

BREASTSCREEN AOTEAROA
INDEPENDENT MONITORING REPORT:

TREATMENT OF WOMEN WITH BSA DETECTED CANCERS
(WOMEN SCREENED JANUARY 2008 TO DECEMBER 2009)

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EXECUTIVE SUMMARY

This report presents cross-sectional data for the 2 year period January 2008 - December 2009 and trend data from programme inception to December 2009 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.

Targets are provided for indicators for women aged 50-69 years. Due to the paucity of trial and screening service evidence, there is insufficient data on which to base targets for the screening of women under 50 years at present. Therefore, BSA and provider performance for the 45-49 years age group is documented throughout the report, but there are no specific recommendations. Trend data for key indicators are presented for women aged 50-64 years, however, a times-series has also been established for the 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. Both the magnitude of differences, and their statistical significance, are used to assess the relation of observed to target values. Differences of <5% in magnitude from the target value and/or differences which are not significantly different from the target value are considered 'on target' (see 'Technical notes for interpreting this report').

As the BSA screening program matures the proportion of visits for initial screening diminish and the proportion of subsequent visits increases, and age profile of new entrants to the program becomes younger. 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 (see 'Technical notes for interpreting this report')

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 21.4% (target range 10-25%).

Invasive cancer detection rate

The BSA biennial invasive cancer detection for women aged 50-69 years was 8.0 per 1,000 women screened for initial screens (achieving the target of ≥ 6.1 per 1,000), and 4.4 per 1,000 for subsequent screens (achieving the target of ≥ 3.45 per 1,000). This represented 1,477 invasive cancers detected by BSA for the 2-year period. The overall proportion of node negative cancers (of all invasive cancers) was 74.1% for initial screens and 78.1% 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 25.5% for initial screens and 39.2% for subsequent screens. The corresponding detection rates per 10,000 women screened for invasive cancers ≤ 10 mm were above the target at 20.3 for initial screens (target ≥ 15.2 per 10,000 screens) and 17.3 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 41.2% for initial screens and 57.2% for subsequent screens. The corresponding detection rates per 10,000 women screened for invasive cancers < 15 mm were on target at 32.8 for initial screens (target > 30.5 per 10,000 screens) and 25.2 significantly above target for subsequent screens (target ≥ 17.3 per 10,000 screens).

¹ Page A, Taylor R. BreastScreen Aotearoa: Independent Monitoring Report - Screening and assessment report of women attending BSA (Women screened January 2008 to December 2009). BreastScreen Aotearoa: Wellington 2010.

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 82.5%, and for invasive cancers having BCS was 75.5%, 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 97.9%, which was on target (target value of 95%).

The overall proportion of women diagnosed with invasive cancer, who had breast conserving surgery (BCS), and went on to have radiotherapy, was 95.9%, which was on target (target value of $\geq 95\%$).

3. Provision of an appropriate and acceptable service

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 62.2%. The overall median number of days to first surgical treatment was 17 days. This target is not being met by any of the Lead Providers, and declines are particularly evident for BSCM, BSHC and BSC.

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 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 ($\geq 5\%$ difference in magnitude, and statistically significant).

BreastScreen Waitemata and North

BSWN was 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 for initial and subsequent screens, small invasive cancer detection (≤ 10 mm and < 15 mm) in women attending for a subsequent screen, 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 (69.3%, target 90%; median number of days = 14).

BreastScreen Counties Manukau

BSCM was 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 invasive cancer detection for subsequent screens and for the percentage of women with DCIS having breast conserving surgery. The target was not achieved for the percentage of women receiving surgical treatment within 20 working days (30.1%, target 90%; median number of days = 25), continuing a decreasing trend from previous reporting periods.

BreastScreen Auckland Limited

BSAL was 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 for initial and subsequent screens, for small invasive cancer detection for initial and subsequent screens ≤ 10 mm, the percentage of node negative invasive cancers 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 (68.5%, target 90%; median number of days = 17).

BreastScreen Midland

BSM was 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 for subsequent screens, for

invasive cancer detection (≤ 10 mm) in women attending for a subsequent screen, the percentage of node negative invasive cancers for subsequent 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 (65.1%, target 90%; median number of days = 16).

BreastScreen Coast to Coast

BSCtoC was 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 for subsequent screens, for the percentage of women with DCIS having breast conserving surgery. The target was not achieved for the percentage of women receiving surgical treatment within 20 working days (65.4%, target 90%; median number of days = 17).

BreastScreen Central

BSC was on target 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 for initial and subsequent screens, for the percentage of women with DCIS or invasive cancer having breast conserving surgery. The target was not achieved for the percentage of women receiving surgical treatment within 20 working days (53.4%, target 90%; median number of days = 20), continuing a decreasing trend from previous reporting periods.

BreastScreen South Limited

BSSL was 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 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 invasive cancer detection in women attending for initial screens < 15 mm, the percentage of women receiving surgical treatment within 20 working days (68.3%, target 90%; median number of days = 15).

BreastScreen Health Care

BSHC was on target for most biennial indicators for women in the target age range of 50-69 years. The target was not achieved for the percentage of women receiving surgical treatment within 20 working days (67.0%, target 90%; median number of days = 16).

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. Treatment Data Completeness

The BSA Advisory group is pleased to note that treatment data completeness is at a high level.

2. First Surgical Treatment

It is noted that the target for first surgical treatment within 20 days is still not being met by any of the Lead Providers, and an overall decreasing trend is evident. Moreover, for BreastScreen Counties Manukau, BreastScreen Health Care and BreastScreen Central the situation is deteriorating.

A previous analysis of Lead Provider feedback of reasons for delays in surgical timeliness for women screened from January 2006 to December 2007 indicated that the reason for delay was the surgery waiting list (52%). Other reasons include: women's choice (13%), reconstructive surgery (10%) and delays in MRI or further imaging (6%). Based on previous Advisory Group comments, the current report includes median number of days to first surgical treatment to aid further investigation of this issue.

3. Review of indicators and targets

The BSA Advisory group recognises the importance of continuous and timely review of indicators and targets.

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 New South Wales (UNSW), School of Public Health and Community Medicine (SPHCM), Sydney, 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 17 November 2011.

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 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 (CIs)

95% CIs 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 0-4%, moderate differences of 5-9%, and large differences >10%.

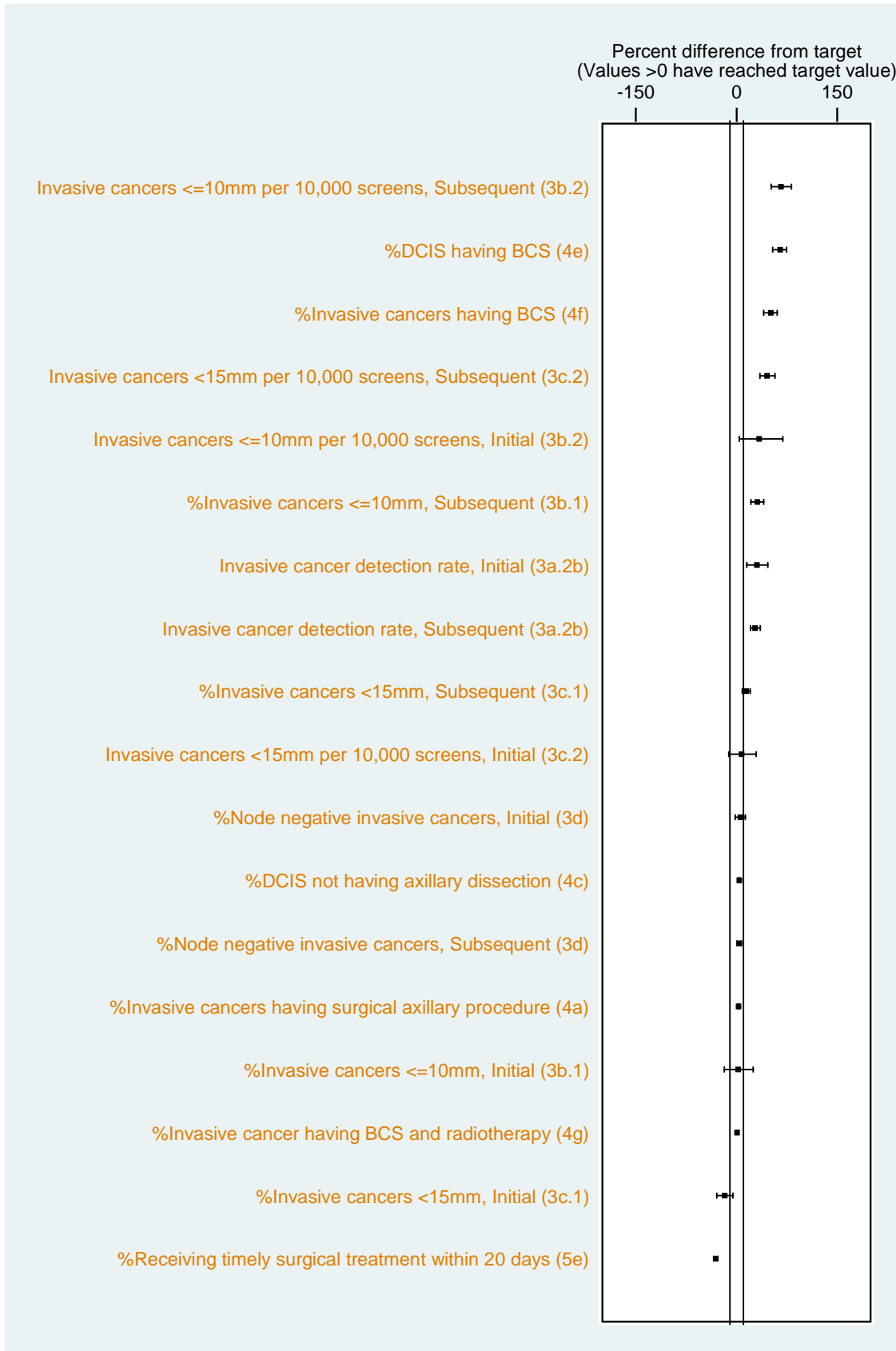
Target values relate only to biennial rates for women in the target age-group (50-69 years) for all indicators.

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. As well as a reduction in absolute numbers with maturity (thus 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.

