BREASTSCREEN AOTEAROA

INDEPENDENT MONITORING REPORT:

TREATMENT OF WOMEN WITH BSA DETECTED CANCERS

(WOMEN SCREENED JULY 2009- JUNE 2011)

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EXECUTIVE SUMMARY

This report presents cross-sectional data for the 2-year period July 2009 - June 2011 and trend data from programme inception to June 2011 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 are insufficient data on which to base targets for screened women aged under 50 years. Therefore, BSA and provider performance for the 45-49 years age group is documented throughout the report without specific recommendations. Trend data for key indicators are presented for women aged 50-64 years. Trends have also been presented for 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 statistically 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, the proportion of subsequent visits increases, and age profile of new entrants to the program becomes younger. Since breast cancer incidence 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 trends in 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.

Since the previous report, the extraction code has been entirely re-written which has also involved review of the logic implied by the business rules. This has led to some fluctuation in a few indicators.

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 20.6% (target range 14-35%).

Invasive cancer detection rate
The BSA biennial invasive cancer detection for women aged 50-69 years was 8.8 per 1,000 women screened for initial screens (achieving the target of ≥ 6.1 per 1,000), and 4.3 per 1,000 for subsequent screens (achieving the target of ≥ 3.45 per 1,000). This represented 1,581 invasive cancers detected by BSA for the 2-year period. The overall proportion of node negative cancers (of all invasive cancers) was 73.4% for initial screens and 78.9% for subsequent screens.

For women 50-69 years, the overall proportion of screen-detected invasive cancers ≤10mm in size for the 2-year period was 30.7% for initial screens and 37.8% for subsequent screens. The corresponding detection rates per 10,000 women screened for invasive cancers ≤10mm were 25.5 for initial screens, above the target of ≥ 15.2 per 10,000 screens; and 15.9 for subsequent screens, above the target of ≥ 10.45 per 10,000 screens.

For women 50-69 years, the overall proportion of screen-detected invasive cancers <15mm in size for the 2-year period was 57.7% for initial screens and 67.7% for subsequent screens. The corresponding detection rates for

[1] Page A, Morrell S, Taylor R. BreastScreen Aotearoa: Independent Monitoring Report - Screening and assessment report of women attending BSA (Women screened July 2010 to June 2012). BreastScreen Aotearoa: Wellington 2013.

invasive cancers <15mm per 10,000 women screened were on target at 47.9 for initial screens (target >30.5 per 10,000 screens) and 28.5 for subsequent screens, significantly above target of ≥ 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 84.9%, and for invasive cancers having BCS was 81.3%, 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 98.7%, 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 94.9%, which was on target (target value of ≥ 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 workings days was well below the target value of 90%. The biennial estimate for women 50-69 years was 59.4%. This target is not being met by any of the Lead Providers. However, trend data suggests a continuing increase in this indicator for most Lead Providers (excepting BSAL and BSHC – although 95% CIs overlap previous estimates of this indicator).

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 ≥10% and was statistically significant); or (ii) Lead Providers were significantly below target (≥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 subsequent screens, small invasive cancer detection (<15 mm) in women attending for initial and subsequent screens, and the proportion of women with DCIS or invasive cancers having breast conserving surgery. The target was not achieved for first surgical treatment within 20 working days (71.8%, target >90%).

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 initial and subsequent screens, and also for small invasive cancer detection (both ≤10 mm and <15mm) for subsequent screens. The target was not achieved for first surgical treatment within 20 working days (26.8%, target >90%).

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 the percentage of women with DCIS or invasive cancers having breast conserving surgery. The target was not achieved for first surgical treatment within 20 working days (53.1%, target >90%).

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 (<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 first surgical treatment within 20 working days (68.8%, target >90%).

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 the percentage of women with invasive cancer having breast conserving surgery. The target was not achieved for first surgical treatment within 20 working days (62.3%, target >90%).

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 screens, and for the percentage of women with DCIS or invasive cancer having breast conserving surgery. The target was not achieved for first surgical treatment within 20 working days (52.1%, target >90%).

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 <15mm), and the percentage of women with DCIS or invasive cancers having breast conserving surgery. The target was not achieved for first surgical treatment within 20 working days (67.8%, target >90%).

BreastScreen Health Care
BSHC was on target for almost all biennial indicators for women in the target age range of 50-69 years. The target was not achieved for first surgical treatment within 20 working days (53.5%, target >90%).

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 are: the proportion of women 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 working days is still not being met by any of the Lead Providers with an overall biennial estimate for women 50-69 years of 59.4%. However, trend data suggests continued increase in this indicator for most Lead Providers (excepting BSAL and BSHC – although 95% CIs overlap previous estimates of this indicator).

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 included: women's choice (13%), reconstructive surgery (10%) and delays in MRI or further imaging (6%). These reasons remain unchanged.

The next report (BSA Treatment Report - Women screened July 2010-June 2012) will contain information on proportion of women receiving first surgical treatment ≤ 20 days, ≤25 days, and the median.
It is noted that this indicator changed in October 2013 to the proportion of women receiving first surgical treatment ≤ 31 calendar days, but this will not affect statistics until the BSA Treatment Report - Women screened July 2013-June 2015.

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). Until the report for women screened July 2009 - June 2011 data were extracted from the unit records and tables were provided 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.

From and including this report for women screened July 2009 - June 2011 the extraction code has been re-written and tables assembled directly by the IMG at SPHCM UNSW from unit record data. 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 produce additional tabulations where it is felt appropriate. The IMG has consulted with the NSU extensively during the extraction coding process and 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.

The draft version of this BSA Independent Monitoring Report was reviewed by the BSA Advisory Group on 4 February 2014.

TECHNICAL NOTES FOR INTERPRETING THIS REPORT

Developments in presentation of age extension data

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% 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 is the estimate of 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 ≥ 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. Statistically significant differences of ≥ 10% of 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 (or proportional) magnitude of 0-4%, moderate differences of 5-9%, and large differences >10%.

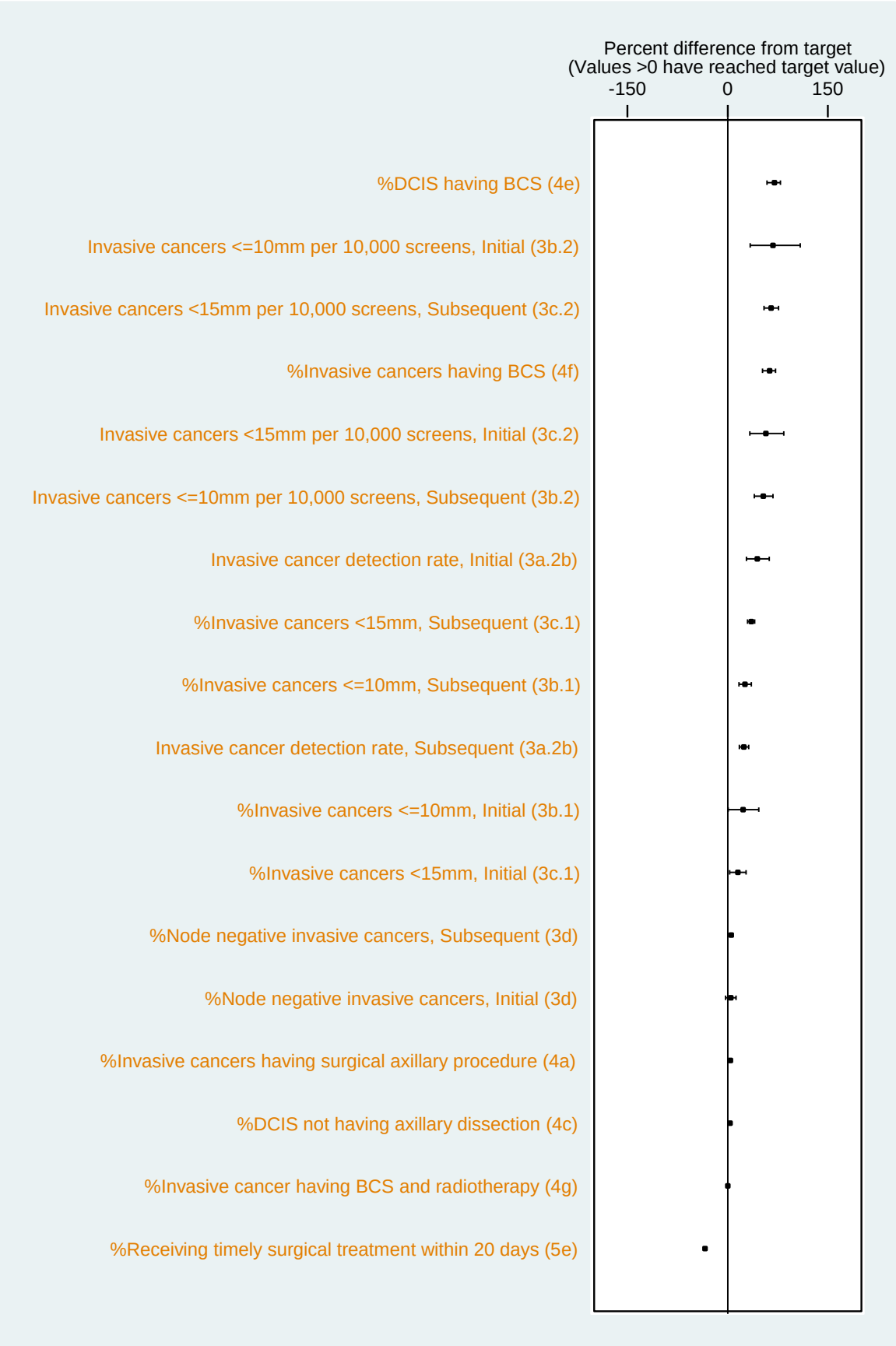
Target values relate only to biennial rates for women in the target age-group (50-69 years) for all indicators.

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 trends in cancer detection rates from initial screens.

