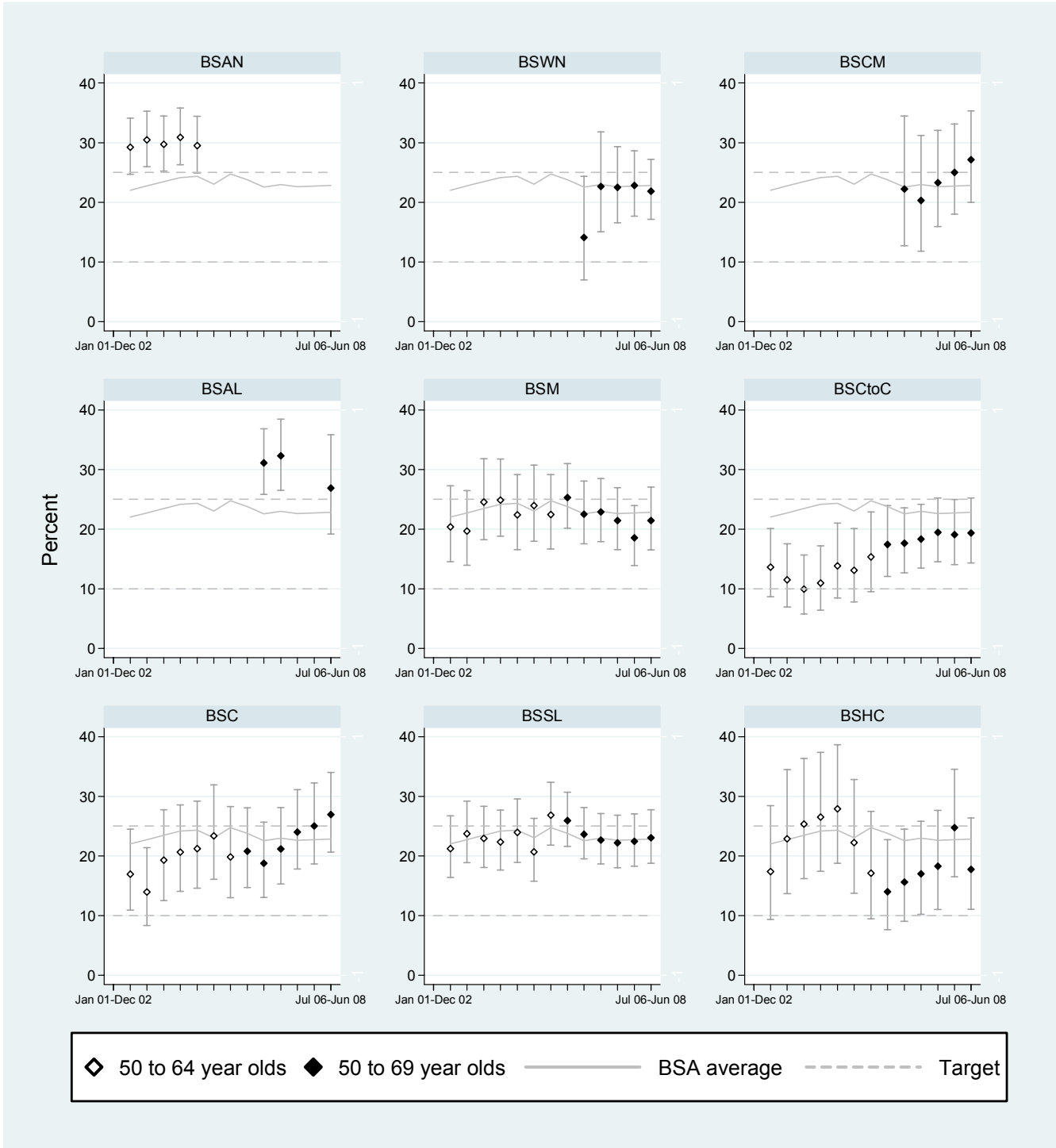
Table 3e: Women with DCIS as a percentage of all screen detected cancers, 2 years

	DCIS	Total cancers	% (95%CI)
<i>45-49 years</i>			
BSWN	17	63	27.0 (16.6-39.7)
BSCM	9	32	28.1 (13.7-46.7)
BSAL	12	44	27.3 (15.0-42.8)
BSM	12	49	24.5 (13.3-38.9)
BSCtoC	11	33	33.3 (18.0-51.8)
BSC	2	34	5.9 (0.7-19.7)
BSSL	22	63	34.9 (23.3-48.0)
BSHC	3	22	13.6 (2.9-34.9)
BSA Total	88	340	25.9 (21.3-30.9)
<i>50-69 years</i>			
BSWN	61	279	21.9 (17.2-27.2)
BSCM	38	140	27.1 (20.0-35.3)
BSAL	32	119	26.9 (19.2-35.8)
BSM	54	252	21.4 (16.5-27.0)
BSCtoC	42	217	19.4 (14.3-25.2)
BSC	49	182	26.9 (20.6-34.0)
BSSL	82	356	23.0 (18.8-27.8)
BSHC	19	107	17.8 (11.0-26.3)
BSA Total	377	1,652	22.8 (20.8-24.9)

Note: The number of invasive cancers noted in Staging and Grading and Treatment indicator tables may differ from earlier tables in the screening and assessment section. Only completed treatment data is included in the Staging and Grading / Treatment section of this report. Some data maybe incomplete at report date (please refer to table 3a5), or some woman diagnosed with cancer may decline treatment and therefore will not be included in staging and grading data.