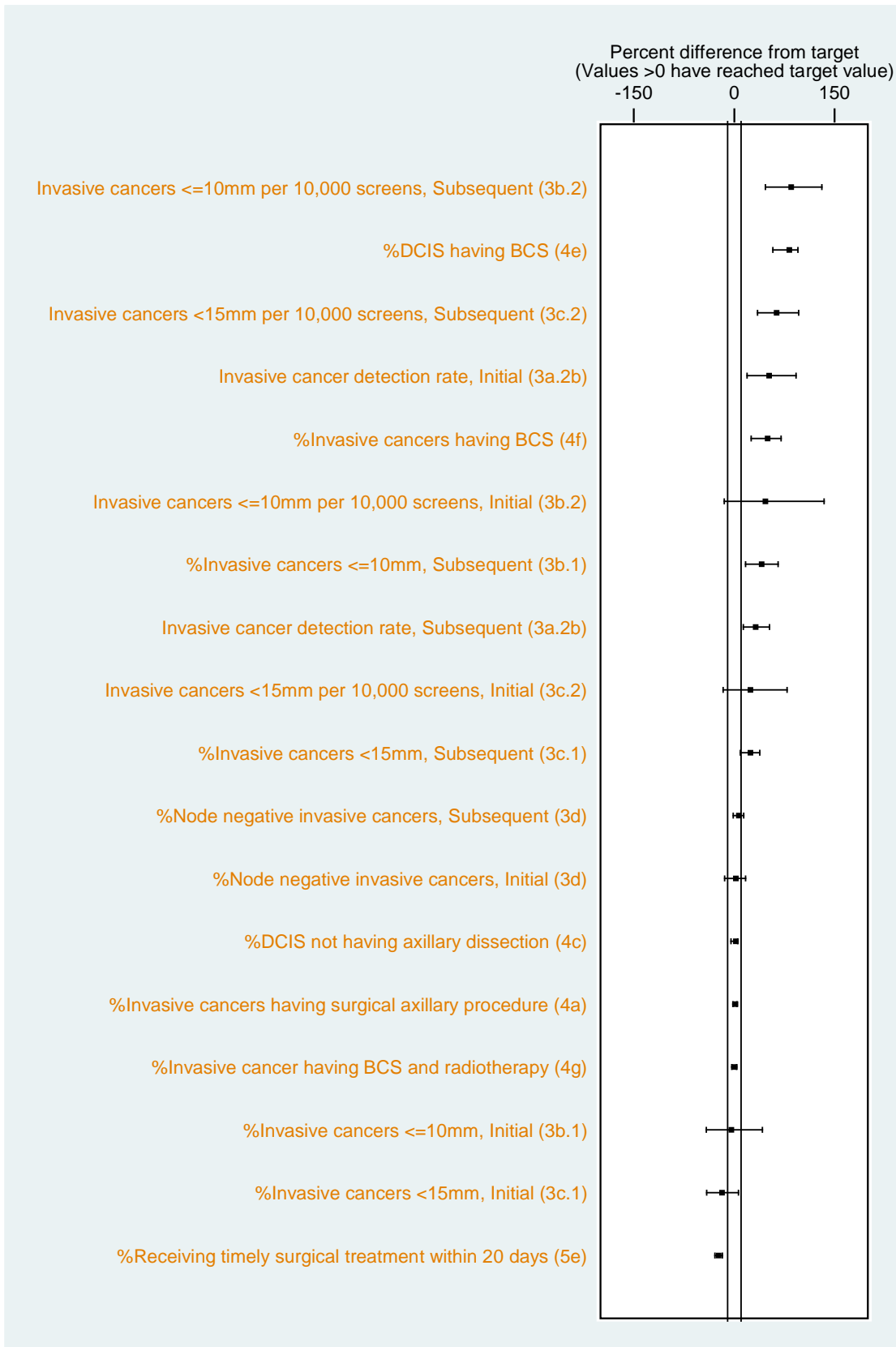
AT A GLANCE: BIENNIAL INDICATORS FOR WOMEN 50-69 YEARS

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, and 95% confidence intervals (Table reference in brackets)



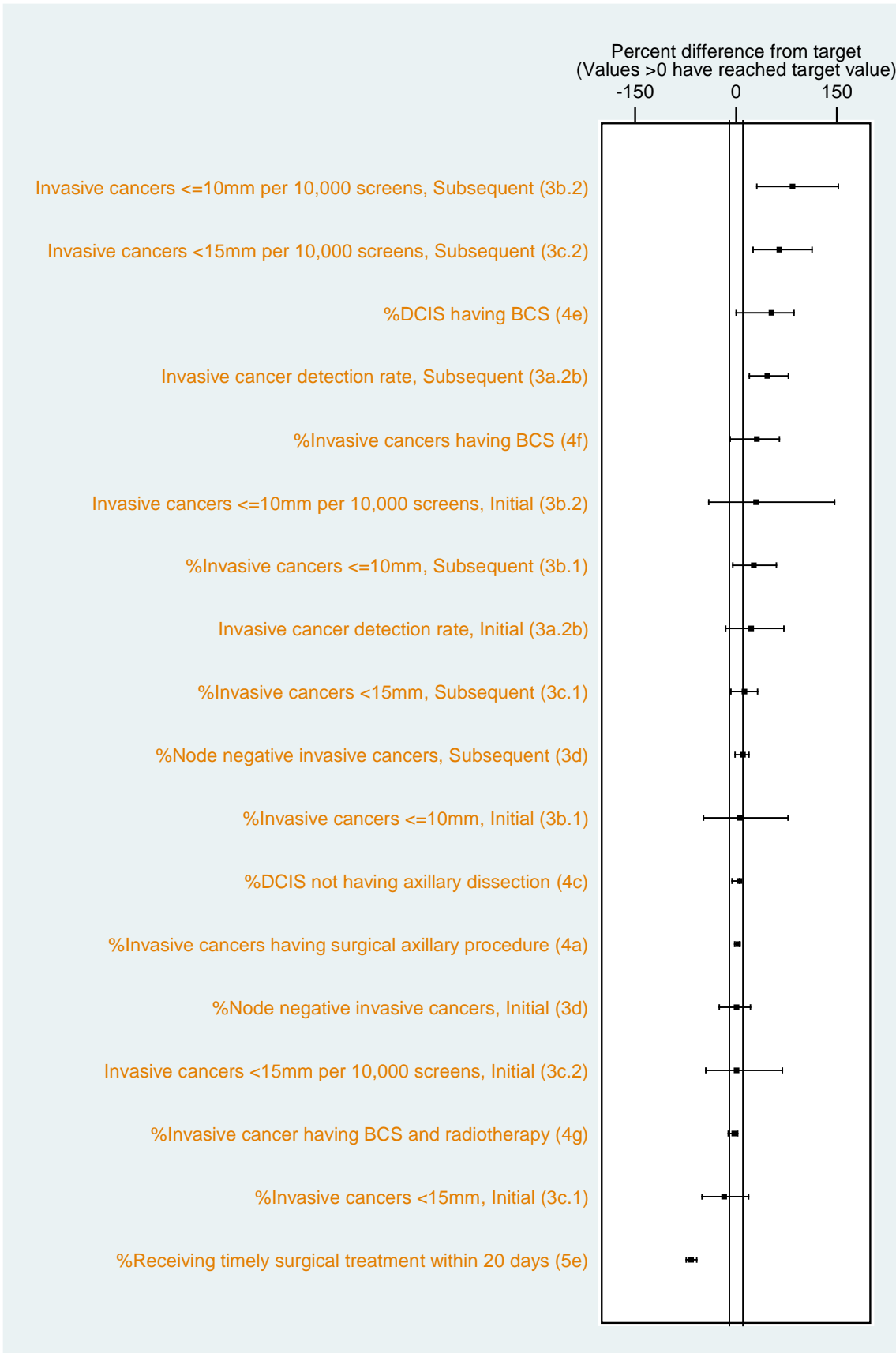
NB: The vertical line represent a $\pm 10\%$ difference between the observed value and the target value.

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, and 95% confidence intervals (Table reference in brackets).



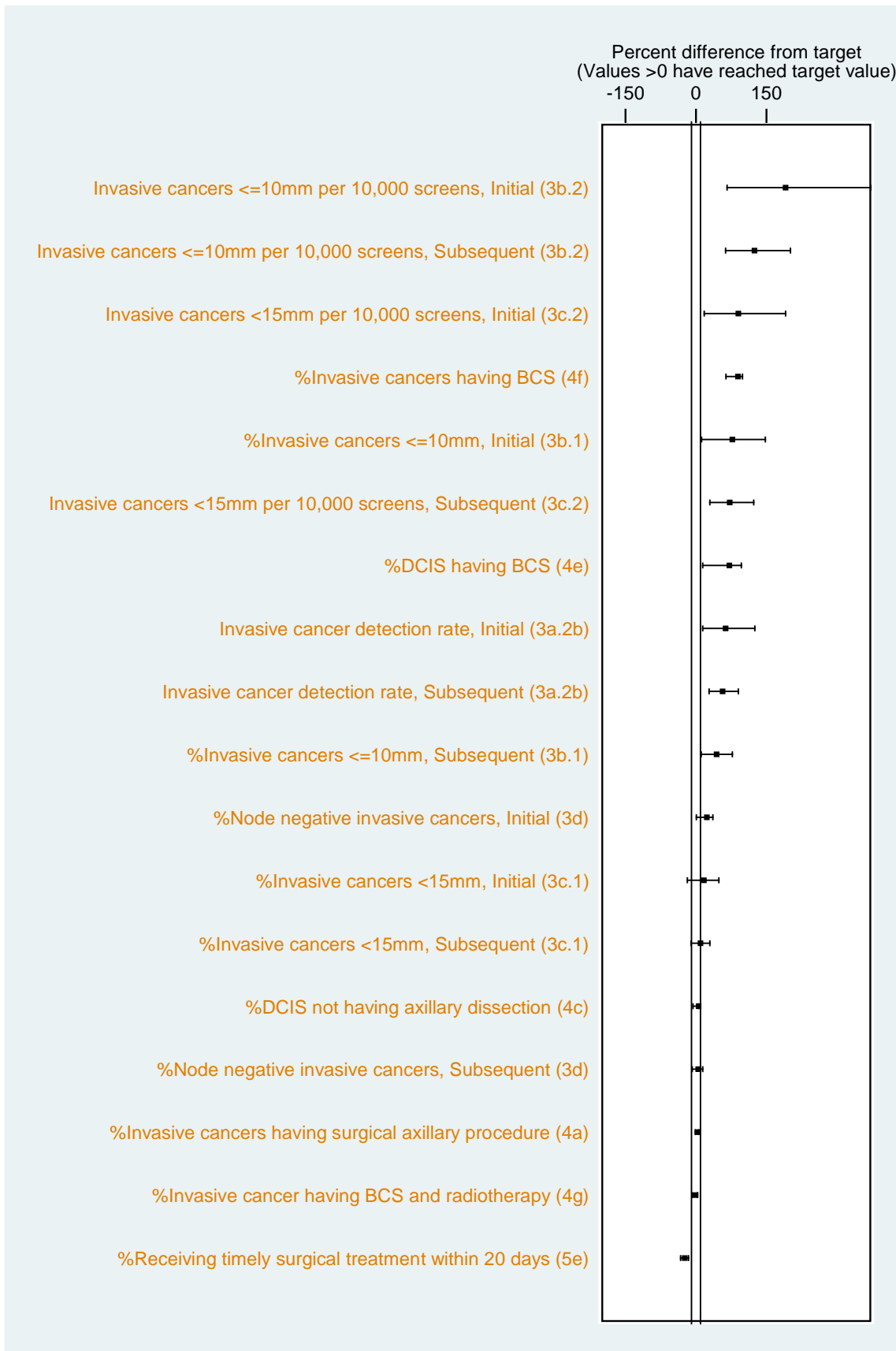
NB: The vertical line represent a $\pm 10\%$ difference between the observed value and the target value.

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, and 95% confidence intervals (Table reference in brackets)..



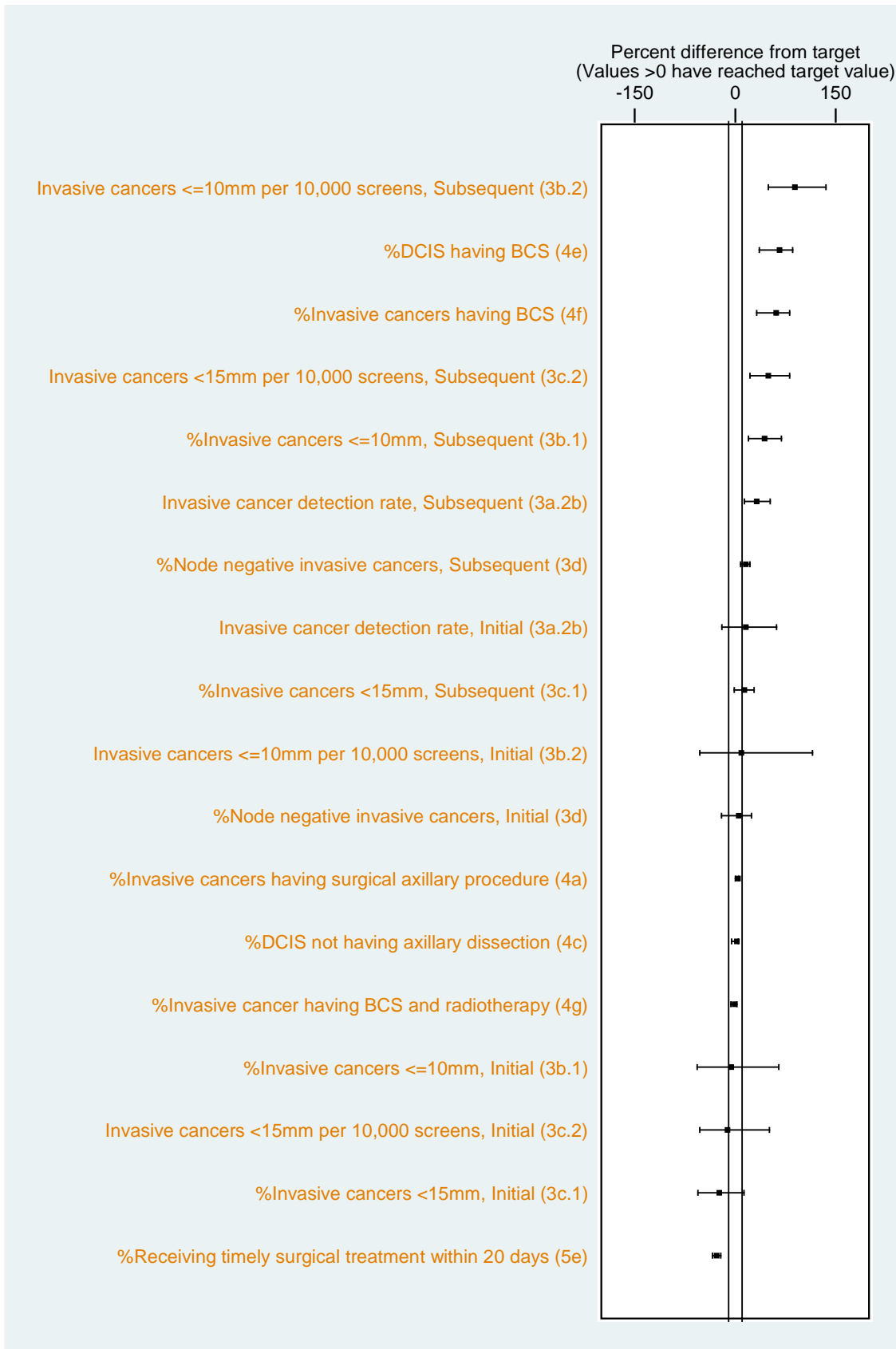
NB: The vertical line represent a $\pm 10\%$ difference between the observed value and the target value.