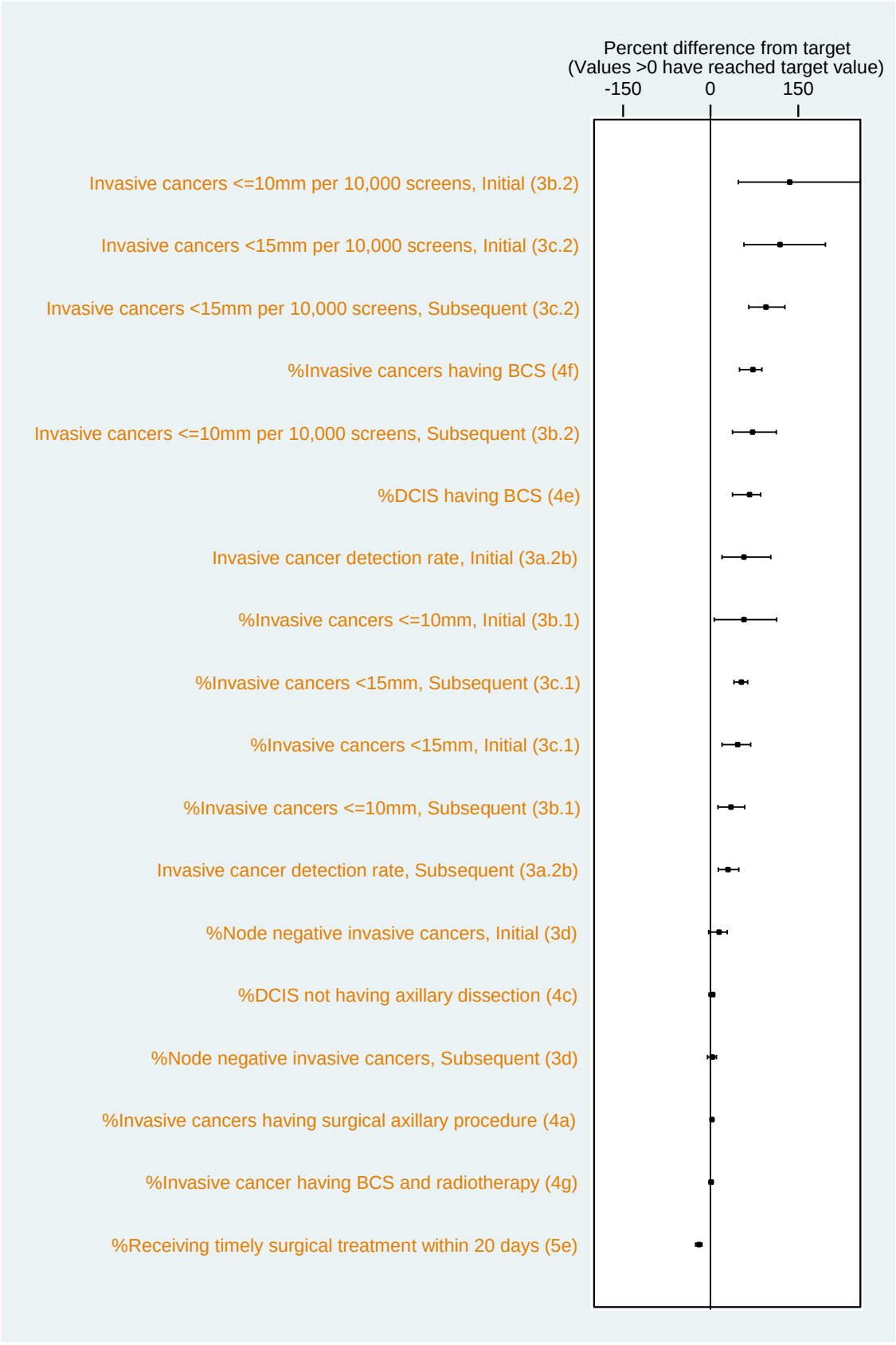
AT A GLANCE: BIENNIAL INDICATORS FOR WOMEN 50-69 YEARS

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)



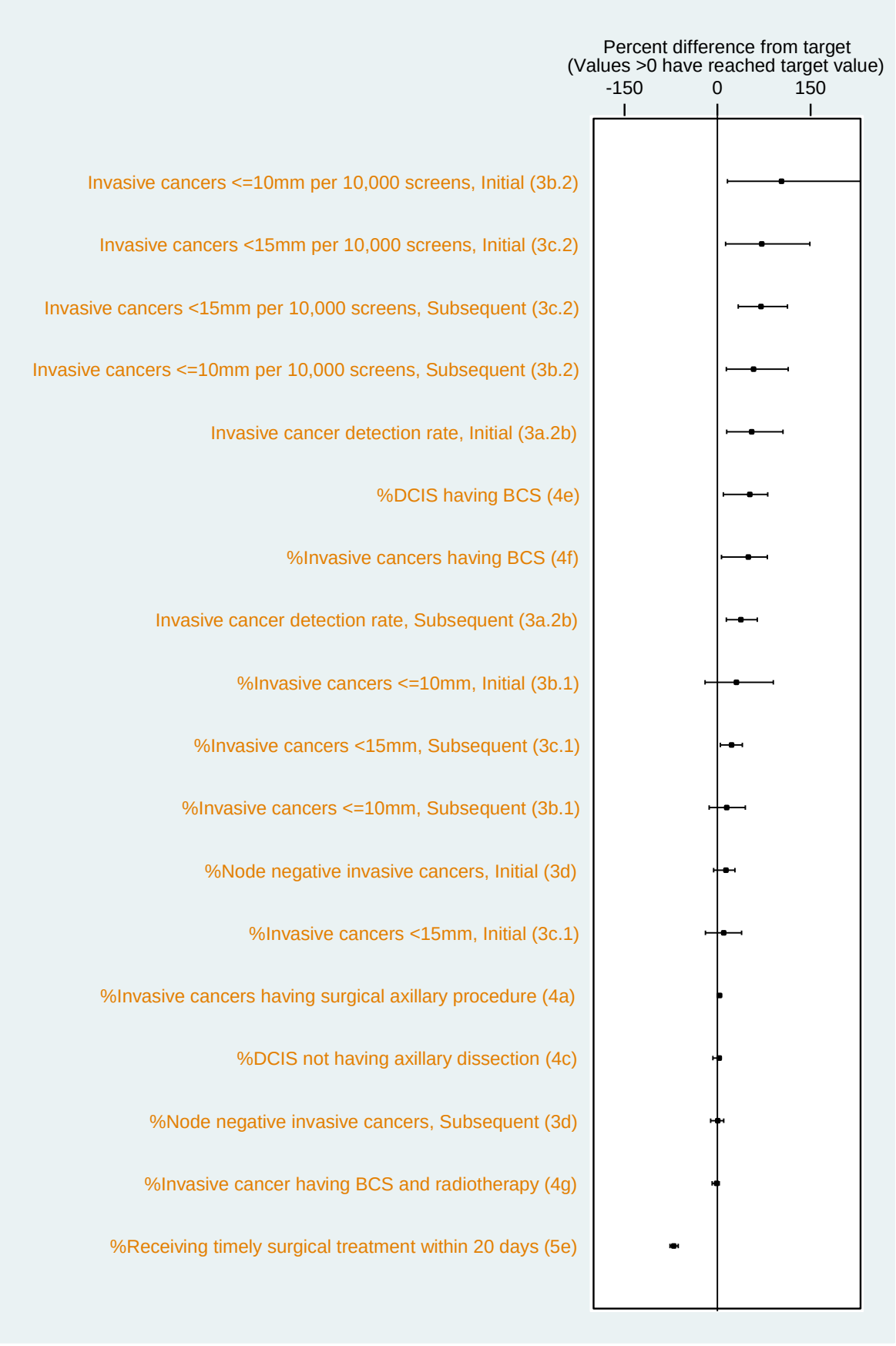
NB: The vertical line represents the target value.

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).



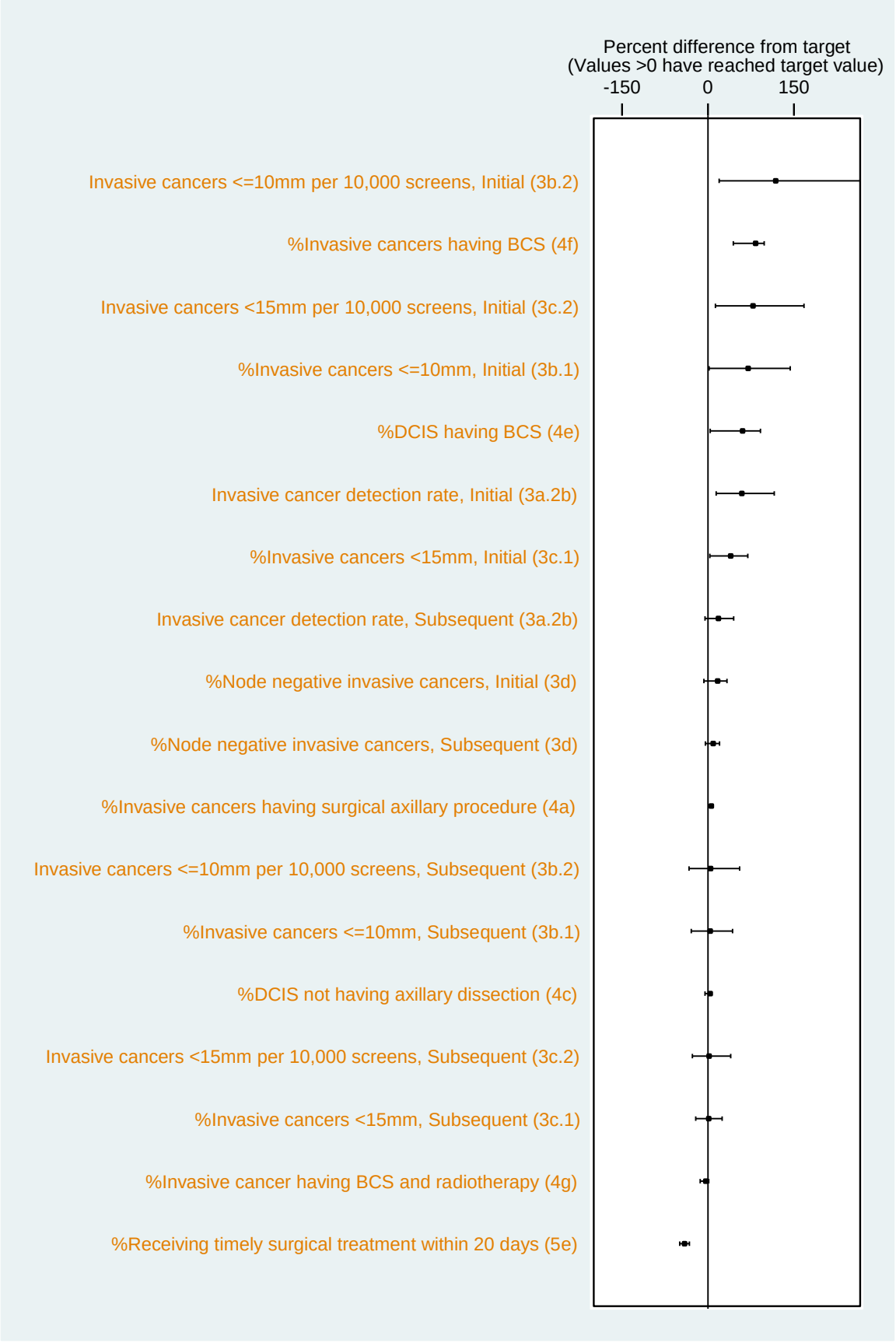
NB: The vertical line represents the target value.