Exact Binomial 95% Confidence Intervals presented

Figure 3e: Women with DCIS as a percentage of all screen detected cancers, 2 years



4. TREATMENT

4.a. Women with invasive cancer > 1 mm, having a surgical axillary procedure

Description:

Percentage of all women who are operated on for a screen detected invasive cancer, over 1 mm in size, who have a surgical axillary procedure.

Target:

95% of women operated on for invasive cancer over 1 mm in size, should normally have a surgical axillary procedure.

Table 4a: Percentage of women with invasive cancer having a surgical axillary procedure in women aged 45-69 years, 2 years

	Number having surgical axillary procedure for invasive cancers >1 mm	Number having an operation for invasive cancers >1 mm	% (95%CI)		
45-49 years					
BSWN	32	32	100.0 (89.1-100.0)		
BSCM	20	20	100.0 (83.2-100.0)		
BSAL	23	23	100.0 (85.2-100.0)		
BSM	31	31	100.0 (88.8-100.0)		
BSCtoC	15	16	93.8 (69.8-99.8)		
BSC	25	25	100.0 (86.3-100.0)		
BSSL	32	32	100.0 (89.1-100.0)		
BSHC	17	17	100.0 (80.5-100.0)		
BSA Total	195	196	99.5 (97.2-100.0)		
50-69 years					
BSWN	138	141	97.9 (93.9-99.6)	✓	ns
BSCM	79	79	100.0 (95.4-100.0)	✓✓	*
BSAL	50	51	98.0 (89.6-100.0)	✓	ns
BSM	138	141	97.9 (93.9-99.6)	✓	ns
BSCtoC	135	136	99.3 (96.0-100.0)	✓	*
BSC	79	84	94.0 (86.7-98.0)	✓	ns
BSSL	190	192	99.0 (96.3-99.9)	✓	*
BSHC	62	63	98.4 (91.5-100.0)	✓	ns
BSA Total	871	887	98.2 (97.1-99.0)	✓	*

Exact Binomial 95% Confidence Intervals presented

* Statistically different from target value, ns Not significant

✓ On target, difference of <5% better or worse than target value based on point estimate or 95% Confidence Interval

✓✓ Difference of ≥ 5-9% magnitude better than target value and statistically significant

✓✓✓ Difference of ≥ 10% magnitude better than target value and statistically significant

xx Difference of ≥ 5-9% magnitude worse than target value and statistically significant

xxx Difference of ≥ 10% magnitude worse than target value and statistically significant

4.b. Women with invasive cancer having a single excision

Description:

The proportion of women with invasive cancer, who have a single excision breast treatment procedure.

Target:

No target

Table 4b: Women with invasive cancer having a single excision breast treatment procedure in women aged 45-69 years, 2 years

	Number having a single excisional procedure for invasive cancer	Number of invasive cancers having surgical breast procedure	% (95%CI)
<i>45-49 years</i>			
BSWN	40	46	87.0 (73.7-95.1)
BSCM	21	23	91.3 (72.0-98.9)
BSAL	24	31	77.4 (58.9-90.4)
BSM	31	37	83.8 (68.0-93.8)
BSCtoC	15	22	68.2 (45.1-86.1)
BSC	21	32	65.6 (46.8-81.4)
BSSL	33	41	80.5 (65.1-91.2)
BSHC	17	19	89.5 (66.9-98.7)
BSA Total	202	251	80.5 (75.0-85.2)
<i>50-69 years</i>			
BSWN	194	218	89.0 (84.1-92.8)
BSCM	97	101	96.0 (90.2-98.9)
BSAL	77	87	88.5 (79.9-94.3)
BSM	157	196	80.1 (73.8-85.5)
BSCtoC	140	174	80.5 (73.8-86.1)
BSC	104	133	78.2 (70.2-84.9)
BSSL	235	274	85.8 (81.1-89.7)
BSHC	78	88	88.6 (80.1-94.4)
BSA Total	1082	1,271	85.1 (83.1-87.0)

Exact Binomial 95% Confidence Intervals presented

4.c. Proportion of women with DCIS where no axillary dissection was carried out

Description:

The proportion of women who have surgery for DCIS, and do not have immediate reconstruction, who do not have axillary dissection

Target:

> 95 %

Table 4c: Proportion of DCIS women not having axillary dissection, 2 years

	Number having surgery for DCIS who do not have an axillary dissection	Number having surgery for DCIS	% (95%CI)		
<i>45-49 years</i>					
BSWN	13	13			
BSCM	6	6			
BSAL	9	9			
BSM	8	8			
BSCtoC	9	9			
BSC	2	2			
BSSL	18	18			
BSHC	3	3			
BSA Total	68	68	100.0	(94.7-100.0)	
<i>50-69 years</i>					
BSWN	53	55	96.4	(87.5-99.6)	✓ ns
BSCM	32	32	100.0	(89.1-100.0)	✓ ns
BSAL	28	28	100.0	(87.7-100.0)	✓ ns
BSM	48	49	98.0	(89.1-99.9)	✓ ns
BSCtoC	38	38	100.0	(90.7-100.0)	✓ ns
BSC	40	40	100.0	(91.2-100.0)	✓ ns
BSSL	74	75	98.7	(92.8-100.0)	✓ ns
BSHC	15	16	93.8	(69.8-99.8)	✓ ns
BSA Total	328	333	98.5	(96.5-99.5)	✓ *

Exact Binomial 95% Confidence Intervals presented

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✓ On target, difference of <5% better or worse than target value based on point estimate or 95% Confidence Interval not significantly different from the target

✓✓ Difference of ≥ 5-9% magnitude better than target value and statistically significant

✓✓✓ Difference of ≥ 10% magnitude better than target value and statistically significant

xx Difference of ≥ 5-9% magnitude worse than target value and statistically significant

xxx Difference of ≥ 10% magnitude worse than target value and statistically significant

Table 4c: Detailed information concerning surgery for DCIS, 2 years

	Type of axillary surgery performed					Number having surgery for DCIS (less immediate reconstruction)
	No Axillary Surgery	Sampling	Axillary Level 1, 2 or 3	Sentinel Node Surgery Only	Not Available / Unknown / Unsure	
<i>45-49 years</i>						
BSWN	6	0	0	7	0	13
BSCM	4	0	0	2	0	6
BSAL	7	0	0	2	0	9
BSM	7	0	0	1	0	8
BSCtoC	6	0	0	3	0	9
BSC	1	0	0	1	0	2
BSSL	17	0	0	1	0	18
BSHC	2	0	0	1	0	3
BSA Total	50	0	0	18	0	68
<i>50-69 years</i>						
BSWN	42	0	1	11	1	55
BSCM	17	0	0	15	0	32
BSAL	17	0	0	11	0	28
BSM	43	0	1	5	0	49
BSCtoC	33	0	0	5	0	38
BSC	36	0	0	4	0	40
BSSL	64	1	1	9	0	75
BSHC	12	1	1	2	0	16
BSA Total	264	2	4	62	1	333

4.e. Women with DCIS having breast conserving surgery

Description:

The proportion of women diagnosed with DCIS of pathological diameter ≤ 20 mm who have Breast Conserving Surgery (BCS).

Target:

The majority (>50%) of screen-detected DCIS ≤ 20 mm are treated by BCS

Table 4e: Proportion of women aged 45-69 years with DCIS having breast conserving surgery (BCS), 2 years

	DCIS ≤ 20 mm having BCS	Total DCIS ≤ 20 mm having operation	% (95%CI)		
<i>45-49 years</i>					
BSWN	6	6			
BSCM	3	5			
BSAL	5	5			
BSM	6	7			
BSCtoC	3	5			
BSC	0	0			
BSSL	9	10			
BSHC	1	2			
BSA Total	33	40	82.5	(67.2-92.7)	
<i>50-69 years</i>					
BSWN	30	32	93.8	(79.2-99.2)	✓✓✓ *
BSCM	10	13	76.9	(46.2-95.0)	✓ ns
BSAL	14	15	93.3	(68.1-99.8)	✓✓✓ *
BSM	23	30	76.7	(57.7-90.1)	✓✓✓ *
BSCtoC	25	32	78.1	(60.0-90.7)	✓✓✓ *
BSC	29	38	76.3	(59.8-88.6)	✓✓✓ *
BSSL	39	46	84.8	(71.1-93.7)	✓✓✓ *
BSHC	4	9	44.4	(13.7-78.8)	✓ ns
BSA Total	174	215	80.9	(75.0-86.0)	✓✓✓ *

Exact Binomial 95% Confidence Intervals presented

* Statistically different from target value, ns Not significant

✓ On target, difference of <5% better or worse than target value based on point estimate or 95% Confidence Interval not significantly different from the target

✓✓ Difference of ≥ 5 -9% magnitude better than target value and statistically significant

✓✓✓ Difference of ≥ 10 % magnitude better than target value and statistically significant

xx Difference of ≥ 5 -9% magnitude worse than target value and statistically significant

xxx Difference of ≥ 10 % magnitude worse than target value and statistically significant

4.f. Women with invasive cancer ≤ 20 mm having breast conserving surgery

Description:

The proportion of women diagnosed with invasive cancer without a DCIS component, of pathological diameter ≤ 20 mm, who have Breast Conserving Surgery (BCS).