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, and 95% confidence intervals (Table reference in brackets).



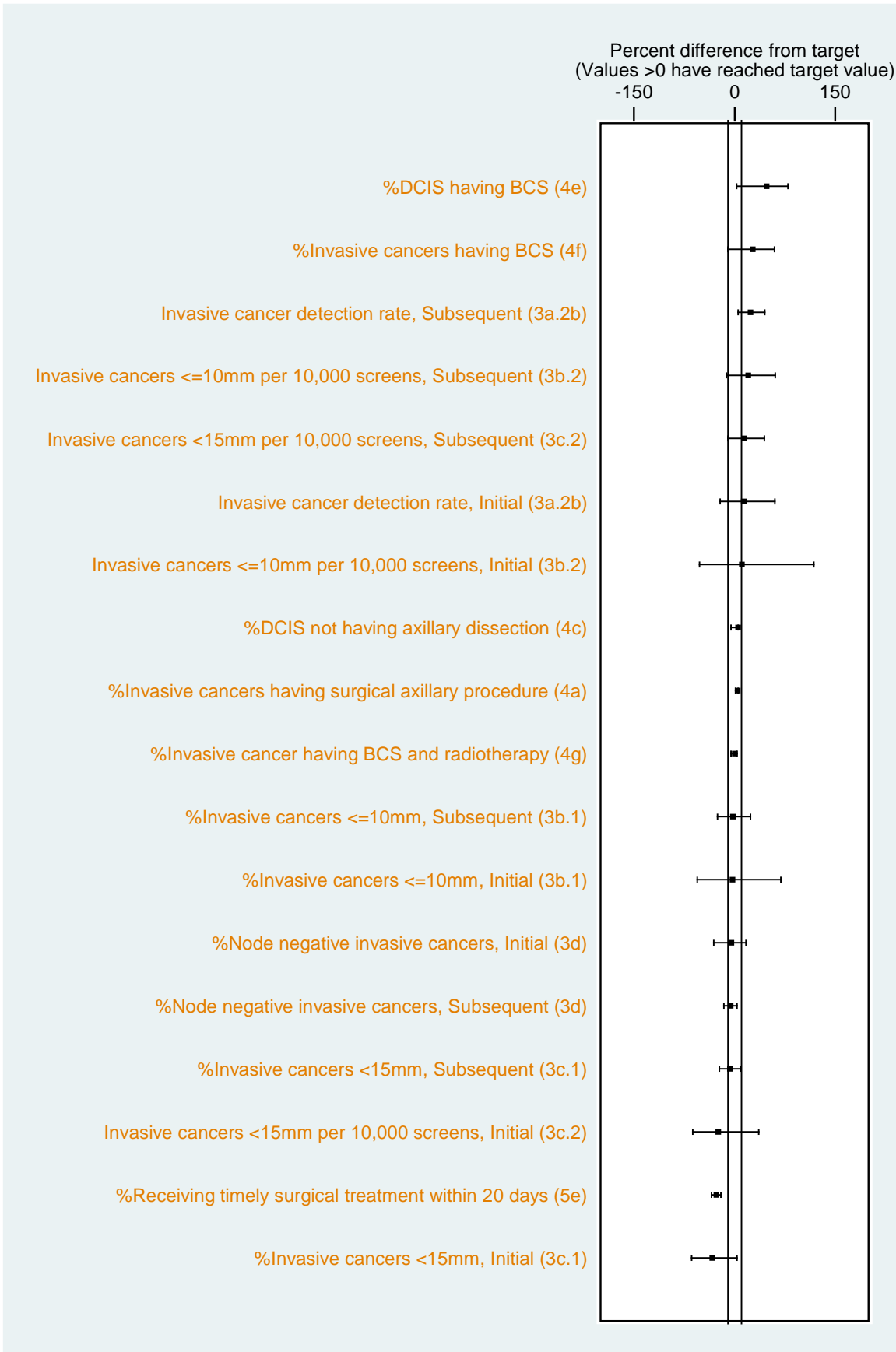
NB: The vertical line represent a $\pm 10\%$ difference between the observed value and the target value.

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, and 95% confidence intervals (Table reference in brackets)



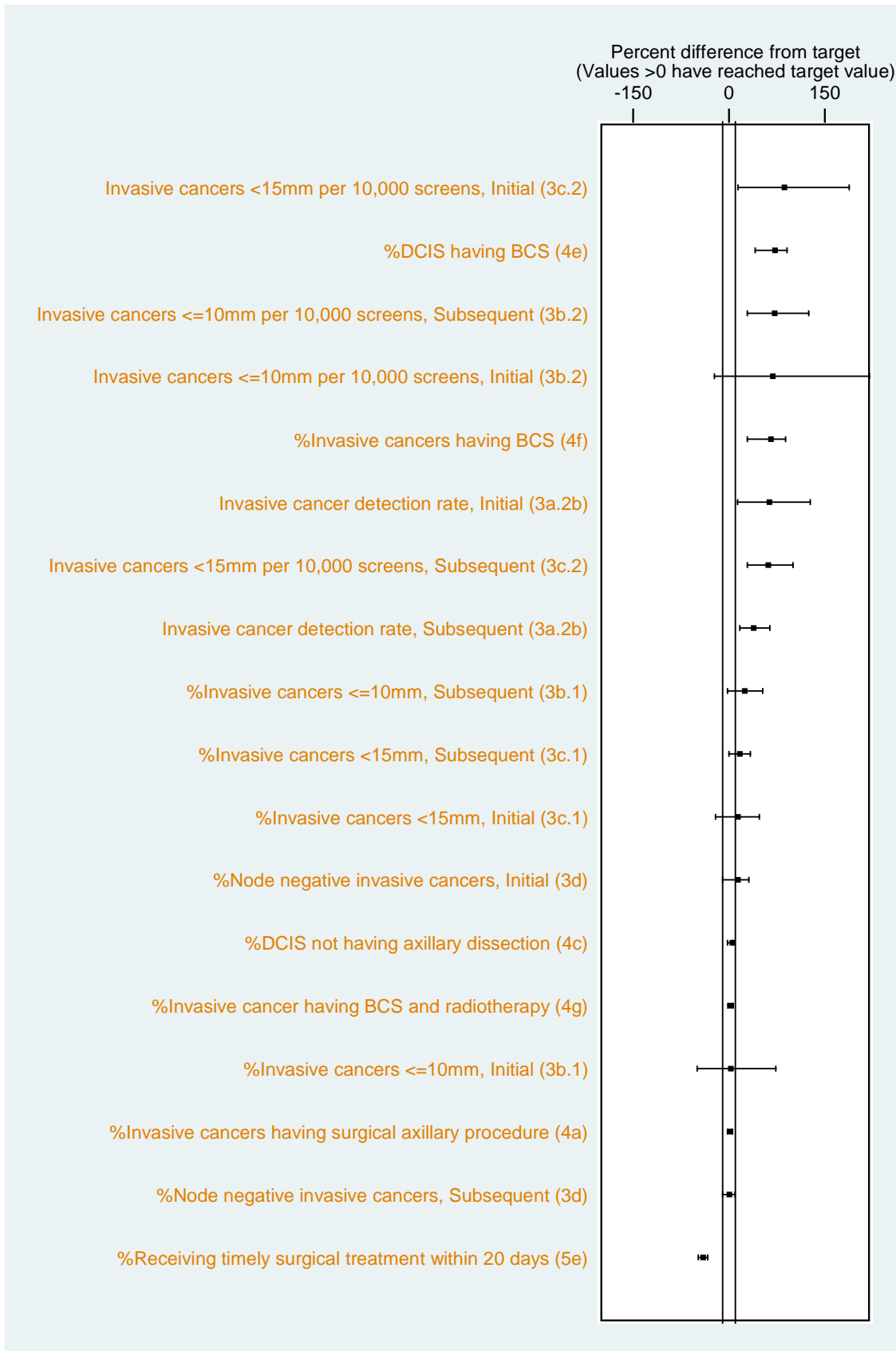
NB: The vertical line represent a $\pm 10\%$ difference between the observed value and the target value.

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, and 95% confidence intervals (Table reference in brackets)



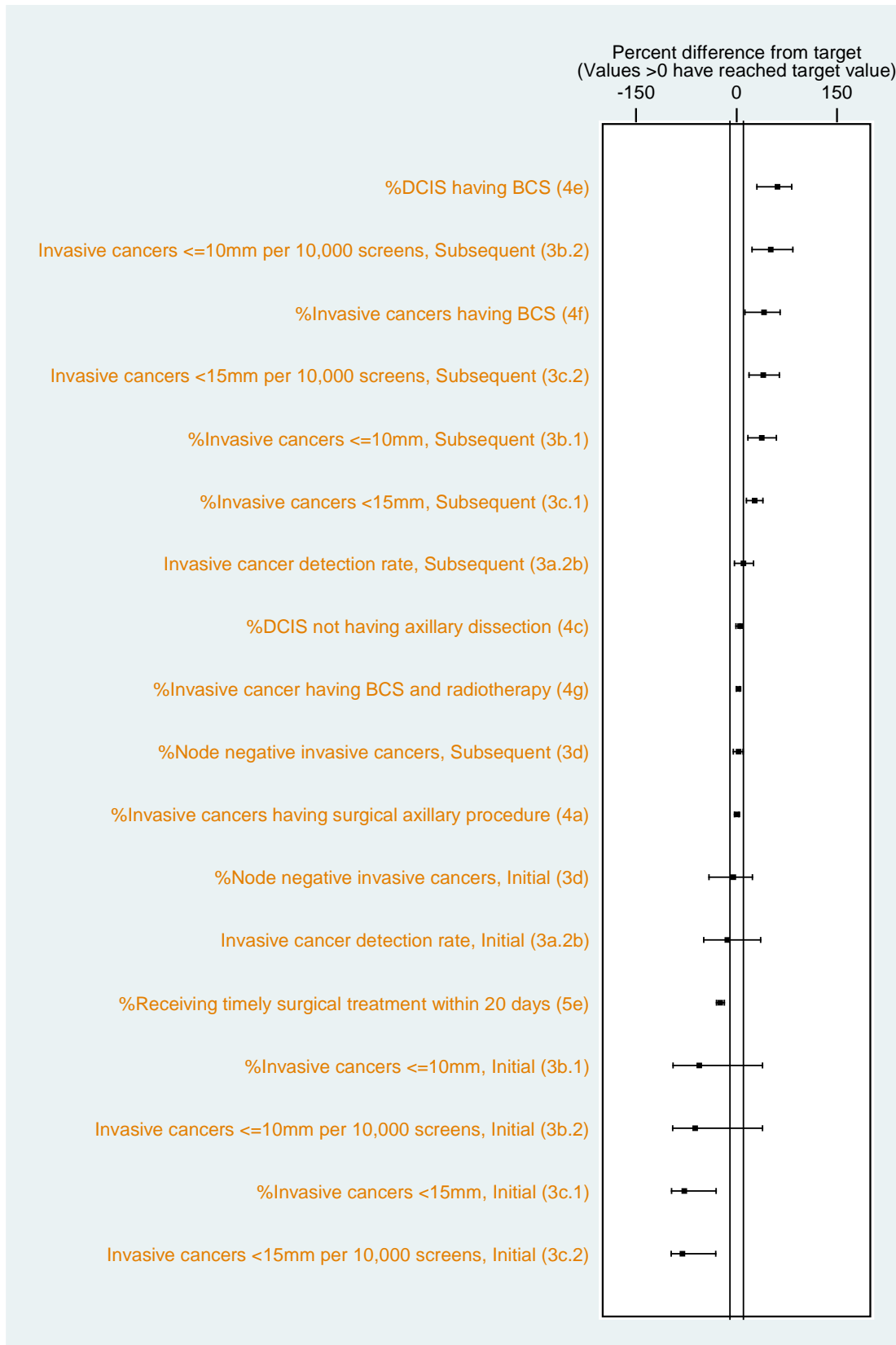
NB: The vertical line represent a $\pm 10\%$ difference between the observed value and the target value.