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)..



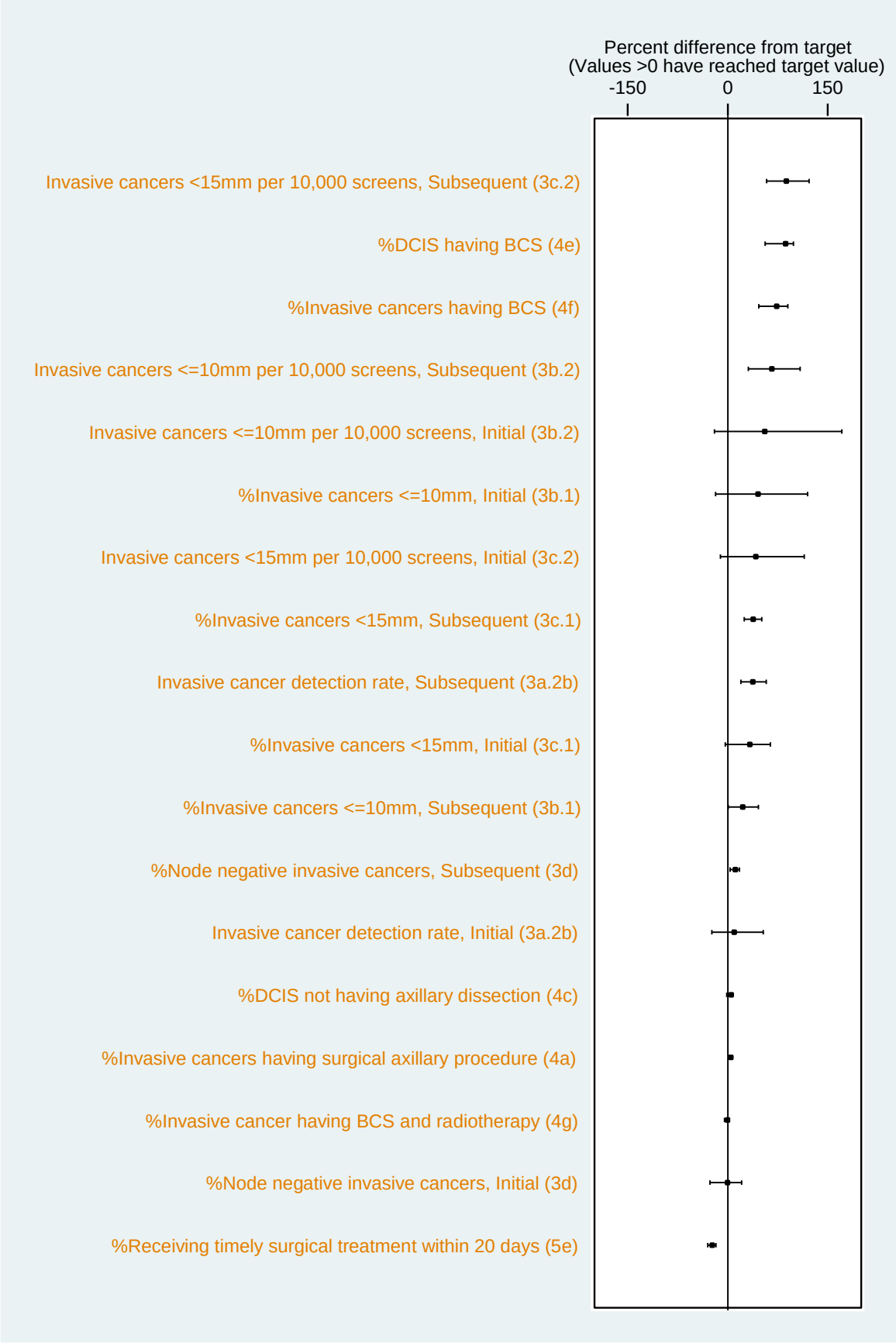
NB: The vertical line represents the target value.

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).



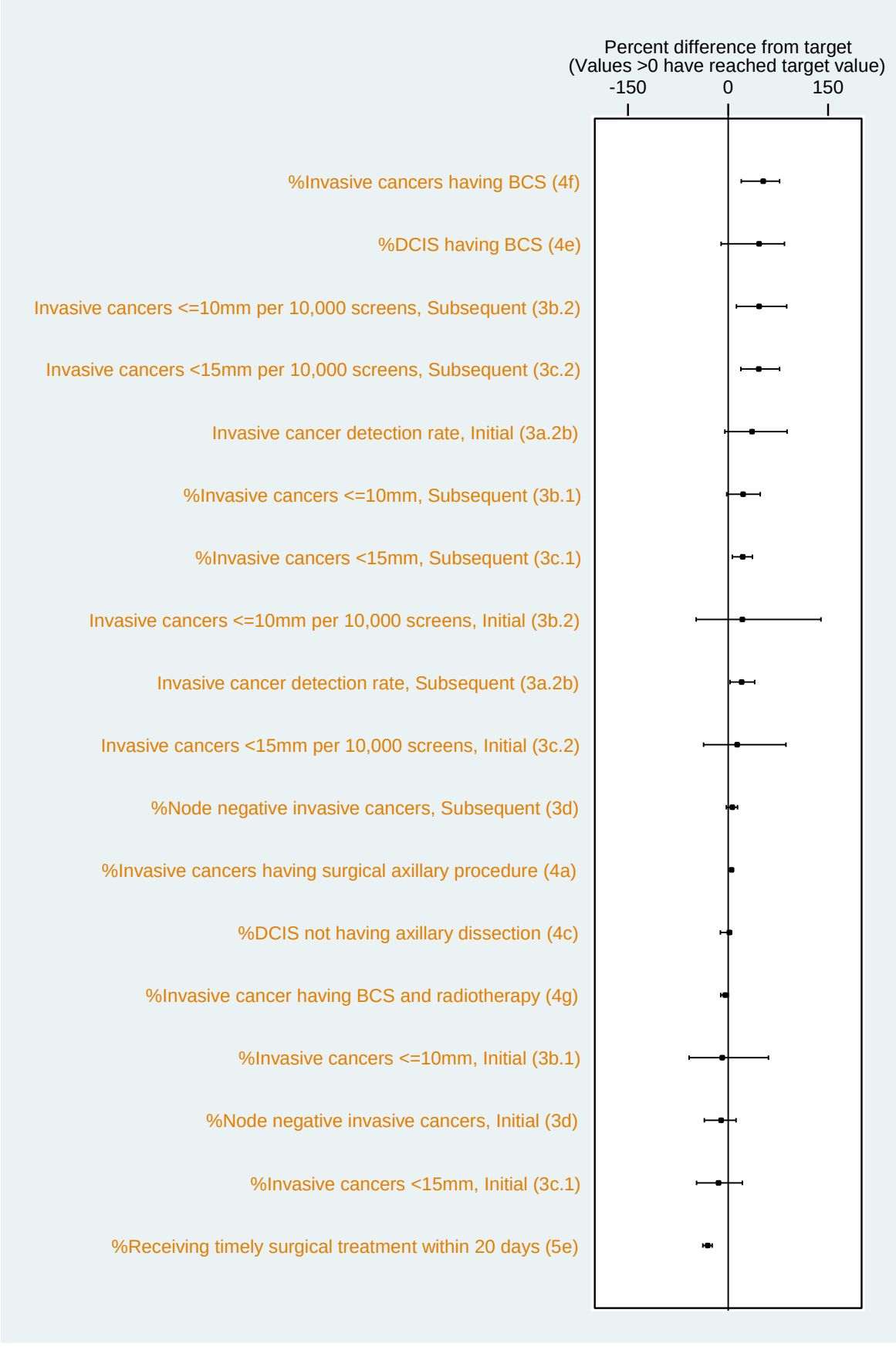
NB: The vertical line represents the target value

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)



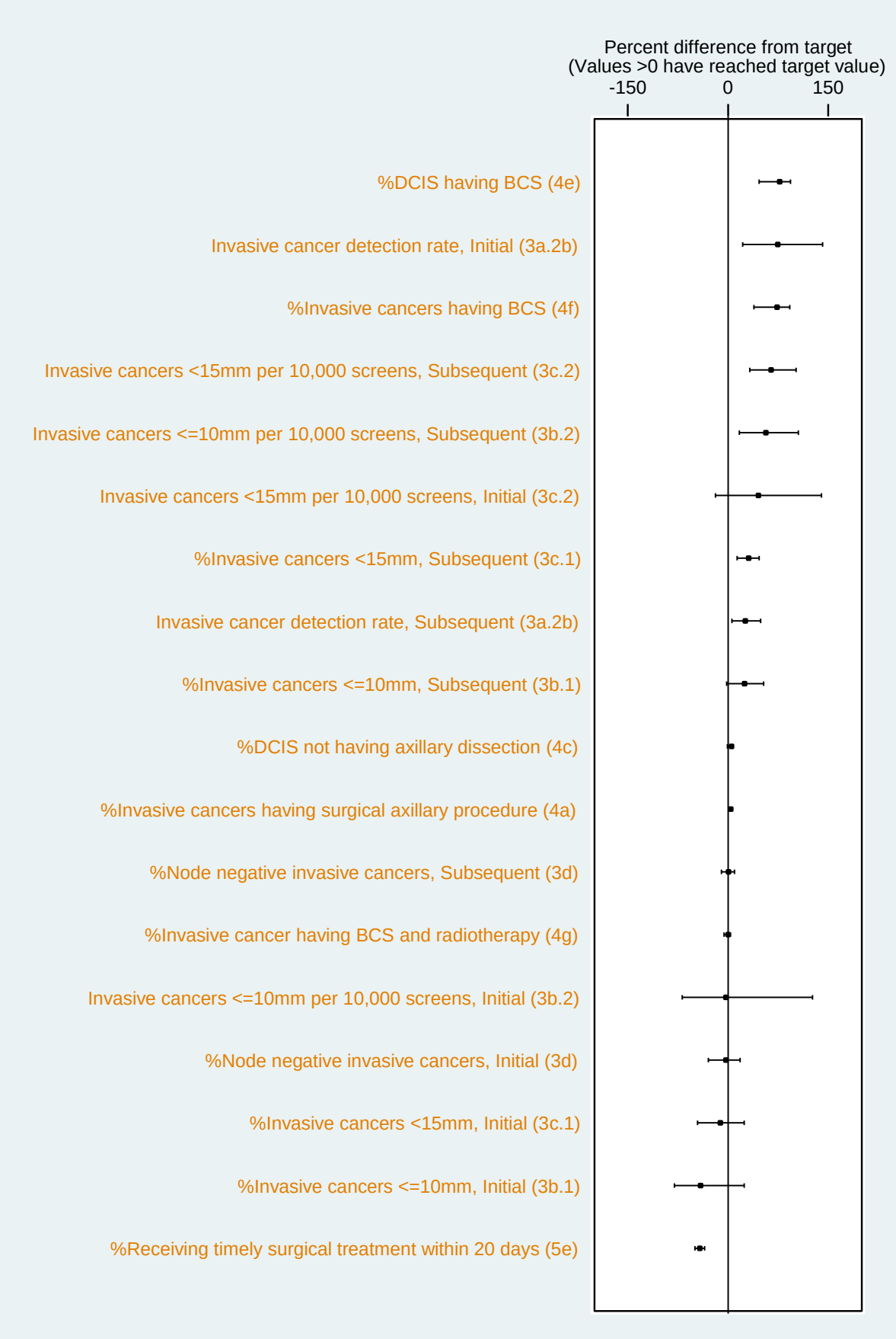
NB: The vertical line represents the target value.