Target:

The majority (>50%) of screen-detected cancers ≤ 20 mm are treated by BCS

Table 4f: Proportion of women aged 45-69 years with invasive cancer having breast conserving surgery (BCS), 2 years

	Invasive cancers ≤20 mm having BCS	Total invasive cancers ≤20 mm having operation	% (95%CI)		
<i>45-49 years</i>					
BSWN	6	8			
BSCM	1	2			
BSAL	2	3			
BSM	2	3			
BSCtoC	6	7			
BSC	1	2			
BSSL	3	5			
BSHC	0	3			
BSA Total	21	33	63.6	(45.1-79.6)	
<i>50-69 years</i>					
BSWN	40	54	74.1	(60.3-85.0)	✓✓✓ *
BSCM	27	34	79.4	(62.1-91.3)	✓✓✓ *
BSAL	25	30	83.3	(65.3-94.4)	✓✓✓ *
BSM	34	45	75.6	(60.5-87.1)	✓✓✓ *
BSCtoC	22	32	68.8	(50.0-83.9)	✓ ns
BSC	21	24	87.5	(67.6-97.3)	✓✓✓ *
BSSL	39	54	72.2	(58.4-83.5)	✓✓✓ *
BSHC	12	21	57.1	(34.0-78.2)	✓ ns
BSA Total	220	294	74.8	(69.5-79.7)	✓✓✓ *

Exact Binomial 95% Confidence Intervals presented

* Statistically different from target value, ns Not significant

✓ On target, difference of <5% better or worse than target value based on point estimate or 95% Confidence Interval not significantly different from the target

✓✓ Difference of ≥ 5-9% magnitude better than target value and statistically significant

✓✓✓ Difference of ≥ 10% magnitude better than target value and statistically significant

xx Difference of ≥ 5-9% magnitude worse than target value and statistically significant

xxx Difference of ≥ 10% magnitude worse than target value and statistically significant

4.g. Proportion of women with invasive cancer having radiotherapy

Description:

The proportion of women diagnosed with invasive cancer, who have breast conserving surgery (BCS), who go on to have Radiotherapy.

Target:

≥ 95 %

Table 4g: Proportion of women aged 45-69 years with invasive cancer having breast conserving surgery (BCS) who had radiotherapy, 2 years

	Invasive cancers having BCS who had radiotherapy	Invasive cancers having BCS	% (95%CI)		
<i>45-49 years</i>					
BSWN	28	31	90.3 (74.2-98.0)		
BSCM	9	9	100.0 (66.4-100.0)		
BSAL	15	19	78.9 (54.4-93.9)		
BSM	21	21	100.0 (83.9-100.0)		
BSCtoC	14	15	93.3 (68.1-99.8)		
BSC	9	11	81.8 (48.2-97.7)		
BSSL	25	25	100.0 (86.3-100.0)		
BSHC	9	9	100.0 (66.4-100.0)		
BSA Total	130	140	92.9 (87.3-96.5)		
<i>50-69 years</i>					
BSWN	144	152	94.7 (89.9-97.7)	✓	ns
BSCM	54	58	93.1 (83.3-98.1)	✓	ns
BSAL	58	68	85.3 (74.6-92.7)	xxx	*
BSM	124	129	96.1 (91.2-98.7)	✓	ns
BSCtoC	111	112	99.1 (95.1-100.0)	✓	*
BSC	80	80	100.0 (95.5-100.0)	✓✓	*
BSSL	152	155	98.1 (94.4-99.6)	✓	ns
BSHC	47	48	97.9 (88.9-99.9)	✓	ns
BSA Total	770	802	96.0 (94.4-97.3)	✓	ns

Exact Binomial 95% Confidence Intervals presented

* Statistically different from target value, ns Not significant

✓ On target, difference of <5% better or worse than target value based on point estimate or 95% Confidence Interval not significantly different from the target

✓✓ Difference of ≥ 5-9% magnitude better than target value and statistically significant

✓✓✓ Difference of ≥ 10% magnitude better than target value and statistically significant

xx Difference of ≥ 5-9% magnitude worse than target value and statistically significant

xxx Difference of ≥ 10% magnitude worse than target value and statistically significant

4.h. Proportion of women with DCIS having radiotherapy

Description:

The proportion of women diagnosed solely with DCIS, who have breast conserving surgery (BCS), who go on to have Radiotherapy

Target:

No target

Table 4h: Proportion of women aged 45-69 years with DCIS having breast conserving surgery (BCS) who had radiotherapy, 2 years