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, and 95% confidence intervals (Table reference in brackets)



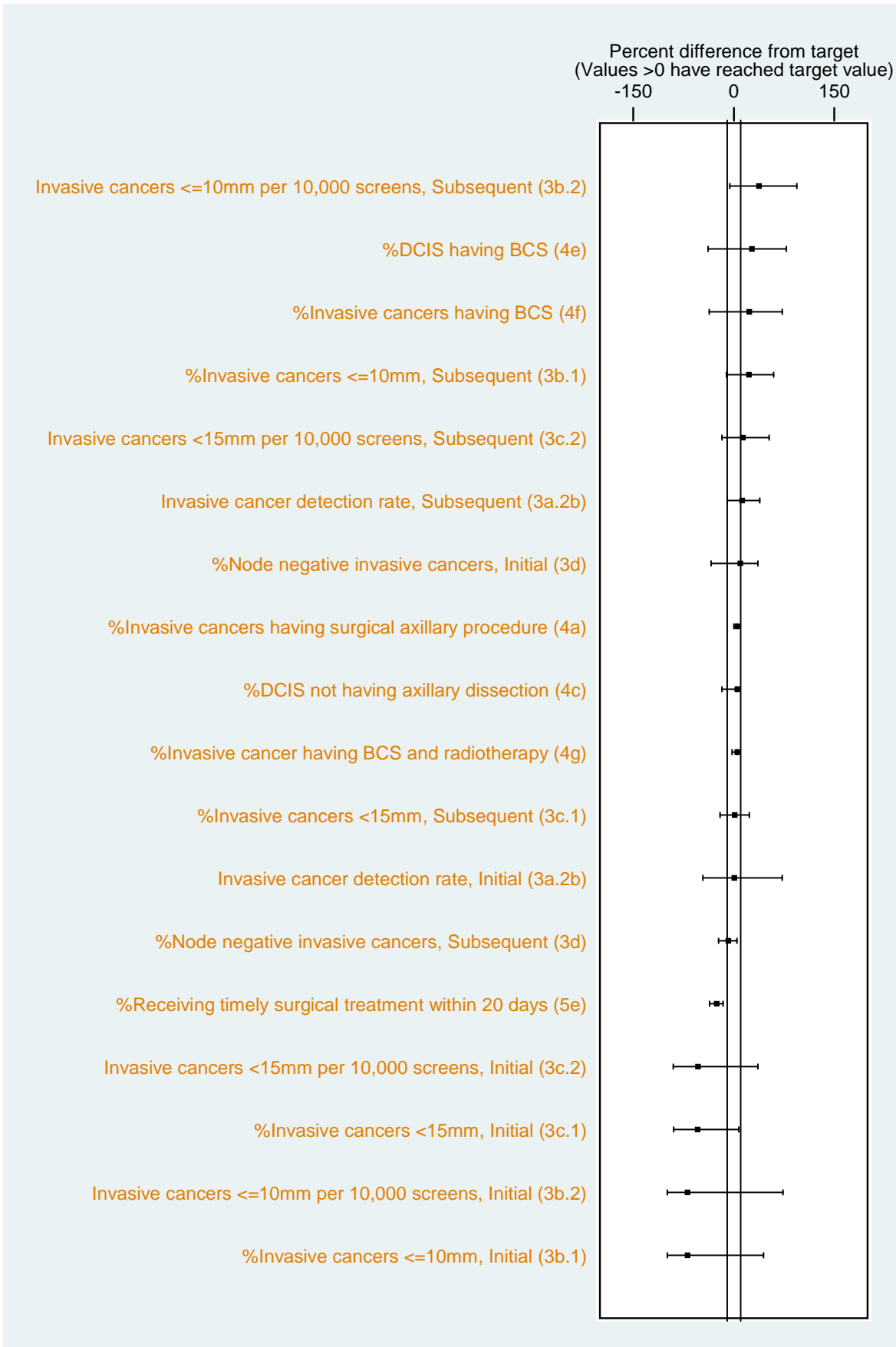
NB: The vertical line represent a $\pm 10\%$ difference between the observed value and the target value.

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, and 95% confidence intervals (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, and 95% confidence intervals (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	87	98.9	98.9	98.9	98.9	97.7
BSCM	34	94.1	100.0	100.0	97.1	100.0
BSAL	50	100.0	100.0	100.0	100.0	100.0
BSM	56	100.0	100.0	100.0	100.0	100.0
BSCtoC	54	100.0	100.0	100.0	100.0	100.0
BSC	50	100.0	100.0	100.0	100.0	100.0
BSSL	90	98.9	97.8	100.0	100.0	100.0
BSHC	28	100.0	100.0	100.0	100.0	100.0
BSA Total	449	99.1	99.3	99.8	99.6	99.6
<i>50-69 years</i>						
BSWN	340	100.0	99.7	100.0	100.0	100.0
BSCM	179	96.1	100.0	95.5	99.4	98.9
BSAL	174	100.0	100.0	100.0	100.0	100.0
BSM	296	100.0	100.0	100.0	100.0	100.0
BSCtoC	229	100.0	100.0	100.0	100.0	100.0
BSC	235	100.0	100.0	100.0	100.0	100.0
BSSL	326	100.0	99.7	100.0	100.0	100.0
BSHC	116	100.0	100.0	100.0	100.0	100.0
BSA Total	1,895	99.6	99.9	99.6	99.9	99.9

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	100.0
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	97.4	100.0	97.5	96.5	94.4
2002 Jan-Jun	<i>Jun-07</i>			96.4	97.7	96.6	96.3	96.9	95.0
2002 Jul-Dec	<i>Dec-07</i>			98.9	97.7	100.0	95.5	97.5	78.3
2003 Jan-Jun	<i>Jun-08</i>			100.0	97.5	97.0	82.1	100.0	83.3
2003 Jul-Dec	<i>Dec-08</i>			97.2	88.1	100.0	88.9	96.9	83.3
2004 Jan-Jun	<i>Jun-09</i>			98.9	65.6	97.1	81.1	98.5	92.3
2004 Jul-Dec	<i>Dec-09</i>			95.5	59.1	100.0	96.8	92.8	84.6
2005 Jan-Jun	<i>Jun-10</i>			99.0	42.6	60.0	87.0	87.1	100.0
2005 Jul-Dec	<i>Dec-10</i>			97.7	20.7	45.8	72.7	31.0	94.4

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)
<i>45-49 years</i>						
BSWN	19	10,110	1.9 (1.1-2.9)	39	6,912	5.6 (4.0-7.7)
BSCM	4	6,025	0.7 (0.2-1.7)	15	2,749	5.5 (3.1-9.0)
BSAL	3	4,911	0.6 (0.1-1.8)	25	3,274	7.6 (4.9-11.3)
BSM	13	6,894	1.9 (1.0-3.2)	22	5,240	4.2 (2.6-6.4)
BSCtoC	8	7,125	1.1 (0.5-2.2)	29	5,204	5.6 (3.7-8.0)
BSC	11	5,646	1.9 (1.0-3.5)	21	4,581	4.6 (2.8-7.0)
BSSL	25	11,081	2.3 (1.5-3.3)	41	12,781	3.2 (2.3-4.4)
BSHC	10	4,411	2.3 (1.1-4.2)	12	3,070	3.9 (2.0-6.8)
BSA Total	93	56,203	1.7 (1.3-2.0)	204	43,811	4.7 (4.0-5.3)
<i>50-69 years</i>						
BSWN	71	7,642	9.3 (7.3-11.7) ✓✓✓ *	187	41,030	4.6 (3.9-5.3) ✓✓✓ *
BSCM	34	4,556	7.5 (5.2-10.4) ✓ ns	103	20,355	5.1 (4.1-6.1) ✓✓✓ *
BSAL	36	3,622	9.9 (7.0-13.8) ✓✓✓ *	102	18,831	5.4 (4.4-6.6) ✓✓✓ *
BSM	34	4,824	7.0 (4.9-9.8) ✓ ns	183	40,246	4.5 (3.9-5.3) ✓✓✓ *
BSCtoC	33	4,757	6.9 (4.8-9.7) ✓ ns	157	36,777	4.3 (3.6-5.0) ✓✓✓ *
BSC	35	3,518	9.9 (6.9-13.8) ✓✓✓ *	142	29,673	4.8 (4.0-5.6) ✓✓✓ *
BSSL	18	3,427	5.3 (3.1-8.3) ✓ ns	242	63,593	3.8 (3.3-4.3) ✓ ns
BSHC	13	2,117	6.1 (3.3-10.5) ✓ ns	87	22,395	3.9 (3.1-4.8) ✓ ns
BSA Total	274	34,463	8.0 (7.0-8.9) ✓✓✓ *	1,203	272,900	4.4 (4.2-4.7) ✓✓✓ *

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.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)				
<i>45-49 years</i>										
BSWN	10	39	25.6 (13.0-42.1)	7	19					
BSCM	3	15	20.0 (4.3-48.1)	2	4					
BSAL	7	25	28.0 (12.1-49.4)	2	3					
BSM	7	22	31.8 (13.9-54.9)	3	13					
BSCtoC	7	29	24.1 (10.3-43.5)	1	8					
BSC	6	21	28.6 (11.3-52.2)	5	11					
BSSL	12	41	29.3 (16.1-45.5)	5	25					
BSHC	4	12	33.3 (9.9-65.1)	0	10					
BSA Total	56	204	27.5 (21.5-34.1)	25	93					
<i>50-69 years</i>										
BSWN	17	71	23.9 (14.6-35.5)	✓	ns	79	187	42.2 (35.1-49.7)	✓✓✓	*
BSCM	9	34	26.5 (12.9-44.4)	✓	ns	39	103	37.9 (28.5-48.0)	✓	ns
BSAL	16	36	44.4 (27.9-61.9)	✓✓✓	*	44	102	43.1 (33.4-53.3)	✓✓✓	*
BSM	8	34	23.5 (10.7-41.2)	✓	ns	79	183	43.2 (35.9-50.7)	✓✓✓	*
BSCtoC	8	33	24.2 (11.1-42.3)	✓	ns	46	157	29.3 (22.3-37.1)	✓	ns
BSC	9	35	25.7 (12.5-43.3)	✓	ns	53	142	37.3 (29.4-45.8)	✓	ns
BSSL	2	18	11.1 (1.4-34.7)	✓	ns	100	242	41.3 (35.1-47.8)	✓✓✓	*
BSHC	1	13	7.7 (0.2-36.0)	✓	ns	32	87	36.8 (26.7-47.8)	✓	ns
BSA Total	70	274	25.5 (20.5-31.1)	✓	ns	472	1203	39.2 (36.5-42.1)	✓✓✓	*