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)



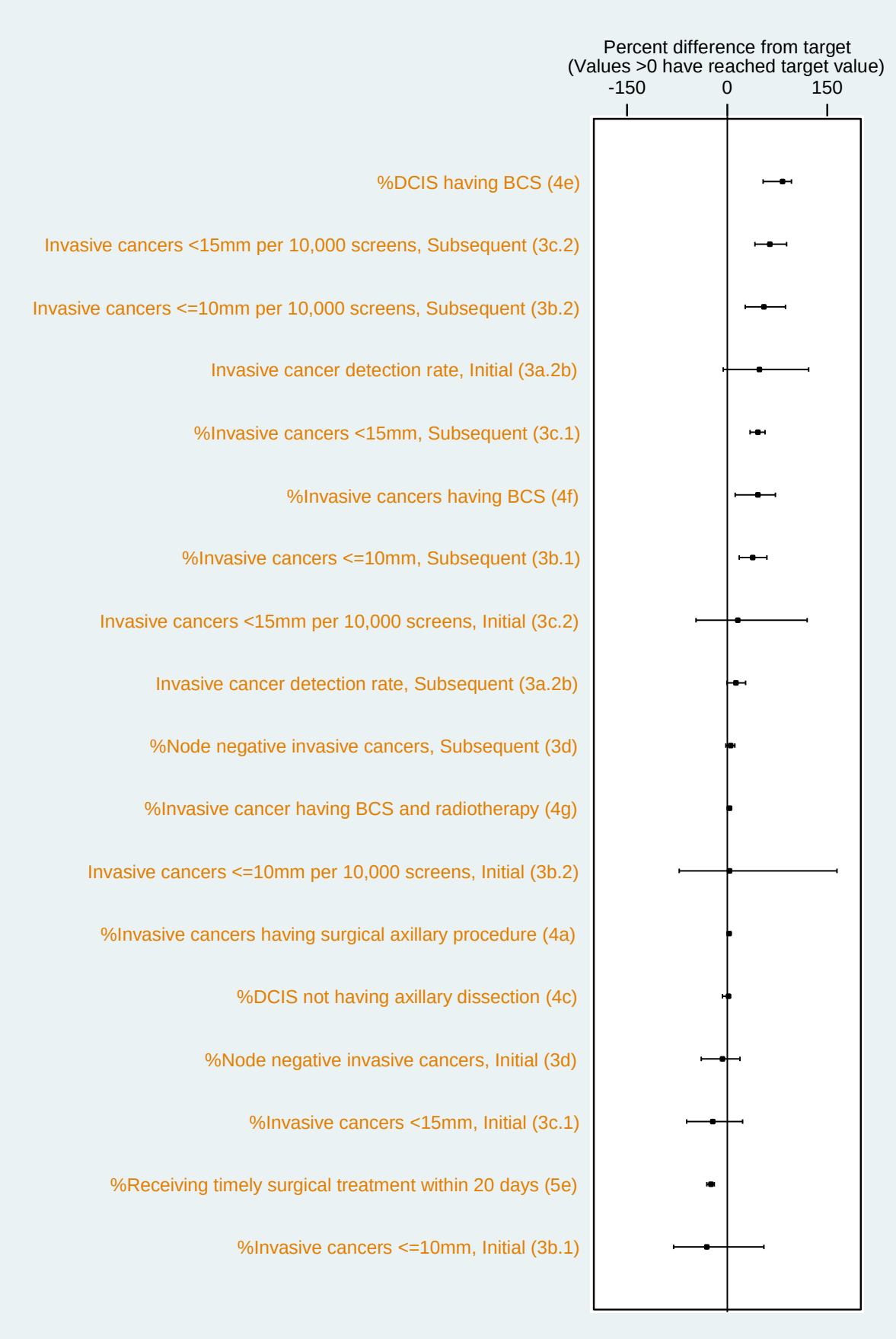
NB: The vertical line represents the target value.

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)



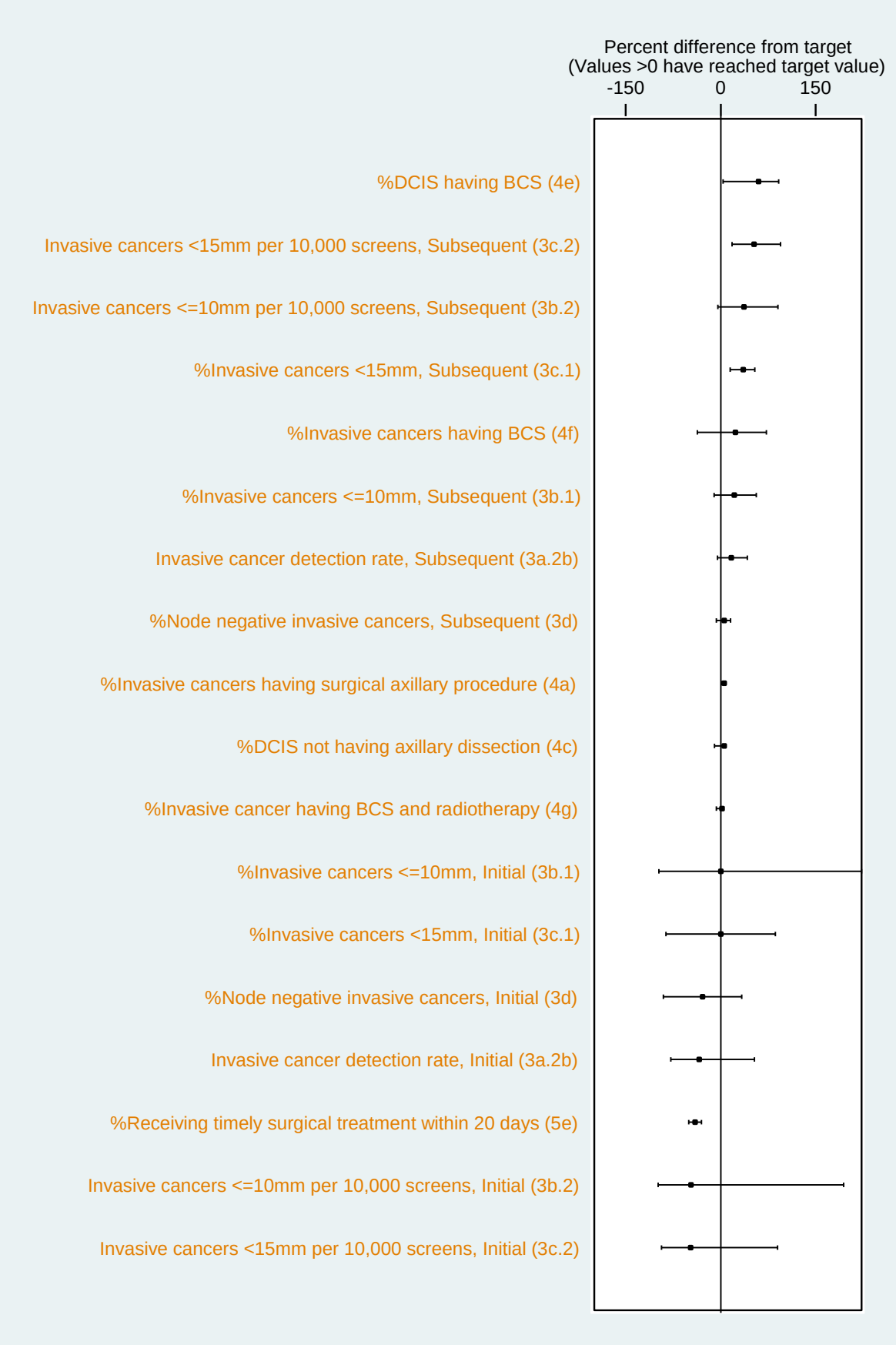
NB: The vertical line represents the target value.

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 represents 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 represents the target value.

3. EARLY DETECTION OF DCIS OR INVASIVE BREAST CANCER

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	35	9,582	3.7 (2.5-5.1)			29	9,038	3.2 (2.1-4.6)		
BSCM	32	7,076	4.5 (3.1-6.4)			8	4,553	1.8 (0.8-3.5)		
BSAL	23	5,915	3.9 (2.5-5.8)			15	4,712	3.2 (1.8-5.3)		
BSM	24	7,859	3.1 (2.0-4.5)			21	5,889	3.6 (2.2-5.5)		
BSCtoC	27	6,604	4.1 (2.7-5.9)			7	6,887	1.0 (0.4-2.1)		
BSC	33	5,920	5.6 (3.8-7.8)			13	5,393	2.4 (1.3-4.1)		
BSSL	30	9,690	3.1 (2.1-4.4)			27	14,291	1.9 (1.2-2.7)		
BSHC	11	3,018	3.6 (1.8-6.5)			9	4,332	2.1 (0.9-3.9)		
BSA Total	215	55,664	3.9 (3.4-4.4)			129	55,095	2.3 (2.0-2.8)		
50-69 years										
BSWN	59	6,147	9.6 (7.3-12.4)	✓✓✓	*	213	47,553	4.5 (3.9-5.1)	✓✓✓	*
BSCM	49	5,171	9.5 (7.0-12.5)	✓✓✓	*	121	25,503	4.7 (3.9-5.7)	✓✓✓	*
BSAL	41	4,232	9.7 (7.0-13.1)	✓✓✓	*	90	22,151	4.1 (3.3-5.0)	✓	ns
BSM	34	5,083	6.7 (4.6-9.3)	✓	ns	206	43,337	4.8 (4.1-5.4)	✓✓✓	*
BSCtoC	36	4,339	8.3 (5.8-11.5)	✓	ns	169	40,731	4.1 (3.5-4.8)	✓✓✓	*
BSC	36	3,387	10.6 (7.4-14.7)	✓✓✓	*	139	31,987	4.3 (3.7-5.1)	✓✓✓	*
BSSL	23	2,547	9.0 (5.7-13.5)	✓	ns	261	66,973	3.9 (3.4-4.4)	✓	ns
BSHC	5	1,247	4.0 (1.3-9.4)	✓	ns	99	24,618	4.0 (3.3-4.9)	✓	ns
BSA Total	283	32,153	8.8 (7.8-9.9)	✓✓✓	*	1,298	302,853	4.3 (4.1-4.5)	✓✓✓	*