	DCIS having BCS who radiotherapy	DCIS having BCS	% (95%CI)
<i>45-49 years</i>			
BSWN	9	11	
BSCM	0	4	
BSAL	6	9	
BSM	5	6	
BSCtoC	2	5	
BSC	1	1	
BSSL	12	16	
BSHC	1	1	
BSA Total	36	53	67.9 (53.7-80.1)
<i>50-69 years</i>			
BSWN	32	45	71.1 (55.7-83.6)
BSCM	11	17	64.7 (38.3-85.8)
BSAL	11	27	40.7 (22.4-61.2)
BSM	28	35	80.0 (63.1-91.6)
BSCtoC	9	27	33.3 (16.5-54.0)
BSC	12	34	35.3 (19.7-53.5)
BSSL	38	50	76.0 (61.8-86.9)
BSHC	3	6	50.0 (11.8-88.2)
BSA Total	144	241	59.8 (53.3-66.0)

Exact binomial 95% Confidence Intervals presented

4.i. Proportion of women with invasive cancer having chemotherapy

Description:

The proportion of women diagnosed with Invasive Cancer who have Chemotherapy, reported by disease character groups

Target:

No target.

Table 4i: Proportion of women aged 45-49 years with invasive cancer who had chemotherapy by disease character groups, 2 years

	Invasive Cancers, having chemotherapy	Invasive cancers	% (95%CI)
<i>Group 1: Node positive, ER and PR negative</i>			
BSWN	0	0	
BSCM	0	0	
BSAL	1	1	
BSM	3	3	
BSCtoC	1	1	
BSC	0	0	
BSSL	0	0	
BSHC	1	1	
BSA Total	6	6	
<i>Group 2: Node negative, high risk, and ER and PR negative</i>			
BSWN	0	2	
BSCM	1	1	
BSAL	0	2	
BSM	0	0	
BSCtoC	1	1	
BSC	0	0	
BSSL	0	0	
BSHC	1	1	
BSA Total	3	7	
<i>Group 3: Node positive, either ER or PR positive</i>			
BSWN	10	13	76.9 (46.2-95.0)
BSCM	7	8	87.5 (47.3-99.7)
BSAL	8	13	61.5 (31.6-86.1)
BSM	8	13	61.5 (31.6-86.1)
BSCtoC	6	6	100.0 (54.1-100.0)
BSC	8	11	72.7 (39.0-94.0)
BSSL	13	14	92.9 (66.1-99.8)
BSHC	8	8	100.0 (63.1-100.0)
BSA Total	68	86	79.1 (69.0-87.1)
<i>Group 4: Node negative, high risk, either ER or PR positive</i>			
BSWN	2	14	14.3 (1.8-42.8)
BSCM	0	9	0.0 (0.0-33.6)
BSAL	2	12	16.7 (2.1-48.4)
BSM	4	14	28.6 (8.4-58.1)
BSCtoC	3	7	42.9 (9.9-81.6)
BSC	4	12	33.3 (9.9-65.1)
BSSL	4	18	22.2 (6.4-47.6)
BSHC	4	6	66.7 (22.3-95.7)
BSA Total	23	92	25.0 (16.6-35.1)

Exact binomial 95% Confidence Intervals presented

NB: A high risk tumour is one that has either a pathological tumour size \geq 2cm and/or is grade 2-3 (histologic and/or nuclear grade)

Table 4i: Proportion of women aged 50-69 years with invasive cancer who had chemotherapy by disease character groups, 2 years

	Invasive Cancers, having chemotherapy	Invasive cancers	% (95%CI)
<i>Group 1: Node positive, ER and PR negative</i>			
BSWN	6	7	85.7 (42.1-99.6)
BSCM	7	7	100.0 (59.0-100.0)
BSAL	3	4	75.0 (19.4-99.4)
BSM	2	2	100.0 (15.8-100.0)
BSCtoC	3	4	75.0 (19.4-99.4)
BSC	7	8	87.5 (47.3-99.7)
BSSL	5	5	100.0 (47.8-100.0)
BSHC	3	3	100.0 (29.2-100.0)
BSA Total	36	40	90.0 (76.3-97.2)
<i>Group 2: Node negative, high risk, and ER and PR negative</i>			
BSWN	16	21	76.2 (52.8-91.8)
BSCM	6	11	54.5 (23.4-83.3)
BSAL	3	7	42.9 (9.9-81.6)
BSM	4	8	50.0 (15.7-84.3)
BSCtoC	3	9	33.3 (7.5-70.1)
BSC	4	13	30.8 (9.1-61.4)
BSSL	10	19	52.6 (28.9-75.6)
BSHC	9	14	64.3 (35.1-87.2)
BSA Total	55	102	53.9 (43.8-63.8)
<i>Group 3: Node positive, either ER or PR positive</i>			
BSWN	10	31	32.3 (16.7-51.4)
BSCM	8	13	61.5 (31.6-86.1)
BSAL	3	13	23.1 (5.0-53.8)
BSM	28	47	59.6 (44.3-73.6)
BSCtoC	22	44	50.0 (34.6-65.4)
BSC	13	20	65.0 (40.8-84.6)
BSSL	31	58	53.4 (39.9-66.7)
BSHC	14	19	73.7 (48.8-90.9)
BSA Total	129	245	52.7 (46.2-59.0)
<i>Group 4: Node negative, high risk, either ER or PR positive</i>			
BSWN	4	67	6.0 (1.7-14.6)
BSCM	4	38	10.5 (2.9-24.8)
BSAL	2	33	6.1 (0.7-20.2)
BSM	7	79	8.9 (3.6-17.4)
BSCtoC	8	81	9.9 (4.4-18.5)
BSC	2	48	4.2 (0.5-14.3)
BSSL	7	123	5.7 (2.3-11.4)
BSHC	4	27	14.8 (4.2-33.7)
BSA Total	38	496	7.7 (5.5-10.4)