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 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	10	10,110	9.9 (4.7-18.2)	7	6,912					
BSCM	3	6,025	5.0 (1.0-14.6)	2	2,749					
BSAL	7	4,911	14.3 (5.7-29.4)	2	3,274					
BSM	7	6,894	10.2 (4.1-20.9)	3	5,240					
BSCtoC	7	7,125	9.8 (3.9-20.2)	1	5,204					
BSC	6	5,646	10.6 (3.9-23.1)	5	4,581					
BSSL	12	11,081	10.8 (5.6-18.9)	5	12,781					
BSHC	4	4,411	9.1 (2.5-23.2)	0	3,070					
BSA Total	56	56,203	10.0 (7.5-12.9)	25	43,811					
<i>50-69 years</i>										
BSWN	17	7,642	22.2 (13.0-35.6)	✓	ns	79	41,030	19.3 (15.2-24.0)	✓✓✓	*
BSCM	9	4,556	19.8 (9.0-37.5)	✓	ns	39	20,355	19.2 (13.6-26.2)	✓✓✓	*
BSAL	16	3,622	44.2 (25.2-71.7)	✓✓✓	*	44	18,831	23.4 (17.0-31.4)	✓✓✓	*
BSM	8	4,824	16.6 (7.2-32.7)	✓	ns	79	40,246	19.6 (15.5-24.5)	✓✓✓	*
BSCtoC	8	4,757	16.8 (7.3-33.1)	✓	ns	46	36,777	12.5 (9.2-16.7)	✓	ns
BSC	9	3,518	25.6 (11.7-48.6)	✓	ns	53	29,673	17.9 (13.4-23.4)	✓✓✓	*
BSSL	2	3,427	5.8 (0.7-21.1)	✓	ns	100	63,593	15.7 (12.8-19.1)	✓✓✓	*
BSHC	1	2,117	4.7 (0.1-26.3)	✓	ns	32	22,395	14.3 (9.8-20.2)	✓	ns
BSA Total	70	34,463	20.3 (15.8-25.7)	✓✓✓	*	472	272,900	17.3 (15.8-18.9)	✓✓✓	*

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

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	15	39	38.5 (23.4-55.4)	10	19	
BSCM	4	15	26.7 (7.8-55.1)	3	4	
BSAL	11	25	44.0 (24.4-65.1)	2	3	
BSM	11	22	50.0 (28.2-71.8)	4	13	
BSCtoC	10	29	34.5 (17.9-54.3)	5	8	
BSC	11	21	52.4 (29.8-74.3)	5	11	
BSSL	18	41	43.9 (28.5-60.3)	8	25	
BSHC	7	12	58.3 (27.7-84.8)	1	10	
BSA Total	87	204	42.6 (35.8-49.7)	38	93	
<i>50-69 years</i>						
BSWN	29	71	40.8 (29.3-53.2)	✓	ns	116 187 62.0 (54.7-69.0) ✓✓✓ *
BSCM	14	34	41.2 (24.6-59.3)	✓	ns	58 103 56.3 (46.2-66.1) ✓ ns
BSAL	21	36	58.3 (40.8-74.5)	✓	ns	56 102 54.9 (44.7-64.8) ✓ ns
BSM	13	34	38.2 (22.2-56.4)	✓	ns	104 183 56.8 (49.3-64.1) ✓ ns
BSCtoC	11	33	33.3 (18.0-51.8)	✓	ns	73 157 46.5 (38.5-54.6) ✓ ns
BSC	20	35	57.1 (39.4-73.7)	✓	ns	83 142 58.5 (49.9-66.7) ✓ ns
BSSL	2	18	11.1 (1.4-34.7)	xxx	*	154 242 63.6 (57.2-69.7) ✓✓✓ *
BSHC	3	13	23.1 (5.0-53.8)	✓	ns	44 87 50.6 (39.6-61.5) ✓ ns
BSA Total	113	274	41.2 (35.4-47.3)	xxx	*	688 1203 57.2 (54.3-60.0) ✓✓✓ *

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	15	10,110	14.8 (8.3-24.5)	10	6,912					
BSCM	4	6,025	6.6 (1.8-17.0)	3	2,749					
BSAL	11	4,911	22.4 (11.2-40.1)	2	3,274					
BSM	11	6,894	16.0 (8.0-28.5)	4	5,240					
BSCtoC	10	7,125	14.0 (6.7-25.8)	5	5,204					
BSC	11	5,646	19.5 (9.7-34.9)	5	4,581					
BSSL	18	11,081	16.2 (9.6-25.7)	8	12,781					
BSHC	7	4,411	15.9 (6.4-32.7)	1	3,070					
BSA Total	87	56,203	15.5 (12.4-19.1)	38	43,811	8.7 (6.1-11.9)				
<i>50-69 years</i>										
BSWN	29	7,642	37.9 (25.4-54.5)	✓	ns	116	41,030	28.3 (23.4-33.9)	✓✓✓	*
BSCM	14	4,556	30.7 (16.8-51.6)	✓	ns	58	20,355	28.5 (21.6-36.8)	✓✓✓	*
BSAL	21	3,622	58.0 (35.9-88.6)	✓✓✓	*	56	18,831	29.7 (22.5-38.6)	✓✓✓	*
BSM	13	4,824	26.9 (14.3-46.1)	✓	ns	104	40,246	25.8 (21.1-31.3)	✓✓✓	*
BSCtoC	11	4,757	23.1 (11.5-41.4)	✓	ns	73	36,777	19.8 (15.6-25.0)	✓	ns
BSC	20	3,518	56.9 (34.7-87.8)	✓✓✓	*	83	29,673	28.0 (22.3-34.7)	✓✓✓	*
BSSL	2	3,427	5.8 (0.7-21.1)	xxx	*	154	63,593	24.2 (20.5-28.4)	✓✓✓	*
BSHC	3	2,117	14.2 (2.9-41.4)	✓	ns	44	22,395	19.6 (14.3-26.4)	✓	ns
BSA Total	113	34,463	32.8 (27.0-39.4)	✓	ns	688	272,900	25.2 (23.4-27.2)	✓✓✓	*

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

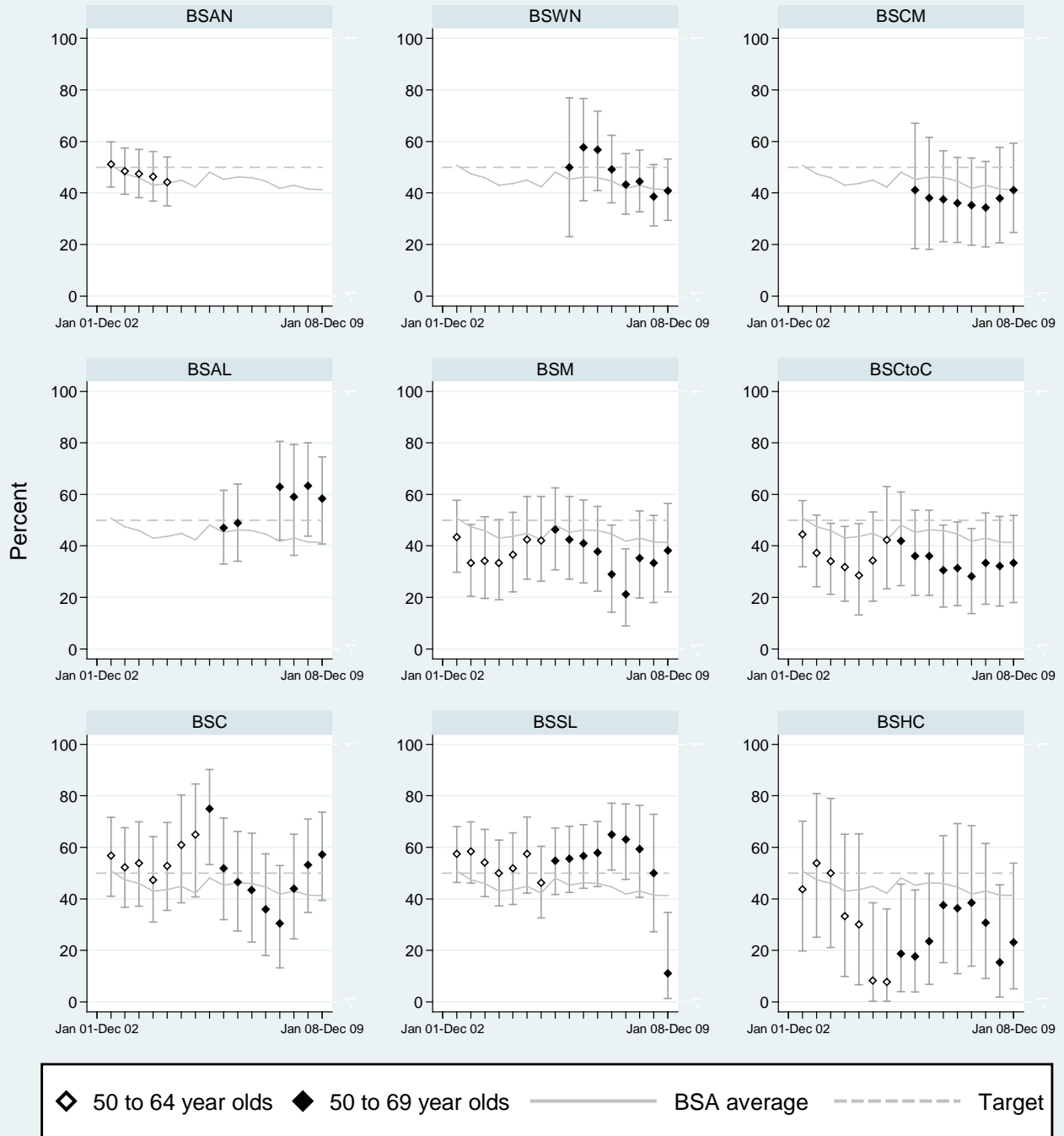


Figure 3c.1: Proportion invasive cancers < 15 mm, subsequent screens, 2 years

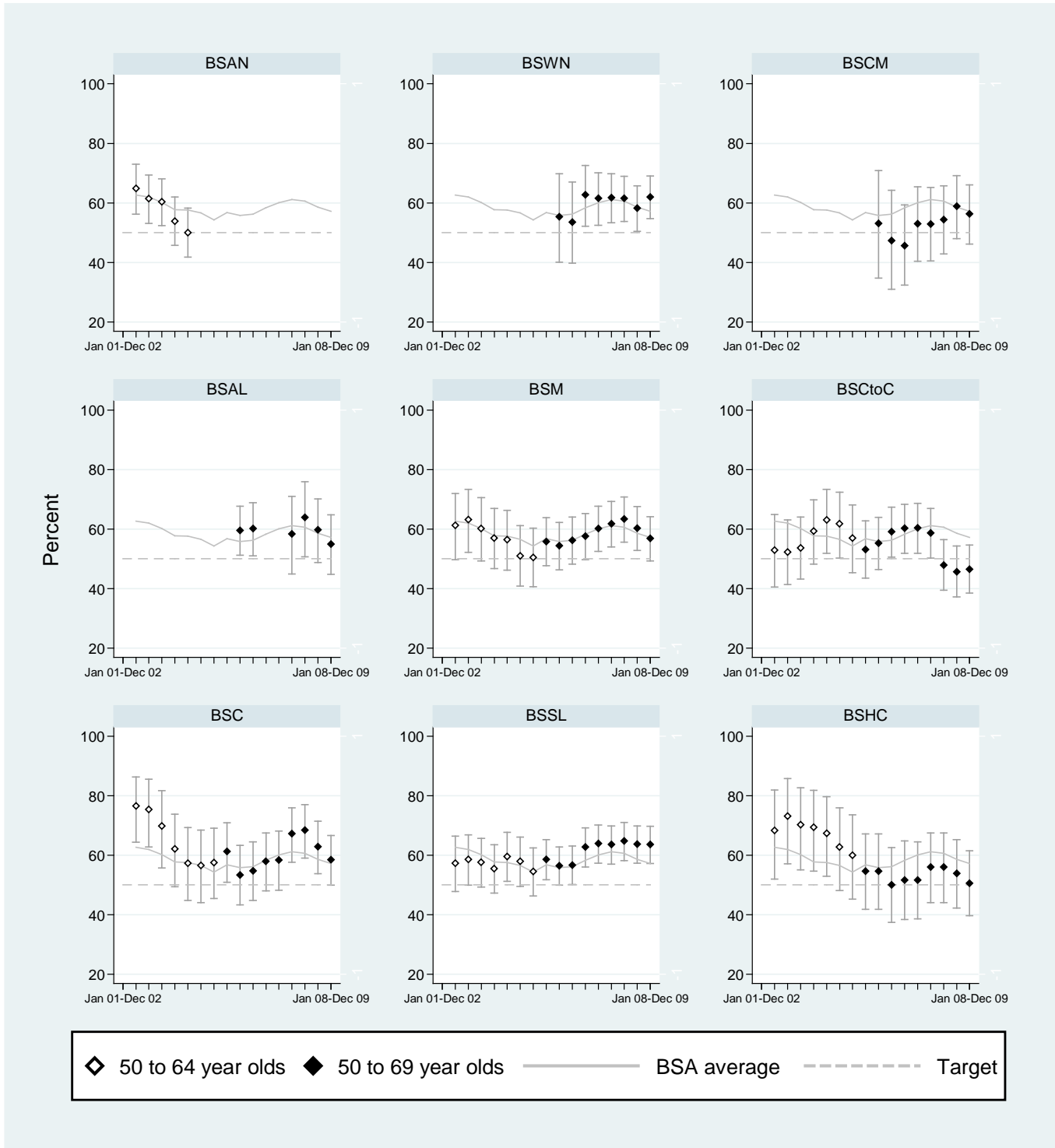


Figure 3c.2: Invasive cancers < 15 mm per 10,000 women screened, initial screens, 2 years