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)		
45-49 years										
BSWN	12	32	37.5 (21.1-56.3)			17	29			
BSCM	7	29	24.1 (10.3-43.5)			2	8			
BSAL	5	19	26.3 (9.1-51.2)			5	14			
BSM	8	24	33.3 (15.6-55.3)			9	21			
BSCtoC	5	27	18.5 (6.3-38.1)			1	7			
BSC	8	33	24.2 (11.1-42.3)			3	13			
BSSL	8	29	27.6 (12.7-47.2)			12	26			
BSHC	2	11	18.2 (2.3-51.8)			1	9			
BSA Total	55	204	27.0 (21.0-33.6)			50	127			
50-69 years										
BSWN	22	56	39.3 (26.5-53.2)	✓✓✓	*	85	210	40.5 (33.8-47.4)	✓✓✓	*
BSCM	16	49	32.7 (19.9-47.5)	✓	ns	42	122	34.4 (26.1-43.6)	✓	ns
BSAL	14	33	42.4 (25.5-60.8)	✓✓✓	*	24	77	31.2 (21.1-42.7)	✓	ns
BSM	12	33	36.4 (20.4-54.9)	✓	ns	75	204	36.8 (30.1-43.8)	✓✓✓	*
BSCtoC	8	35	22.9 (10.4-40.1)	✓	ns	62	169	36.7 (29.4-44.4)	✓	ns
BSC	5	34	14.7 (5.0-31.1)	✓	ns	52	139	37.4 (29.4-46.0)	✓	ns
BSSL	4	23	17.4 (5.0-38.8)	✓	ns	108	260	41.5 (35.5-47.8)	✓✓✓	*
BSHC	1	4	25.0 (0.6-80.6)	✓	ns	35	96	36.5 (26.9-46.9)	✓	ns
BSA Total	82	267	30.7 (25.2-36.6)	✓✓✓	*	483	1277	37.8 (35.2-40.5)	✓✓✓	*

Note: 'Total invasive cancers' only relate to cancers of known size
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)		
45-49 years										
BSWN	12	9,582	12.5 (6.5-21.9)			17	9,038			
BSCM	7	7,076	9.9 (4.0-20.4)			2	4,553			
BSAL	5	5,915	8.5 (2.7-19.7)			5	4,712			
BSM	8	7,859	10.2 (4.4-20.1)			9	5,889			
BSCtoC	5	6,604	7.6 (2.5-17.7)			1	6,887			
BSC	8	5,920	13.5 (5.8-26.6)			3	5,393			
BSSL	8	9,690	8.3 (3.6-16.3)			12	14,291			
BSHC	2	3,018	6.6 (0.8-23.9)			1	4,332			
BSA Total	55	55,664	9.9 (7.4-12.9)			50	55,095			
50-69 years										
BSWN	22	6,147	35.8 (22.4-54.2)	✓✓✓	*	85	47,553	17.9 (14.3-22.1)	✓✓✓	*
BSCM	16	5,171	30.9 (17.7-50.2)	✓✓✓	*	42	25,503	16.5 (11.9-22.3)	✓✓✓	*
BSAL	14	4,232	33.1 (18.1-55.5)	✓✓✓	*	24	22,151	10.8 (6.9-16.1)	✓	ns
BSM	12	5,083	23.6 (12.2-41.2)	✓	ns	75	43,337	17.3 (13.6-21.7)	✓✓✓	*
BSCtoC	8	4,339	18.4 (8.0-36.3)	✓	ns	62	40,731	15.2 (11.7-19.5)	✓✓✓	*
BSC	5	3,387	14.8 (4.8-34.5)	✓	ns	52	31,987	16.3 (12.1-21.3)	✓✓✓	*
BSSL	4	2,547	15.7 (4.3-40.2)	✓	ns	108	66,973	16.1 (13.2-19.5)	✓✓✓	*
BSHC	1	1,247	8.0 (0.2-44.7)	✓	ns	35	24,618	14.2 (9.9-19.8)	✓	ns
BSA Total	82	32,153	25.5 (20.3-31.7)	✓✓✓	*	483	302,853	15.9 (14.6-17.4)	✓✓✓	*

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 ≥ 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)		
45-49 years										
BSWN	17	32	53.1 (34.7-70.9)			21	29			
BSCM	9	29	31.0 (15.3-50.8)			2	8			
BSAL	6	19	31.6 (12.6-56.6)			5	14			
BSM	13	24	54.2 (32.8-74.4)			11	21			
BSCtoC	7	27	25.9 (11.1-46.3)			2	7			
BSC	14	33	42.4 (25.5-60.8)			5	13			
BSSL	14	29	48.3 (29.4-67.5)			15	26			
BSHC	9	11	81.8 (48.2-97.7)			3	9			
BSA Total	89	204	43.6 (36.7-50.7)			64	127			
50-69 years										
BSWN	34	56	60.7 (46.8-73.5)	✓	ns	142	210	67.6 (60.8-73.9)	✓✓✓	*
BSCM	26	49	53.1 (38.3-67.5)	✓	ns	65	122	53.3 (44.0-62.4)	✓	ns
BSAL	19	33	57.6 (39.2-74.5)	✓	ns	35	77	45.5 (34.1-57.2)	✓	ns
BSM	18	33	54.5 (36.4-71.9)	✓	ns	122	204	59.8 (52.7-66.6)	✓✓✓	*
BSCtoC	12	35	34.3 (19.1-52.2)	✓	ns	89	169	52.7 (44.9-60.4)	✓	ns
BSC	15	34	44.1 (27.2-62.1)	✓	ns	84	139	60.4 (51.8-68.6)	✓✓✓	*
BSSL	9	23	39.1 (19.7-61.5)	✓	ns	173	260	66.5 (60.4-72.2)	✓✓✓	*
BSHC	2	4	50.0 (6.8-93.2)	✓	ns	58	96	60.4 (49.9-70.3)	✓	ns
BSA Total	135	267	50.6 (44.4-56.7)	✓	ns	768	1277	60.1 (57.4-62.8)	✓✓✓	*

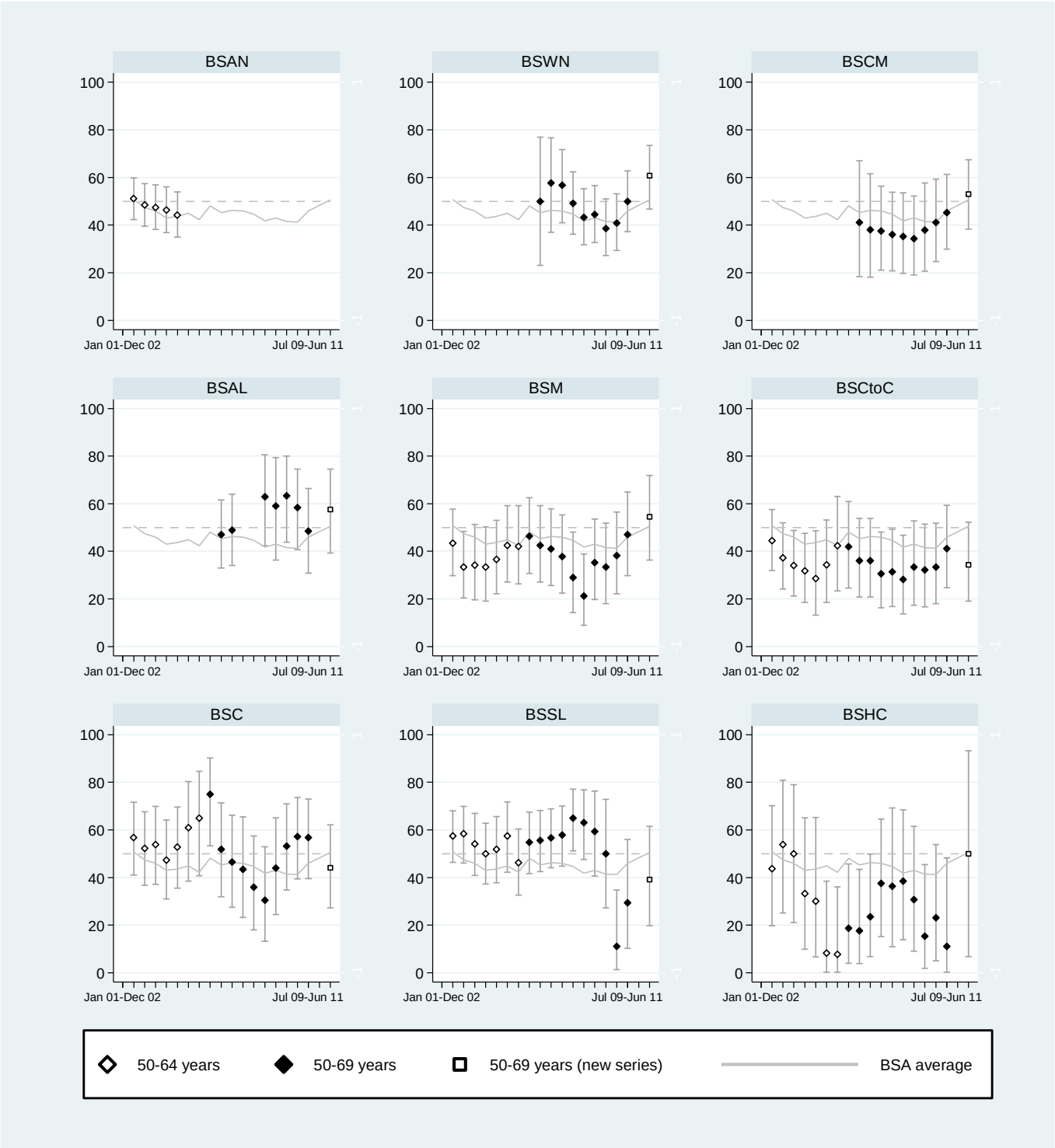
Note: 'Total invasive cancers' only relate to cancers of known size
Exact Binomial 95% Confidence Intervals presented
* Statistically different from target value, ns: not significant
✓ On target, difference of <5% better or worse than target value based on point estimate and 95% Confidence Interval not statistically 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 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)		
45-49 years										
BSWN	17	9,582	17.7 (10.3-28.4)			21	9,038			
BSCM	9	7,076	12.7 (5.8-24.1)			2	4,553			
BSAL	6	5,915	10.1 (3.7-22.1)			5	4,712			
BSM	13	7,859	16.5 (8.8-28.3)			11	5,889			
BSCtoC	7	6,604	10.6 (4.3-21.8)			2	6,887			
BSC	14	5,920	23.6 (12.9-39.7)			5	5,393			
BSSL	14	9,690	14.4 (7.9-24.2)			15	14,291			
BSHC	9	3,018	29.8 (13.6-56.6)			3	4,332			
BSA Total	89	55,664	16.0 (12.8-19.7)			64	55,095	11.6 (8.9-14.8)		
50-69 years										
BSWN	34	6,147	55.3 (38.3-77.3)	✓✓✓	*	142	47,553	29.9 (25.2-35.2)	✓✓✓	*
BSCM	26	5,171	50.3 (32.8-73.7)	✓✓✓	*	65	25,503	25.5 (19.7-32.5)	✓✓✓	*
BSAL	19	4,232	44.9 (27.0-70.1)	✓	ns	35	22,151	15.8 (11.0-22.0)	✓	ns
BSM	18	5,083	35.4 (21.0-56.0)	✓	ns	122	43,337	28.2 (23.4-33.6)	✓✓✓	*
BSCtoC	12	4,339	27.7 (14.3-48.3)	✓	ns	89	40,731	21.9 (17.5-26.9)	✓✓✓	*
BSC	15	3,387	44.3 (24.8-73.0)	✓	ns	84	31,987	26.3 (20.9-32.5)	✓✓✓	*
BSSL	9	2,547	35.3 (16.2-67.1)	✓	ns	173	66,973	25.8 (22.1-30.0)	✓✓✓	*
BSHC	2	1,247	16.0 (1.9-57.9)	✓	ns	58	24,618	23.6 (17.9-30.5)	✓✓✓	*
BSA Total	135	32,153	42.0 (35.2-49.7)	✓✓✓	*	768	302,853	25.4 (23.6-27.2)	✓✓✓	*