Exact binomial 95% Confidence Intervals presented

NB: A high risk tumour is one that has either a pathological tumour size \geq 2cm and/or is grade 2-3 (histologic and/or nuclear grade)

4.j. Proportion of women with invasive cancer having endocrine therapy

Description:

The proportion of women diagnosed with Invasive Cancer who have Endocrine therapy reported by disease characteristic groups

Target:

No target

Table 4j: Proportion of women aged 45-49 years diagnosed with invasive cancer who had endocrine therapy by disease character groups, 2 years

	Invasive Cancers, having endocrine therapy	Invasive cancers	% (95%CI)
<i>Group 1: Node positive, and ER or PR positive</i>			
BSWN	11	13	84.6 (54.6-98.1)
BSCM	8	8	100.0 (63.1-100.0)
BSAL	11	13	84.6 (54.6-98.1)
BSM	13	13	100.0 (75.3-100.0)
BSCtoC	6	6	100.0 (54.1-100.0)
BSC	10	11	90.9 (58.7-99.8)
BSSL	12	14	85.7 (57.2-98.2)
BSHC	8	8	100.0 (63.1-100.0)
BSA Total	79	86	91.9 (83.9-96.7)
<i>Group 2: Node negative, high risk, and ER or PR positive</i>			
BSWN	12	14	85.7 (57.2-98.2)
BSCM	5	9	55.6 (21.2-86.3)
BSAL	9	12	75.0 (42.8-94.5)
BSM	10	14	71.4 (41.9-91.6)
BSCtoC	6	7	85.7 (42.1-99.6)
BSC	12	12	100.0 (73.5-100.0)
BSSL	10	18	55.6 (30.8-78.5)
BSHC	6	6	100.0 (54.1-100.0)
BSA Total	70	92	76.1 (66.1-84.4)
<i>Group 3: Node negative, low risk and ER or PR positive</i>			
BSWN	14	29	48.3 (29.4-67.5)
BSCM	6	14	42.9 (17.7-71.1)
BSAL	10	15	66.7 (38.4-88.2)
BSM	16	21	76.2 (52.8-91.8)
BSCtoC	7	11	63.6 (30.8-89.1)
BSC	20	20	100.0 (83.2-100.0)
BSSL	11	26	42.3 (23.4-63.1)
BSHC	8	9	88.9 (51.8-99.7)
BSA Total	92	145	63.4 (55.1-71.3)

Exact binomial 95% Confidence Intervals presented

NB: A low risk tumour is one that has a pathological tumour size < 2cm and is grade 1 (histologic and/or nuclear grade).

A high risk tumour is one that has either a pathological tumour size ≥ 2cm and/or is grade 2-3 (histologic and/or nuclear grade)

Table 4j: Proportion of women aged 50-69 years diagnosed with invasive cancer who had endocrine therapy by disease character groups, 2 years

	Invasive Cancers, having endocrine therapy	Invasive cancers	% (95%CI)
<i>Group 1: Node positive, and ER or PR positive</i>			
BSWN	29	31	93.5 (78.6-99.2)
BSCM	12	13	92.3 (64.0-99.8)
BSAL	11	13	84.6 (54.6-98.1)
BSM	46	47	97.9 (88.7-99.9)
BSCtoC	42	44	95.5 (84.5-99.4)
BSC	19	20	95.0 (75.1-99.9)
BSSL	54	58	93.1 (83.3-98.1)
BSHC	19	19	100.0 (82.4-100.0)
BSA Total	232	245	94.7 (91.1-97.1)
<i>Group 2: Node negative, high risk, and ER or PR positive</i>			
BSWN	55	67	82.1 (70.8-90.4)
BSCM	22	38	57.9 (40.8-73.7)
BSAL	25	33	75.8 (57.7-88.9)
BSM	72	79	91.1 (82.6-96.4)
BSCtoC	53	81	65.4 (54.0-75.7)
BSC	47	48	97.9 (88.9-99.9)
BSSL	68	123	55.3 (46.1-64.3)
BSHC	18	27	66.7 (46.0-83.5)
BSA Total	360	496	72.6 (68.4-76.5)
<i>Group 3: Node negative, low risk and ER or PR positive</i>			
BSWN	68	155	43.9 (35.9-52.1)
BSCM	22	68	32.4 (21.5-44.8)
BSAL	32	59	54.2 (40.8-67.3)
BSM	124	136	91.2 (85.1-95.4)
BSCtoC	70	113	61.9 (52.3-70.9)
BSC	80	90	88.9 (80.5-94.5)
BSSL	87	186	46.8 (39.4-54.2)
BSHC	25	50	50.0 (35.5-64.5)
BSA Total	508	857	59.3 (55.9-62.6)

Exact binomial 95% Confidence Intervals presented

NB: A low risk tumour is one that has a pathological tumour size < 2cm and is grade 1 (histologic and/or nuclear grade).