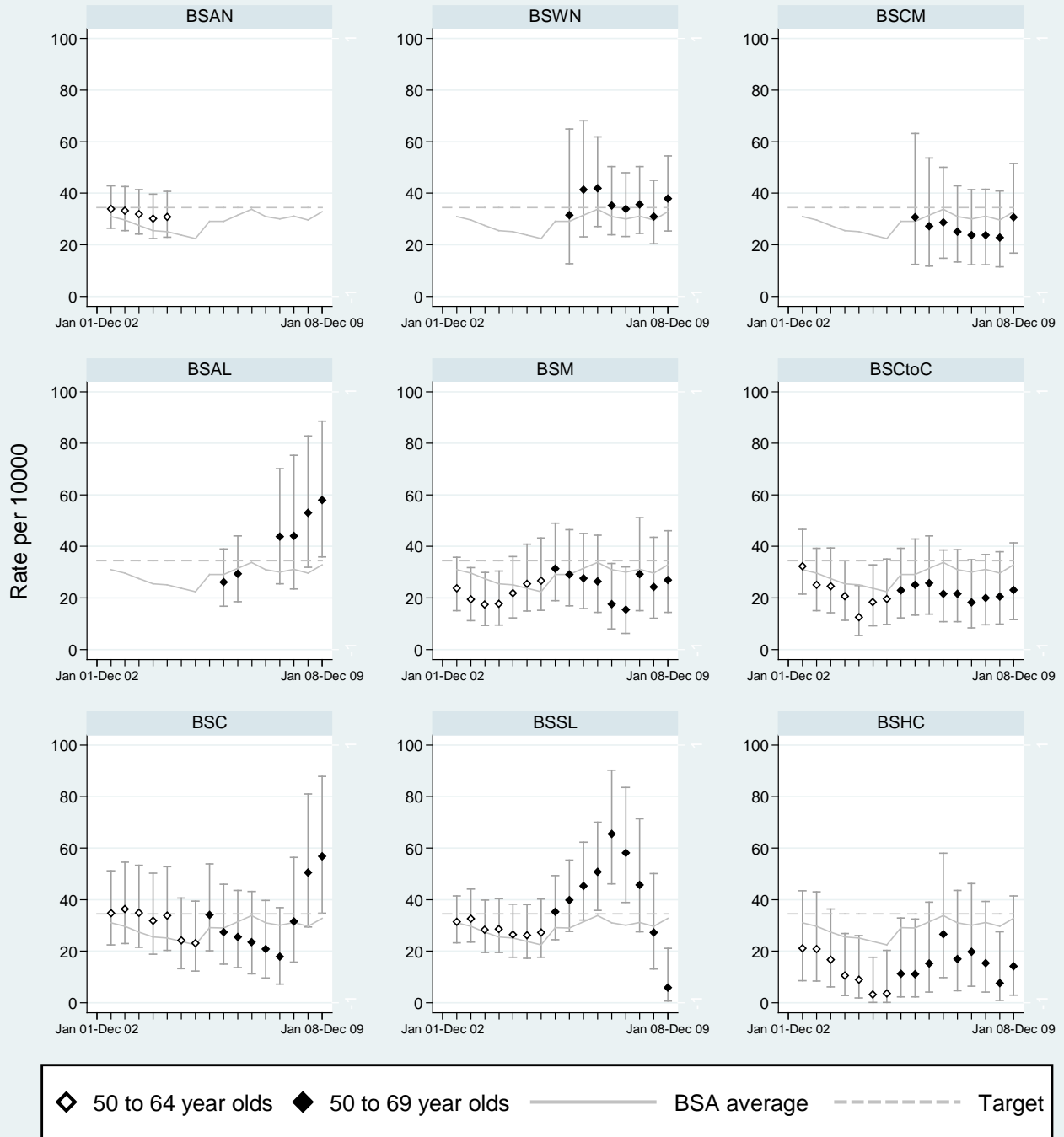
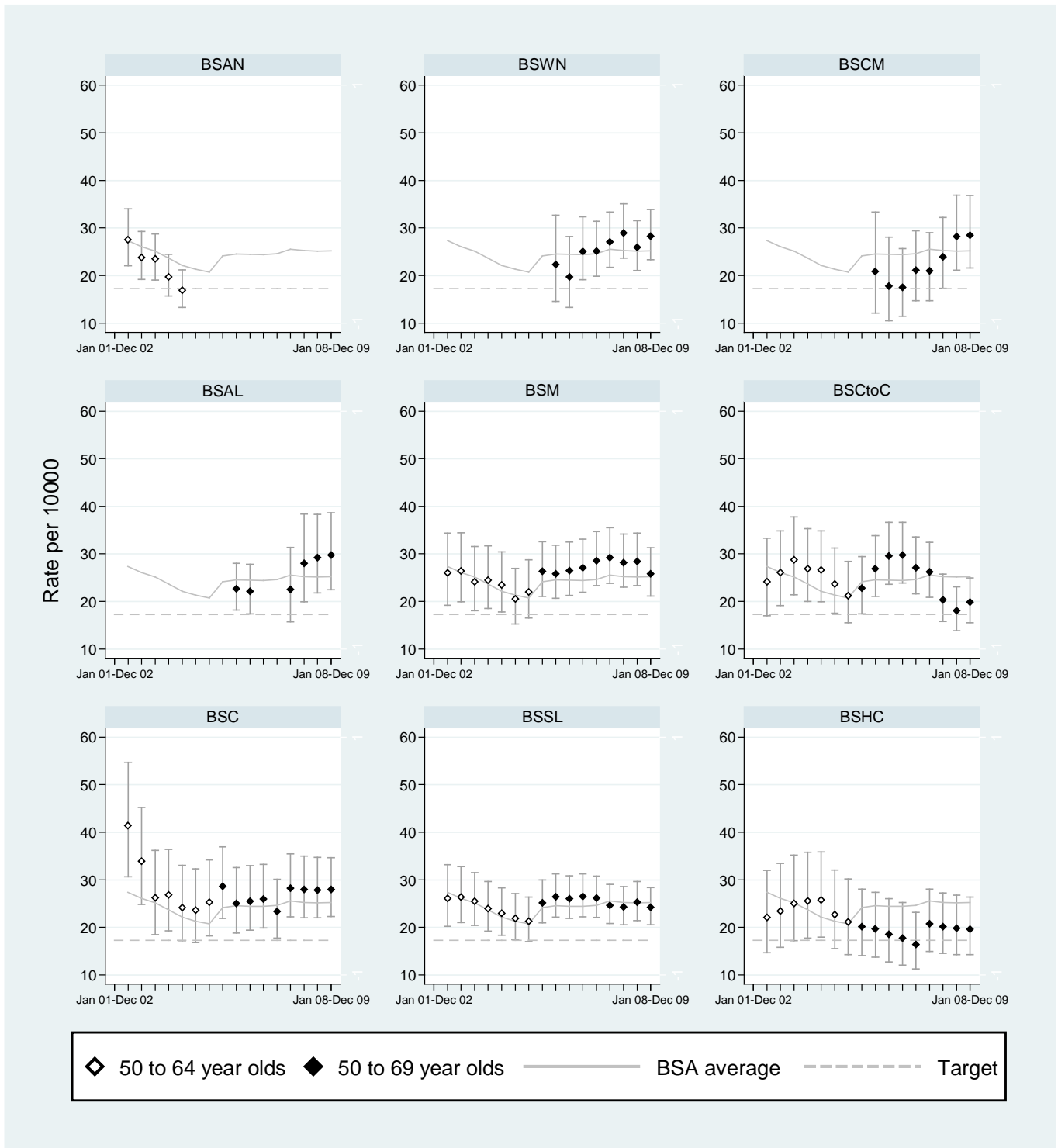


Figure 3c.2: Invasive cancers < 15 mm per 10,000 women screened, subsequent screens, 2 years



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	30	39	76.9 (60.7-88.9)	12	19	
BSCM	12	15	80.0 (51.9-95.7)	2	4	
BSAL	19	25	76.0 (54.9-90.6)	3	3	
BSM	18	22	81.8 (59.7-94.8)	10	13	
BSCtoC	17	29	58.6 (38.9-76.5)	5	8	
BSC	16	21	76.2 (52.8-91.8)	7	11	
BSSL	26	41	63.4 (46.9-77.9)	16	25	
BSHC	7	12	58.3 (27.7-84.8)	6	10	
BSA Total	145	204	71.1 (64.3-77.2)	61	93	
<i>50-69 years</i>						
BSWN	51	71	71.8 (59.9-81.9)	✓	ns	150 187 80.2 (73.8-85.7) ✓ ns
BSCM	24	34	70.6 (52.5-84.9)	✓	ns	85 103 82.5 (73.8-89.3) ✓ ns
BSAL	31	36	86.1 (70.5-95.3)	✓✓✓	*	80 102 78.4 (69.2-86.0) ✓ ns
BSM	25	34	73.5 (55.6-87.1)	✓	ns	159 183 86.9 (81.1-91.4) ✓✓✓ *
BSCtoC	22	33	66.7 (48.2-82.0)	✓	ns	111 157 70.7 (62.9-77.7) ✓ ns
BSC	28	35	80.0 (63.1-91.6)	✓	ns	107 142 75.4 (67.4-82.2) ✓ ns
BSSL	12	18	66.7 (41.0-86.7)	✓	ns	187 242 77.3 (71.5-82.4) ✓ ns
BSHC	10	13	76.9 (46.2-95.0)	✓	ns	60 87 69.0 (58.1-78.5) ✓ ns
BSA Total	203	274	74.1 (68.5-79.2)	✓	ns	939 1203 78.1 (75.6-80.4) ✓ *