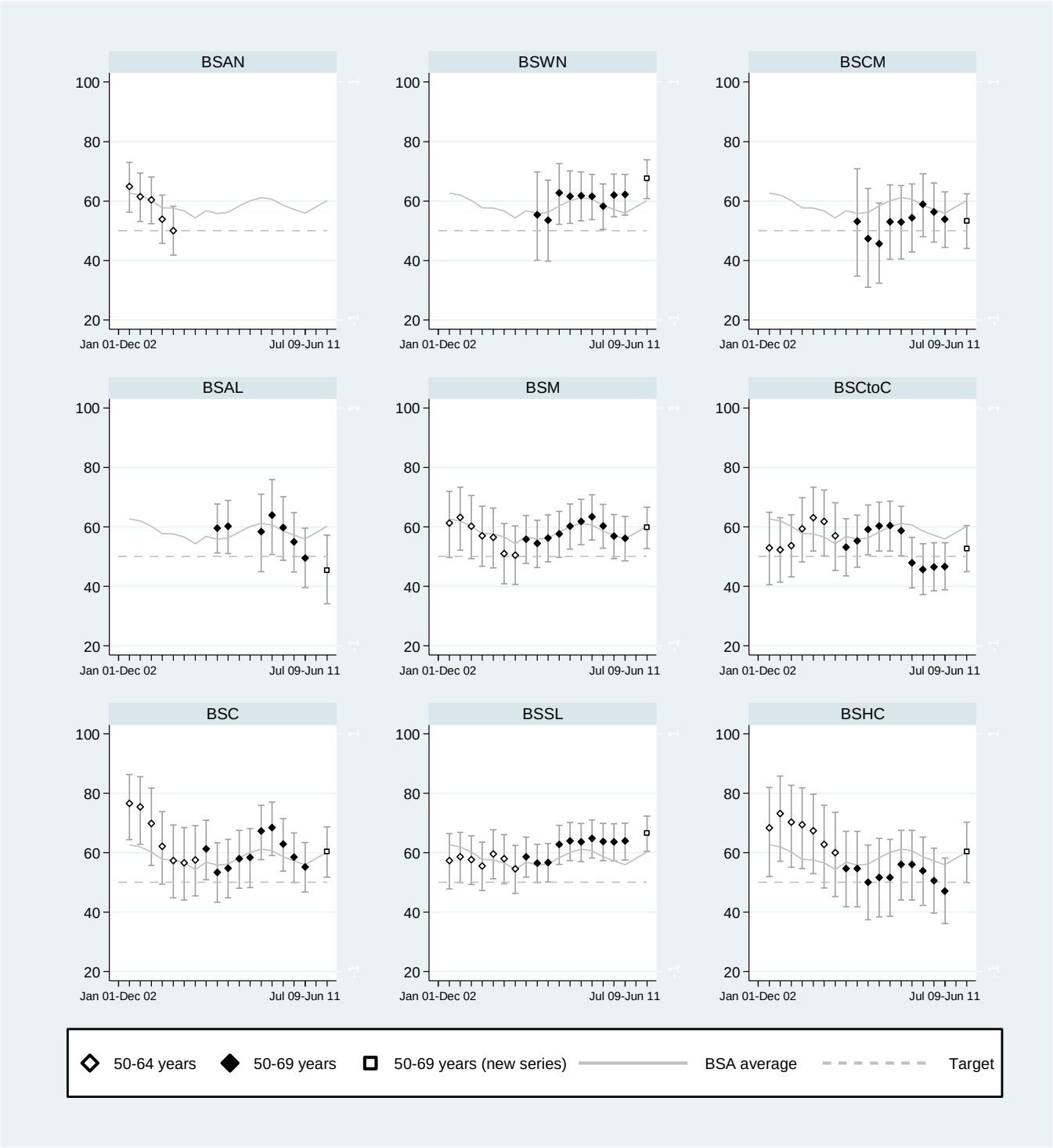
Poisson 95% Confidence Intervals presented
* Statistically different from target value, ns: not significant
✓ On target, difference of <5% better or worse than target value based on point estimate or 95% Confidence Interval not significantly different from target
✓✓ Difference of ≥ 5-9% magnitude better 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

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



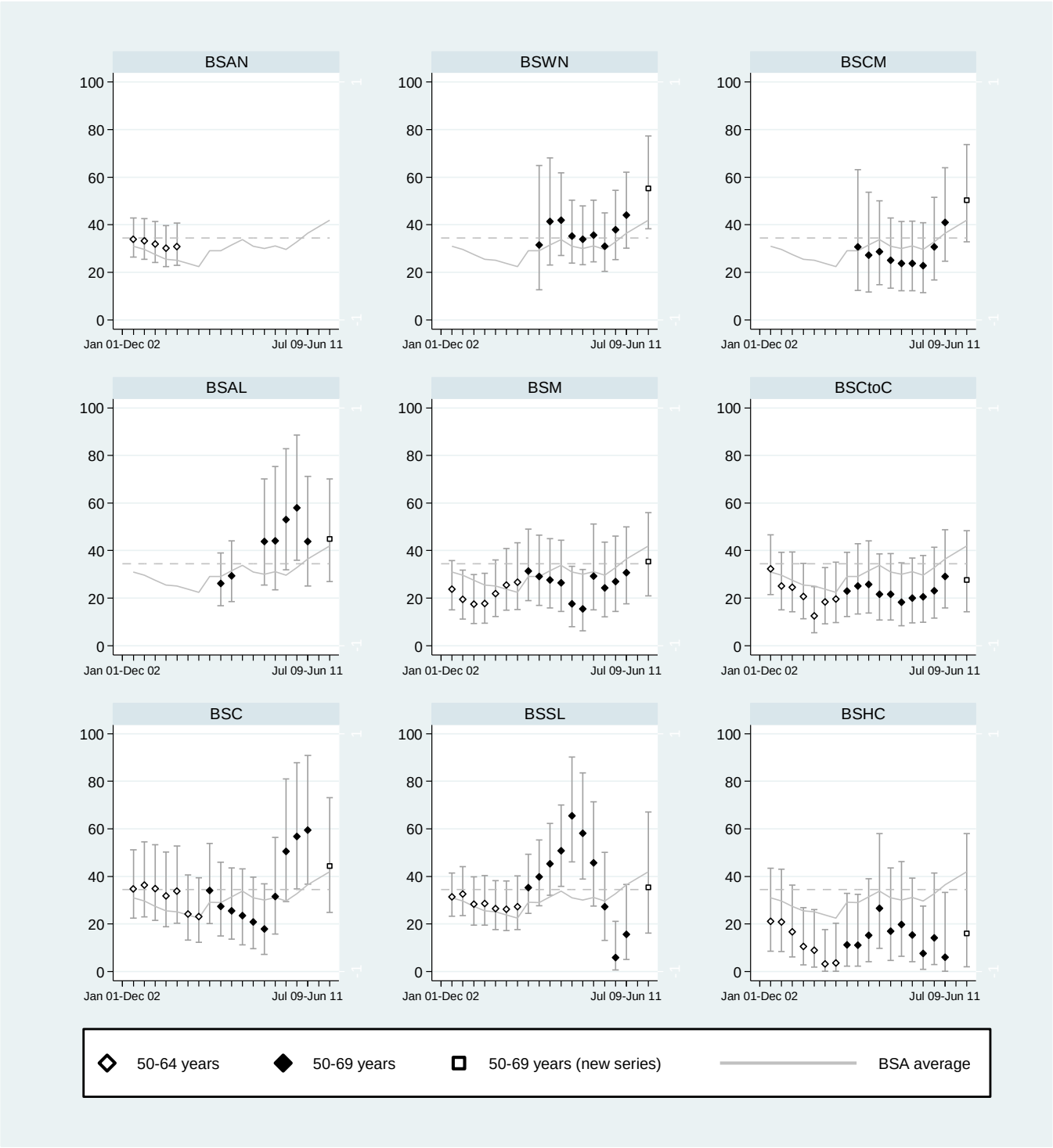
Note: Data not reported for the period January 2009-December 2010; Data for the most recent period (Jul 2009 - Jun 2011) are based on revised data extraction protocols