A high risk tumour is one that has either a pathological tumour size ≥ 2cm and/or is grade 2-3 (histologic and/or nuclear grade)

5. PROVISION OF AN APPROPRIATE AND ACCEPTABLE SERVICE

5.e. First surgical treatment within 20 working days

Description:

The time from when a woman receives her final diagnostic results to the date of her first surgical treatment

Target:

90% of women should normally receive their first surgical treatment within 20 working days of receiving their final diagnostic results.

Table 5.e: First surgical treatment within 20 working days in women aged 45-69 years, 2 years

	First surgical treatment within 20 working days	Total having surgery	% (95%CI)		
<i>45-49 years</i>					
BSWN	43	63	68.3 (55.3-79.4)		
BSCM	6	32	18.8 (7.2-36.4)		
BSAL	23	44	52.3 (36.7-67.5)		
BSM	26	49	53.1 (38.3-67.5)		
BSCtoC	25	33	75.8 (57.7-88.9)		
BSC	22	34	64.7 (46.5-80.3)		
BSSL	45	63	71.4 (58.7-82.1)		
BSHC	15	22	68.2 (45.1-86.1)		
BSA Total	205	340	60.3 (54.9-65.5)		
<i>50-69 years</i>					
BSWN	195	276	70.7 (64.9-76.0)	xxx	*
BSCM	47	138	34.1 (26.2-42.6)	xxx	*
BSAL	77	119	64.7 (55.4-73.2)	xxx	*
BSM	149	249	59.8 (53.5-66.0)	xxx	*
BSCtoC	150	216	69.4 (62.8-75.5)	xxx	*
BSC	120	184	65.2 (57.9-72.1)	xxx	*
BSSL	257	354	72.6 (67.6-77.2)	xxx	*
BSHC	68	107	63.6 (53.7-72.6)	xxx	*
BSA Total	1,063	1,643	64.7 (62.3-67.0)	xxx	*

Exact Binomial 95% Confidence Intervals presented

* Statistically different from target value, ns Not significant

✓ On target, difference of <5% better or worse than target value based on point estimate or 95% Confidence Interval not significantly different from the target

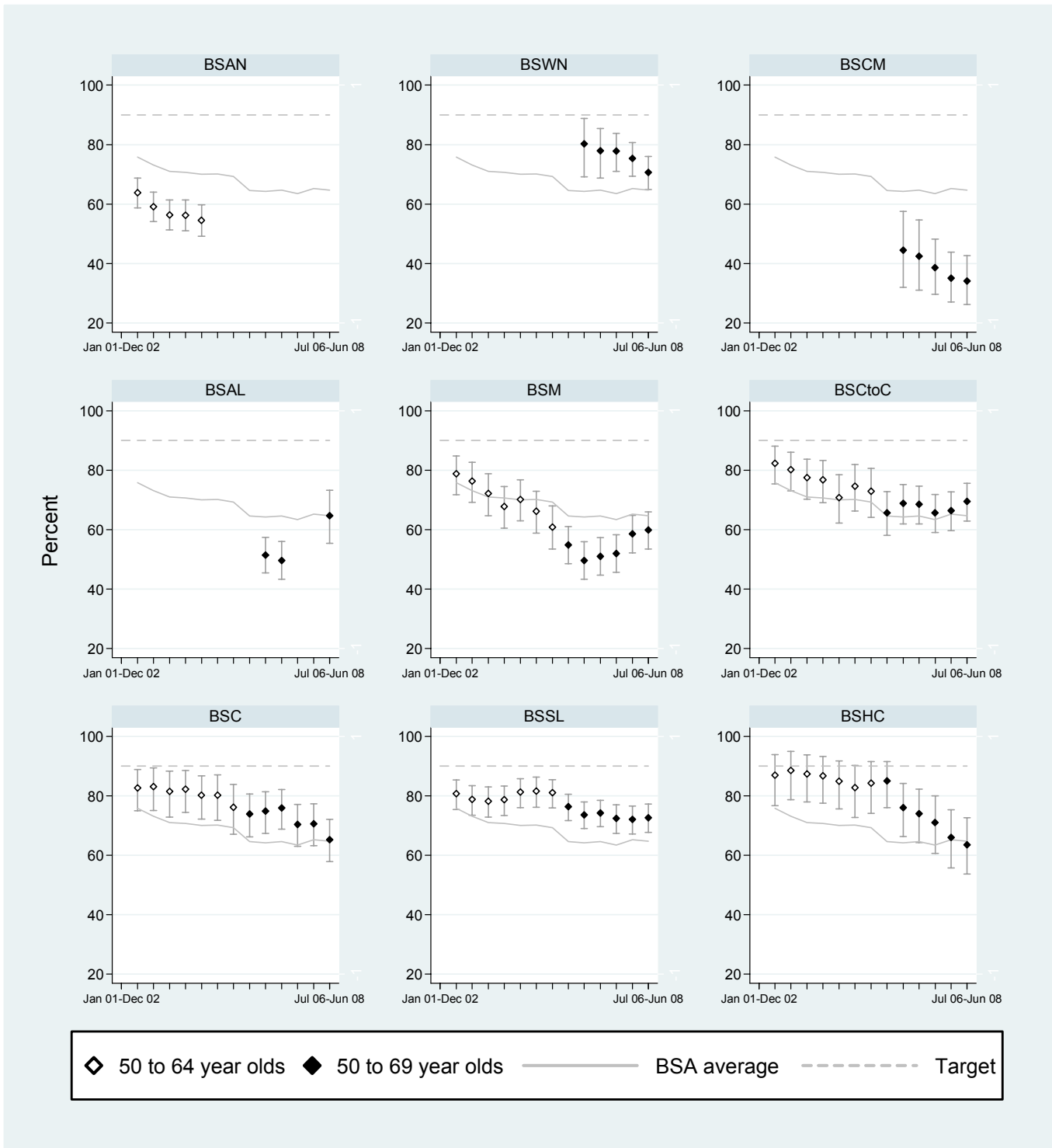
✓✓ Difference of ≥ 5-9% magnitude better than target value and statistically significant