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

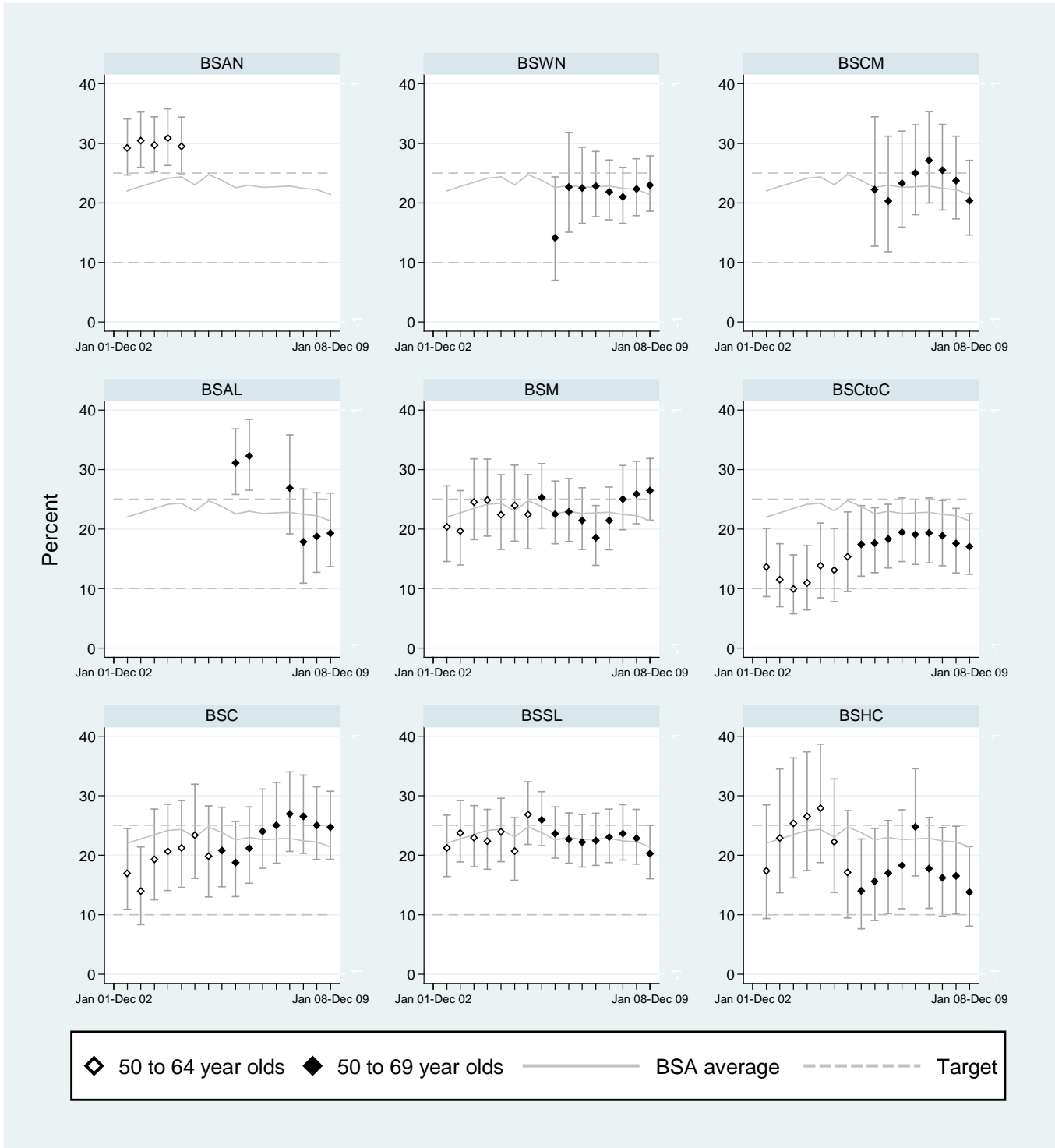
Table 3e: Women with DCIS as a percentage of all screen detected cancers, 2 years

	DCIS	Total cancers	% (95%CI)
<i>45-49 years</i>			
BSWN	28	86	32.6 (22.8-43.5)
BSCM	13	32	40.6 (23.7-59.4)
BSAL	21	49	42.9 (28.8-57.8)
BSM	21	56	37.5 (24.9-51.5)
BSCtoC	16	53	30.2 (18.3-44.3)
BSC	17	49	34.7 (21.7-49.6)
BSSL	23	89	25.8 (17.1-36.2)
BSHC	6	28	21.4 (8.3-41.0)
BSA Total	145	442	32.8 (28.4-37.4)
<i>50-69 years</i>			
BSWN	77	335	23.0 (18.6-27.9)
BSCM	35	172	20.3 (14.6-27.1)
BSAL	33	171	19.3 (13.7-26.0)
BSM	78	295	26.4 (21.5-31.9)
BSCtoC	39	229	17.0 (12.4-22.5)
BSC	58	235	24.7 (19.3-30.7)
BSSL	66	326	20.2 (16.0-25.0)
BSHC	16	116	13.8 (8.1-21.4)
BSA Total	402	1,879	21.4 (19.6-23.3)

Note: Only completed treatment data is included in the Staging and Grading / Treatment section of this report. Some data may be incomplete at report date (please refer to table 3a4), 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)		
<i>45-49 years</i>					
BSWN	40	42	95.2 (83.8-99.4)		
BSCM	15	15	100.0 (78.2-100.0)		
BSAL	19	19	100.0 (82.4-100.0)		
BSM	26	26	100.0 (86.8-100.0)		
BSCtoC	32	32	100.0 (89.1-100.0)		
BSC	24	24	100.0 (85.8-100.0)		
BSSL	51	51	100.0 (93.0-100.0)		
BSHC	18	18	100.0 (81.5-100.0)		
BSA Total	225	227	99.1 (96.9-99.9)		
<i>50-69 years</i>					
BSWN	174	180	96.7 (92.9-98.8)	✓	ns
BSCM	97	99	98.0 (92.9-99.8)	✓	ns
BSAL	79	80	98.8 (93.2-100.0)	✓	ns
BSM	150	152	98.7 (95.3-99.8)	✓	*
BSCtoC	147	148	99.3 (96.3-100.0)	✓	*
BSC	118	121	97.5 (92.9-99.5)	✓	ns
BSSL	171	178	96.1 (92.1-98.4)	✓	ns
BSHC	71	71	100.0 (94.9-100.0)	✓	ns
BSA Total	1007	1029	97.9 (96.8-98.7)	✓	*

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

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	48	58	82.8 (70.6-91.4)
BSCM	16	19	84.2 (60.4-96.6)
BSAL	24	27	88.9 (70.8-97.6)
BSM	30	34	88.2 (72.5-96.7)
BSCtoC	27	37	73.0 (55.9-86.2)
BSC	29	32	90.6 (75.0-98.0)
BSSL	55	64	85.9 (75.0-93.4)
BSHC	19	22	86.4 (65.1-97.1)
BSA Total	248	293	84.6 (80.0-88.6)
<i>50-69 years</i>			
BSWN	230	257	89.5 (85.1-93.0)
BSCM	127	136	93.4 (87.8-96.9)
BSAL	122	135	90.4 (84.1-94.8)
BSM	182	214	85.0 (79.6-89.5)
BSCtoC	159	190	83.7 (77.6-88.6)
BSC	150	175	85.7 (79.6-90.5)
BSSL	236	259	91.1 (87.0-94.3)
BSHC	81	99	81.8 (72.8-88.9)
BSA Total	1287	1,465	87.8 (86.1-89.5)

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	19	20			
BSCM	9	9			
BSAL	14	14			
BSM	17	17			
BSCtoC	11	11			
BSC	11	11			
BSSL	16	16			
BSHC	4	4			
BSA Total	101	102	99.0 (94.7-100.0)		
<i>50-69 years</i>					
BSWN	69	71	97.2 (90.2-99.7)	✓	ns
BSCM	32	32	100.0 (89.1-100.0)	✓	ns
BSAL	31	31	100.0 (88.8-100.0)	✓	ns
BSM	67	69	97.1 (89.9-99.6)	✓	ns
BSCtoC	34	34	100.0 (89.7-100.0)	✓	ns
BSC	50	50	100.0 (92.9-100.0)	✓	ns
BSSL	59	59	100.0 (93.9-100.0)	✓	ns
BSHC	15	15	100.0 (78.2-100.0)	✓	ns
BSA Total	357	361	98.9 (97.2-99.7)	✓	*

Note: Additional data relating to detailed information concerning surgery for DCIS are unavailable for this reporting period

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	13	13			
BSCM	6	7			
BSAL	7	7			
BSM	10	12			
BSCtoC	4	8			
BSC	9	9			
BSSL	8	9			
BSHC	1	4			
BSA Total	58	69	84.1 (73.3-91.8)		
<i>50-69 years</i>					
BSWN	41	45	91.1 (78.8-97.5)	✓✓✓	*
BSCM	13	17	76.5 (50.1-93.2)	✓✓✓	*
BSAL	12	14	85.7 (57.2-98.2)	✓✓✓	*
BSM	34	41	82.9 (67.9-92.8)	✓✓✓	*
BSCtoC	17	23	73.9 (51.6-89.8)	✓✓✓	*
BSC	31	36	86.1 (70.5-95.3)	✓✓✓	*
BSSL	33	41	80.5 (65.1-91.2)	✓✓✓	*
BSHC	7	11	63.6 (30.8-89.1)	✓	ns
BSA Total	188	228	82.5 (76.9-87.2)	✓✓✓	*

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 $\geq 5-9\%$ 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

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	6			
BSCM	0	2			
BSAL	4	4			
BSM	3	4			
BSCtoC	4	4			
BSC	5	5			
BSSL	2	3			
BSHC	2	4			
BSA Total	26	32	81.3 (63.6-92.8)		
<i>50-69 years</i>					
BSWN	48	64	75.0 (62.6-85.0)	✓✓✓	*
BSCM	19	29	65.5 (45.7-82.1)	✓	ns
BSAL	35	37	94.6 (81.8-99.3)	✓✓✓	*
BSM	37	46	80.4 (66.1-90.6)	✓✓✓	*
BSCtoC	21	33	63.6 (45.1-79.6)	✓	ns
BSC	24	29	82.8 (64.2-94.2)	✓✓✓	*
BSSL	36	51	70.6 (56.2-82.5)	✓✓✓	*
BSHC	8	13	61.5 (31.6-86.1)	✓	ns
BSA Total	228	302	75.5 (70.2-80.2)	✓✓✓	*

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	36	39	92.3 (79.1-98.4)		
BSCM	11	13	84.6 (54.6-98.1)		
BSAL	13	15	86.7 (59.5-98.3)		
BSM	26	26	100.0 (86.8-100.0)		
BSCtoC	20	20	100.0 (83.2-100.0)		
BSC	18	18	100.0 (81.5-100.0)		
BSSL	30	32	93.8 (79.2-99.2)		
BSHC	12	12	100.0 (73.5-100.0)		
BSA Total	166	175	94.9 (90.5-97.6)		
<i>50-69 years</i>					
BSWN	157	164	95.7 (91.4-98.3)	✓	ns
BSCM	72	78	92.3 (84.0-97.1)	✓	ns
BSAL	93	99	93.9 (87.3-97.7)	✓	ns
BSM	128	136	94.1 (88.7-97.4)	✓	ns
BSCtoC	104	109	95.4 (89.6-98.5)	✓	ns
BSC	104	106	98.1 (93.4-99.8)	✓	ns
BSSL	150	153	98.0 (94.4-99.6)	✓	ns
BSHC	48	48	100.0 (92.6-100.0)	✓	ns
BSA Total	856	893	95.9 (94.3-97.1)	✓	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 had radiotherapy	DCIS having BCS	% (95%CI)
<i>45-49 years</i>			
BSWN	12	16	
BSCM	5	8	
BSAL	6	13	
BSM	12	15	
BSCtoC	0	6	
BSC	5	11	
BSSL	13	13	
BSHC	1	1	
BSA Total	54	83	65.1 (53.8-75.2)
<i>50-69 years</i>			
BSWN	47	61	77.0 (64.5-86.8)
BSCM	13	21	61.9 (38.4-81.9)
BSAL	11	26	42.3 (23.4-63.1)
BSM	34	51	66.7 (52.1-79.2)
BSCtoC	11	23	47.8 (26.8-69.4)
BSC	21	39	53.8 (37.2-69.9)
BSSL	30	41	73.2 (57.1-85.8)
BSHC	6	7	85.7 (42.1-99.6)
BSA Total	173	269	64.3 (58.3-70.0)