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



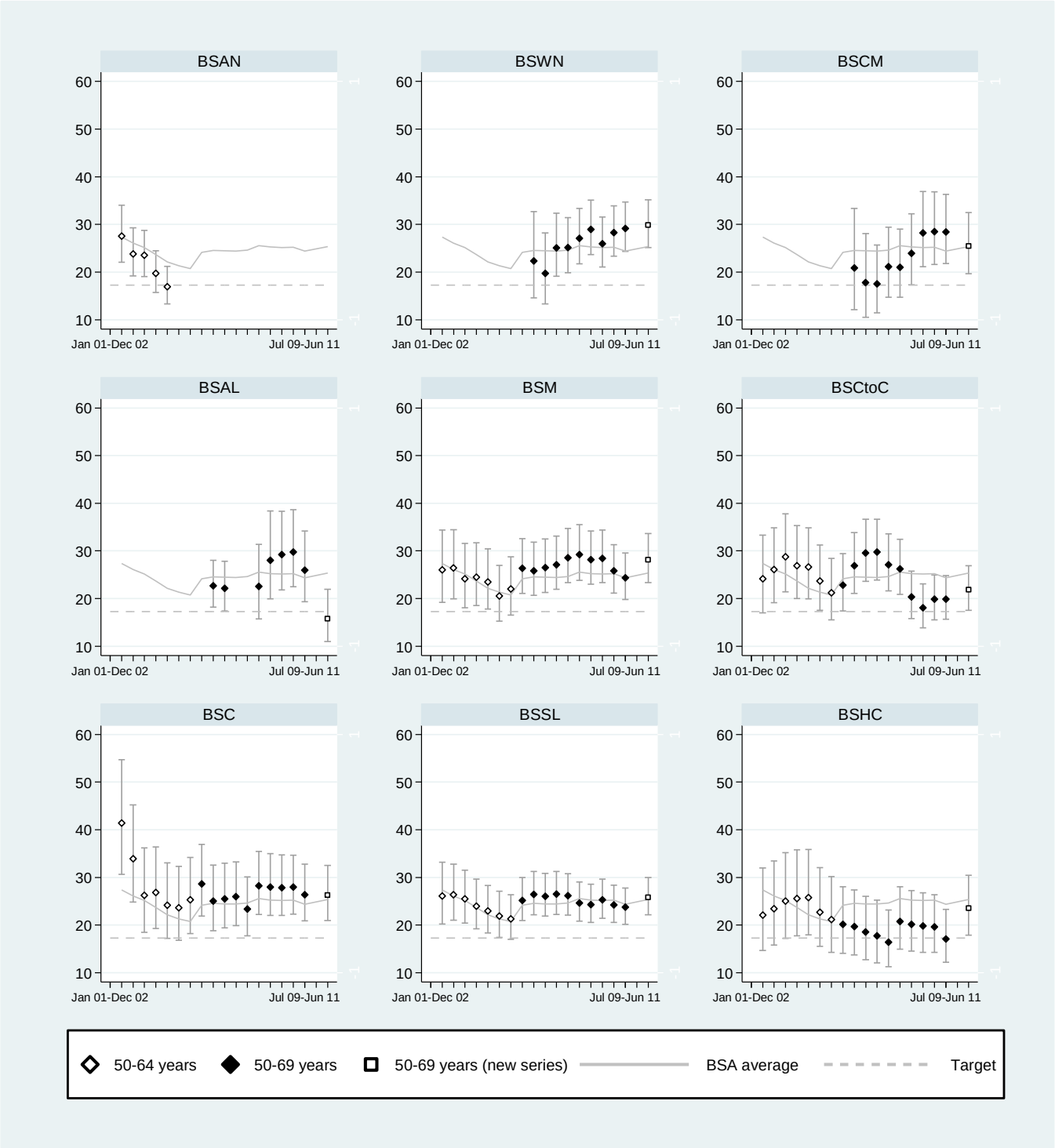
Note: Data not reported for the period January 2009-December 2010; Data for the most recent period (Jul 2009 - Jun 2011) are based on revised data extraction protocols

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



Note: Data not reported for the period January 2009-December 2010; Data for the most recent period (Jul 2009 - Jun 2011) are based on revised data extraction protocols

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



Note: Data not reported for the period January 2009-December 2010; Data for the most recent period (Jul 2009 - Jun 2011) are based on revised data extraction protocols

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)		
45-49 years										
BSWN	25	32	78.1 (60.0-90.7)			21	29			
BSCM	17	29	58.6 (38.9-76.5)			3	8			
BSAL	13	19	68.4 (43.4-87.4)			9	14			
BSM	18	24	75.0 (53.3-90.2)			14	21			
BSCtoC	18	27	66.7 (46.0-83.5)			4	7			
BSC	23	33	69.7 (51.3-84.4)			7	13			
BSSL	20	29	69.0 (49.2-84.7)			20	26			
BSHC	7	11	63.6 (30.8-89.1)			6	9			
BSA Total	141	204	69.1 (62.3-75.4)			84	127			
50-69 years										
BSWN	45	56	80.4 (67.6-89.8)	✓	ns	162	210	77.1 (70.9-82.6)	✓	ns
BSCM	39	49	79.6 (65.7-89.8)	✓	ns	92	122	75.4 (66.8-82.8)	✓	ns
BSAL	27	33	81.8 (64.5-93.0)	✓	ns	63	77	81.8 (71.4-89.7)	✓	ns
BSM	23	33	69.7 (51.3-84.4)	✓	ns	170	204	83.3 (77.5-88.2)	✓✓✓	*
BSCtoC	22	35	62.9 (44.9-78.5)	✓	ns	135	169	79.9 (73.0-85.6)	✓	ns
BSC	23	34	67.6 (49.5-82.6)	✓	ns	105	139	75.5 (67.5-82.4)	✓	ns
BSSL	15	23	65.2 (42.7-83.6)	✓	ns	205	260	78.8 (73.4-83.6)	✓	ns
BSHC	2	4	50.0 (6.8-93.2)	✓	ns	76	96	79.2 (69.7-86.8)	✓	ns
BSA Total	196	267	73.4 (67.7-78.6)	✓	ns	1008	1277	78.9 (76.6-81.1)	✓✓	*

Note: 'Total invasive cancers' only relate to cancers of known size
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.

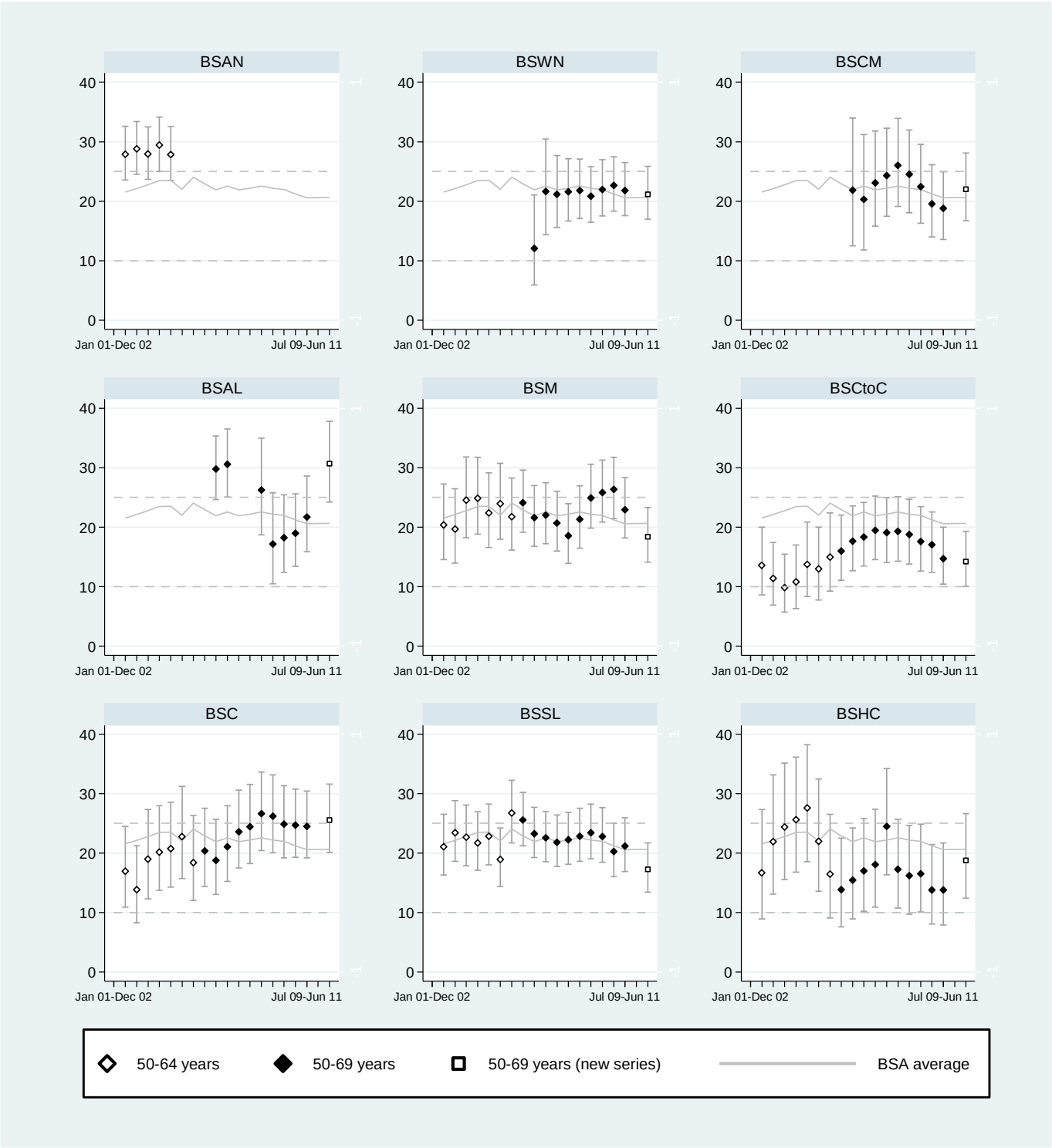
3.e. DCIS, women aged 45-69 years

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

	DCIS	Total cancers	% (95%CI)
45-49 years			
BSWN	26	90	28.9 (19.8-39.4)
BSCM	16	56	28.6 (17.3-42.2)
BSAL	16	54	29.6 (18.0-43.6)
BSM	13	58	22.4 (12.5-35.3)
BSCtoC	16	50	32.0 (19.5-46.7)
BSC	20	66	30.3 (19.6-42.9)
BSSL	25	82	30.5 (20.8-41.6)
BSHC	9	29	31.0 (15.3-50.8)
BSA Total	141	485	29.1 (25.1-33.3)
50-69 years			
BSWN	73	345	21.2 (17.0-25.9)
BSCM	48	218	22.0 (16.7-28.1)
BSAL	58	189	30.7 (24.2-37.8)
BSM	54	294	18.4 (14.1-23.3)
BSCtoC	34	239	14.2 (10.1-19.3)
BSC	60	235	25.5 (20.1-31.6)
BSSL	59	342	17.3 (13.4-21.7)
BSHC	24	128	18.8 (12.4-26.6)
BSA Total	410	1,990	20.6 (18.8-22.4)