✓✓✓ Difference of ≥ 10% magnitude better than target value and statistically significant

xx Difference of ≥ 5-9% magnitude worse than target value and statistically significant

xxx Difference of ≥ 10% magnitude worse than target value and statistically significant

Figure 5e: Proportion of women receiving timely surgical treatment, 2 years



APPENDIX A: GLOSSARY OF TERMS

Assessment

Follow-up investigations if something of concern is seen on a mammogram.

Assessment rate

Number of women referred to assessment as a percentage of all women screened

Asymptomatic

Women who do not have symptoms of breast cancer

Axillary dissection

A formal dissection of the axilla that removes lymph nodes for examination in the staging of breast cancer to determine if further treatment is required.

Biopsy

A sample of a breast abnormality, or the whole abnormality, is removed and examined under a microscope by a pathologist to determine whether it is cancer

Benign biopsy weight

The weight of the open biopsy specimen presented to the pathologist

Benign biopsy rate

Number of open biopsies that turn out to be benign lesions, expressed as a proportion of women screened

BSA

BreastScreen Aotearoa

Coverage

Population-based measure of the percentage of women in the target age group (45-49, 50-69 years) who have had a screening mammogram in the programme

Initial screen

A woman's first screening mammogram at any BSA Lead Provider

False negative

A negative screening test result in a woman who does have cancer at the time the screening is conducted.

False positive result

The proportion of women who are recalled to assessment, but after assessment are found not to have cancer

High risk invasive breast cancer

Having at least one of the following features:

- a. pT>2cm (pathological tumour size and/or
- b. Grade 2-3 (histologic and/or nuclear grade)

Lead Provider

A service provider who contracts with the National Screening Unit to provide services purchased as a result of the *Request for Proposal*. This term encompasses those individuals or organisations who act as a nominee, agent or subcontracted provider to a Lead Provider.

Low risk invasive breast cancer

A pathological tumour size <2cm and is grade 1 (histologic and/or nuclear grade)

Positive predictive value

The proportion of women screened positive who are ultimately diagnosed as having cancer

Pre-operative diagnosis rate

Number of women in which a needle biopsy provides the definitive diagnosis (pre-operative diagnosis), as a percentage of all women diagnosed with breast cancer in the programme

Rescreen

A screening mammogram undertaken two years after the previous screen. In this report, rescreen refers to women who returned for screening within 27 months following their previous screen.

Sensitivity

The proportion of truly diseased persons in the screened population who are identified as diseased by the screening test. Sensitivity is a measure of the probability of correctly diagnosing a case, or the probability that any given case will be identified by the test.

Specificity

The proportion of women without breast cancer at screening who have a negative screen result. This is estimated by expressing the number of women who have a negative screen result as a percentage of all women screened excluding the women screened positive with cancer.

Subsequent screen

A woman's screening mammogram at a BSA Lead Provider when she has previously attended BSA.

Technical recall rate

Number of women who have to return to a screening unit (either Fixed or Mobile) for further films to complete their screening episode, expressed as a percentage of the number screened

Technical reject rate

Number of films rejected as a percentage of the number of films taken, calculated separately for women who are screened in a fixed unit and a mobile unit

APPENDIX B: Map of BSA Lead Provider Regions