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	2	3	
BSCM	0	0	
BSAL	0	0	
BSM	1	1	
BSCtoC	3	3	
BSC	1	1	
BSSL	0	0	
BSHC	0	0	
BSA Total	7	8	
<i>Group 2: Node negative, high risk, and ER and PR negative</i>			
BSWN	3	5	
BSCM	2	2	
BSAL	0	0	
BSM	1	1	
BSCtoC	2	3	
BSC	1	1	
BSSL	3	3	
BSHC	2	2	
BSA Total	14	17	
<i>Group 3: Node positive, either ER or PR positive</i>			
BSWN	10	13	76.9 (46.2-95.0)
BSCM	3	5	60.0 (14.7-94.7)
BSAL	3	6	50.0 (11.8-88.2)
BSM	4	6	66.7 (22.3-95.7)
BSCtoC	11	12	91.7 (61.5-99.8)
BSC	8	8	100.0 (63.1-100.0)
BSSL	21	24	87.5 (67.6-97.3)
BSHC	9	9	100.0 (66.4-100.0)
BSA Total	69	83	83.1 (73.3-90.5)
<i>Group 4: Node negative, high risk, either ER or PR positive</i>			
BSWN	6	21	28.6 (11.3-52.2)
BSCM	2	8	25.0 (3.2-65.1)
BSAL	3	13	23.1 (5.0-53.8)
BSM	6	17	35.3 (14.2-61.7)
BSCtoC	7	9	77.8 (40.0-97.2)
BSC	3	13	23.1 (5.0-53.8)
BSSL	10	24	41.7 (22.1-63.4)
BSHC	3	9	33.3 (7.5-70.1)
BSA Total	40	114	35.1 (26.4-44.6)

Exact binomial 95% Confidence Intervals presented

NB: A high risk tumour is one that has either a pathological tumour size ≥ 2 cm 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	3	5	60.0 (14.7-94.7)
BSCM	4	4	100.0 (39.8-100.0)
BSAL	5	5	100.0 (47.8-100.0)
BSM	3	3	100.0 (29.2-100.0)
BSCtoC	4	4	100.0 (39.8-100.0)
BSC	4	6	66.7 (22.3-95.7)
BSSL	5	5	100.0 (47.8-100.0)
BSHC	2	2	100.0 (15.8-100.0)
BSA Total	30	34	88.2 (72.5-96.7)
<i>Group 2: Node negative, high risk, and ER and PR negative</i>			
BSWN	21	27	77.8 (57.7-91.4)
BSCM	6	11	54.5 (23.4-83.3)
BSAL	3	4	75.0 (19.4-99.4)
BSM	9	15	60.0 (32.3-83.7)
BSCtoC	8	12	66.7 (34.9-90.1)
BSC	5	8	62.5 (24.5-91.5)
BSSL	13	22	59.1 (36.4-79.3)
BSHC	5	8	62.5 (24.5-91.5)
BSA Total	70	107	65.4 (55.6-74.4)
<i>Group 3: Node positive, either ER or PR positive</i>			
BSWN	26	53	49.1 (35.1-63.2)
BSCM	8	24	33.3 (15.6-55.3)
BSAL	9	23	39.1 (19.7-61.5)
BSM	14	31	45.2 (27.3-64.0)
BSCtoC	25	53	47.2 (33.3-61.4)
BSC	19	36	52.8 (35.5-69.6)
BSSL	32	56	57.1 (43.2-70.3)
BSHC	19	28	67.9 (47.6-84.1)
BSA Total	152	304	50.0 (44.2-55.8)
<i>Group 4: Node negative, high risk, either ER or PR positive</i>			
BSWN	5	86	5.8 (1.9-13.0)
BSCM	9	61	14.8 (7.0-26.2)
BSAL	7	46	15.2 (6.3-28.9)
BSM	10	105	9.5 (4.7-16.8)
BSCtoC	13	76	17.1 (9.4-27.5)
BSC	7	83	8.4 (3.5-16.6)
BSSL	13	115	11.3 (6.2-18.6)
BSHC	5	38	13.2 (4.4-28.1)
BSA Total	69	610	11.3 (8.9-14.1)

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)

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	12	13	92.3 (64.0-99.8)
BSCM	5	5	100.0 (47.8-100.0)
BSAL	4	6	66.7 (22.3-95.7)
BSM	6	6	100.0 (54.1-100.0)
BSCtoC	12	12	100.0 (73.5-100.0)
BSC	8	8	100.0 (63.1-100.0)
BSSL	22	24	91.7 (73.0-99.0)
BSHC	8	9	88.9 (51.8-99.7)
BSA Total	77	83	92.8 (84.9-97.3)
<i>Group 2: Node negative, high risk, and ER or PR positive</i>			
BSWN	17	21	81.0 (58.1-94.6)
BSCM	5	8	62.5 (24.5-91.5)
BSAL	9	13	69.2 (38.6-90.9)
BSM	15	17	88.2 (63.6-98.5)
BSCtoC	8	9	88.9 (51.8-99.7)
BSC	13	13	100.0 (75.3-100.0)
BSSL	18	24	75.0 (53.3-90.2)
BSHC	7	9	77.8 (40.0-97.2)
BSA Total	92	114	80.7 (72.3-87.5)
<i>Group 3: Node negative, low risk and ER or PR positive</i>			
BSWN	19	36	52.8 (35.5-69.6)
BSCM	5	11	45.5 (16.7-76.6)
BSAL	11	20	55.0 (31.5-76.9)
BSM	24	27	88.9 (70.8-97.6)
BSCtoC	14	17	82.4 (56.6-96.2)
BSC	21	22	95.5 (77.2-99.9)
BSSL	22	37	59.5 (42.1-75.2)
BSHC	7	11	63.6 (30.8-89.1)
BSA Total	123	181	68.0 (60.6-74.7)

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	50	53	94.3 (84.3-98.8)
BSCM	19	24	79.2 (57.8-92.9)
BSAL	22	23	95.7 (78.1-99.9)
BSM	30	31	96.8 (83.3-99.9)
BSCtoC	52	53	98.1 (89.9-100.0)
BSC	36	36	100.0 (90.3-100.0)
BSSL	53	56	94.6 (85.1-98.9)
BSHC	27	28	96.4 (81.7-99.9)
BSA Total	289	304	95.1 (92.0-97.2)
<i>Group 2: Node negative, high risk, and ER or PR positive</i>			
BSWN	63	86	73.3 (62.6-82.2)
BSCM	32	61	52.5 (39.3-65.4)
BSAL	31	46	67.4 (52.0-80.5)
BSM	99	105	94.3 (88.0-97.9)
BSCtoC	51	76	67.1 (55.4-77.5)
BSC	70	83	84.3 (74.7-91.4)
BSSL	68	115	59.1 (49.6-68.2)
BSHC	20	38	52.6 (35.8-69.0)
BSA Total	434	610	71.1 (67.4-74.7)
<i>Group 3: Node negative, low risk and ER or PR positive</i>			
BSWN	82	171	48.0 (40.3-55.7)
BSCM	33	96	34.4 (25.0-44.8)
BSAL	35	102	34.3 (25.2-44.4)
BSM	151	162	93.2 (88.2-96.6)
BSCtoC	71	117	60.7 (51.2-69.6)
BSC	103	123	83.7 (76.0-89.8)
BSSL	87	173	50.3 (42.6-58.0)
BSHC	25	61	41.0 (28.6-54.3)
BSA Total	587	1005	58.4 (55.3-61.5)

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)		Median number of days to first surgical treatment
<i>45-49 years</i>					
BSWN	65	86	75.6 (65.1-84.2)		13
BSCM	9	32	28.1 (13.7-46.7)		25
BSAL	31	49	63.3 (48.3-76.6)		17
BSM	35	55	63.6 (49.6-76.2)		17
BSCtoC	39	54	72.2 (58.4-83.5)		17
BSC	28	50	56.0 (41.3-70.0)		20
BSSL	59	86	68.6 (57.7-78.2)		16
BSHC	20	28	71.4 (51.3-86.8)		12
BSA Total	286	440	65.0 (60.3-69.5)		17
<i>50-69 years</i>					
BSWN	232	335	69.3 (64.0-74.2)	xxx *	14
BSCM	52	173	30.1 (23.3-37.5)	xxx *	25
BSAL	115	168	68.5 (60.8-75.4)	xxx *	17
BSM	190	292	65.1 (59.3-70.5)	xxx *	16
BSCtoC	149	228	65.4 (58.8-71.5)	xxx *	17
BSC	124	232	53.4 (46.8-60.0)	xxx *	20
BSSL	222	325	68.3 (62.9-73.3)	xxx *	15
BSHC	77	115	67.0 (57.6-75.4)	xxx *	16
BSA Total	1,161	1,868	62.2 (59.9-64.4)	xxx *	17

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

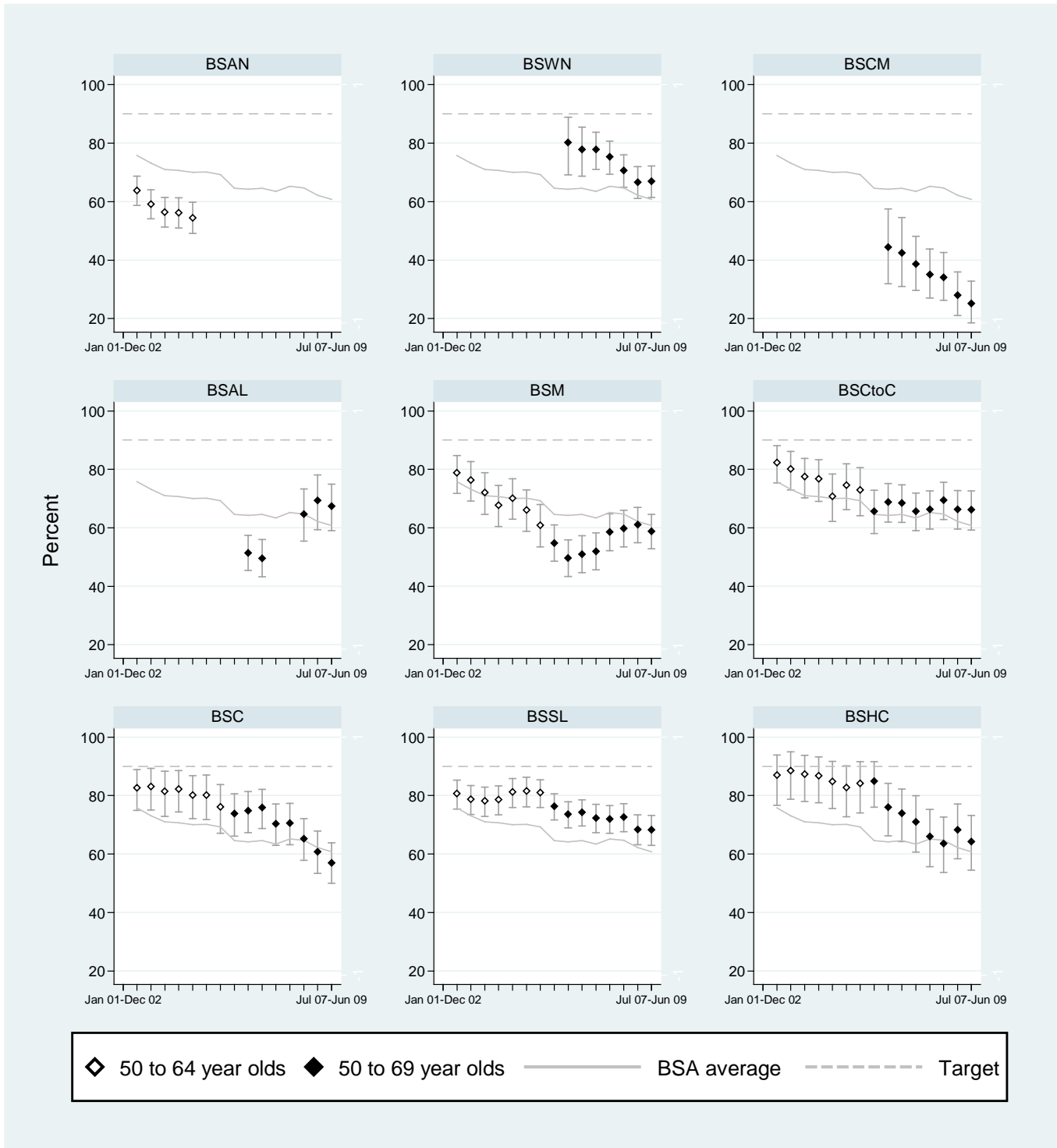
✓✓✓ Difference of ≥ 10% magnitude better than target value and statistically significant

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

Please note that data in the table above accounts for NZ National Statutory Holidays.

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.

Statistical significance

For the purposes of this report, statistical significance refers to instances where the upper or lower estimate of a 95% confidence interval for an observed proportion does not overlap with the target value for any given indicator, and that there is a 5% (or 1 in 20 chance) that the true value lies outside the range of the confidence interval.

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