Exact Binomial 95% Confidence Intervals presented

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



Note: Data not reported for the period January 2009-December 2010; Data for the most recent period (Jul 2009 - Jun 2011) are based on revised data extraction protocols

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	59	59	100.0 (93.9-100.0)		
BSCM	39	40	97.5 (86.8-99.9)		
BSAL	32	34	94.1 (80.3-99.3)		
BSM	45	45	100.0 (92.1-100.0)		
BSCtoC	32	32	100.0 (89.1-100.0)		
BSC	46	46	100.0 (92.3-100.0)		
BSSL	56	56	100.0 (93.6-100.0)		
BSHC	20	20	100.0 (83.2-100.0)		
BSA Total	329	332	99.1 (97.4-99.8)		
50-69 years					
BSWN	256	263	97.3 (94.6-98.9)	✓	ns
BSCM	164	167	98.2 (94.8-99.6)	✓	ns
BSAL	109	109	100.0 (96.7-100.0)	✓✓	*
BSM	233	235	99.1 (97.0-99.9)	✓	*
BSCtoC	198	198	100.0 (98.2-100.0)	✓✓	*
BSC	169	171	98.8 (95.8-99.9)	✓	*
BSSL	275	281	97.9 (95.4-99.2)	✓	*
BSHC	98	98	100.0 (96.3-100.0)	✓✓	*
BSA Total	1502	1522	98.7 (98.0-99.2)	✓	*

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
✓✓ 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)
45-49 years			
BSWN	55	62	88.7 (78.1-95.3)
BSCM	34	40	85.0 (70.2-94.3)
BSAL	34	38	89.5 (75.2-97.1)
BSM	37	45	82.2 (67.9-92.0)
BSCtoC	30	34	88.2 (72.5-96.7)
BSC	39	46	84.8 (71.1-93.7)
BSSL	47	57	82.5 (70.1-91.3)
BSHC	18	20	90.0 (68.3-98.8)
BSA Total	294	342	86.0 (81.8-89.5)
50-69 years			
BSWN	231	268	86.2 (81.5-90.1)
BSCM	159	169	94.1 (89.4-97.1)
BSAL	102	121	84.3 (76.6-90.3)
BSM	214	238	89.9 (85.4-93.4)
BSCtoC	173	203	85.2 (79.6-89.8)
BSC	147	173	85.0 (78.8-89.9)
BSSL	252	283	89.0 (84.8-92.4)
BSHC	84	103	81.6 (72.7-88.5)
BSA Total	1362	1,558	87.4 (85.7-89.0)

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)		
45-49 years					
BSWN	24	24			
BSCM	9	9			
BSAL	16	16			
BSM	13	13			
BSCtoC	16	16			
BSC	20	20			
BSSL	24	24			
BSHC	8	9			
BSA Total	130	131	99.2 (95.8-100.0)		
50-69 years					
BSWN	72	73	98.6 (92.6-100.0)	✓	ns
BSCM	42	43	97.7 (87.7-99.9)	✓	ns
BSAL	52	53	98.1 (89.9-100.0)	✓	ns
BSM	54	54	100.0 (93.4-100.0)	✓	ns
BSCtoC	32	33	97.0 (84.2-99.9)	✓	ns
BSC	59	59	100.0 (93.9-100.0)	✓	ns
BSSL	57	59	96.6 (88.3-99.6)	✓	ns
BSHC	24	24	100.0 (85.8-100.0)	✓	ns
BSA Total	392	398	98.5 (96.7-99.4)	✓	*

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)		
45-49 years					
BSWN	13	14			
BSCM	4	5			
BSAL	4	4			
BSM	8	10			
BSCtoC	7	8			
BSC	11	13			
BSSL	16	16			
BSHC	3	6			
BSA Total	66	76	86.8 (77.1-93.5)		
50-69 years					
BSWN	35	42	83.3 (68.6-93.0)	✓✓✓	*
BSCM	19	25	76.0 (54.9-90.6)	✓✓✓	*
BSAL	12	15	80.0 (51.9-95.7)	✓✓✓	*
BSM	28	30	93.3 (77.9-99.2)	✓✓✓	*
BSCtoC	11	15	73.3 (44.9-92.2)	✓	ns
BSC	31	35	88.6 (73.3-96.8)	✓✓✓	*
BSSL	32	35	91.4 (76.9-98.2)	✓✓✓	*
BSHC	12	15	80.0 (51.9-95.7)	✓✓✓	*
BSA Total	180	212	84.9 (79.4-89.4)	✓✓✓	*

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 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)		
45-49 years					
BSWN	6	7			
BSCM	0	0			
BSAL	4	5			
BSM	3	4			
BSCtoC	2	2			
BSC	3	3			
BSSL	3	3			
BSHC	2	2			
BSA Total	23	26	88.5 (69.8-97.6)		
50-69 years					
BSWN	50	58	86.2 (74.6-93.9)	✓✓✓	*
BSCM	18	24	75.0 (53.3-90.2)	✓✓✓	*
BSAL	21	23	91.3 (72.0-98.9)	✓✓✓	*
BSM	39	45	86.7 (73.2-94.9)	✓✓✓	*
BSCtoC	29	38	76.3 (59.8-88.6)	✓✓✓	*
BSC	26	30	86.7 (69.3-96.2)	✓✓✓	*
BSSL	27	37	73.0 (55.9-86.2)	✓✓✓	*
BSHC	8	13	61.5 (31.6-86.1)	✓	ns
BSA Total	218	268	81.3 (76.2-85.8)	✓✓✓	*

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)		
45-49 years					
BSWN	37	38	97.4 (86.2-99.9)		
BSCM	19	19	100.0 (82.4-100.0)		
BSAL	14	16	87.5 (61.7-98.4)		
BSM	30	33	90.9 (75.7-98.1)		
BSCtoC	16	17	94.1 (71.3-99.9)		
BSC	27	27	100.0 (87.2-100.0)		
BSSL	27	28	96.4 (81.7-99.9)		
BSHC	10	10	100.0 (69.2-100.0)		
BSA Total	180	188	95.7 (91.8-98.1)		
50-69 years					
BSWN	174	181	96.1 (92.2-98.4)	✓	ns
BSCM	92	98	93.9 (87.1-97.7)	✓	ns
BSAL	69	76	90.8 (81.9-96.2)	✓	ns
BSM	160	169	94.7 (90.1-97.5)	✓	ns
BSCtoC	111	122	91.0 (84.4-95.4)	✓	ns
BSC	103	108	95.4 (89.5-98.5)	✓	ns
BSSL	168	171	98.2 (95.0-99.6)	✓	ns
BSHC	58	60	96.7 (88.5-99.6)	✓	ns
BSA Total	935	985	94.9 (93.4-96.2)	✓	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)
45-49 years			
BSWN	10	17	
BSCM	5	6	
BSAL	5	9	
BSM	5	9	
BSCtoC	1	8	
BSC	5	14	
BSSL	12	17	
BSHC	2	3	
BSA Total	45	83	54.2 (42.9-65.2)
50-69 years			
BSWN	39	47	83.0 (69.2-92.4)
BSCM	19	29	65.5 (45.7-82.1)
BSAL	15	34	44.1 (27.2-62.1)
BSM	31	38	81.6 (65.7-92.3)
BSCtoC	6	13	46.2 (19.2-74.9)
BSC	16	38	42.1 (26.3-59.2)
BSSL	33	43	76.7 (61.4-88.2)
BSHC	10	16	62.5 (35.4-84.8)
BSA Total	169	258	65.5 (59.4-71.3)

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)
Group 1: Node positive, ER and PR negative			
BSWN	1	1	
BSCM	1	1	
BSAL	1	1	
BSM	1	1	
BSCtoC	1	1	
BSC	0	0	
BSSL	1	1	
BSHC	1	1	
BSA Total	7	7	
Group 2: Node negative, high risk, and ER and PR negative			
BSWN	8	8	
BSCM	2	3	
BSAL	2	3	
BSM	1	1	
BSCtoC	0	1	
BSC	1	1	
BSSL	2	4	
BSHC	1	1	
BSA Total	17	22	
Group 3: Node positive, either ER or PR positive			
BSWN	9	13	69.2 (38.6-90.9)
BSCM	13	19	68.4 (43.4-87.4)
BSAL	7	9	77.8 (40.0-97.2)
BSM	8	12	66.7 (34.9-90.1)
BSCtoC	10	11	90.9 (58.7-99.8)
BSC	12	16	75.0 (47.6-92.7)
BSSL	14	16	87.5 (61.7-98.4)
BSHC	6	6	100.0 (54.1-100.0)
BSA Total	79	102	77.5 (68.1-85.1)
Group 4: Node negative, high risk, either ER or PR positive			
BSWN	5	19	26.3 (9.1-51.2)
BSCM	3	9	33.3 (7.5-70.1)
BSAL	5	14	35.7 (12.8-64.9)
BSM	3	16	18.8 (4.0-45.6)
BSCtoC	8	12	66.7 (34.9-90.1)
BSC	4	17	23.5 (6.8-49.9)
BSSL	7	27	25.9 (11.1-46.3)
BSHC	4	7	57.1 (18.4-90.1)
BSA Total	39	121	32.2 (24.0-41.3)

Exact binomial 95% Confidence Intervals presented

NB: 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 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)
Group 1: Node positive, ER and PR negative			
BSWN	10	11	90.9 (58.7-99.8)
BSCM	4	6	66.7 (22.3-95.7)
BSAL	4	4	100.0 (39.8-100.0)
BSM	5	5	100.0 (47.8-100.0)
BSCtoC	3	3	100.0 (29.2-100.0)
BSC	5	5	100.0 (47.8-100.0)
BSSL	8	8	100.0 (63.1-100.0)
BSHC	2	2	100.0 (15.8-100.0)
BSA Total	41	44	93.2 (81.3-98.6)
Group 2: Node negative, high risk, and ER and PR negative			
BSWN	13	25	52.0 (31.3-72.2)
BSCM	5	10	50.0 (18.7-81.3)
BSAL	8	8	100.0 (63.1-100.0)
BSM	11	14	78.6 (49.2-95.3)
BSCtoC	9	17	52.9 (27.8-77.0)
BSC	9	17	52.9 (27.8-77.0)
BSSL	16	20	80.0 (56.3-94.3)
BSHC	2	3	66.7 (9.4-99.2)
BSA Total	73	114	64.0 (54.5-72.8)
Group 3: Node positive, either ER or PR positive			
BSWN	20	48	41.7 (27.6-56.8)
BSCM	13	32	40.6 (23.7-59.4)
BSAL	6	20	30.0 (11.9-54.3)
BSM	19	39	48.7 (32.4-65.2)
BSCtoC	26	44	59.1 (43.2-73.7)
BSC	26	41	63.4 (46.9-77.9)
BSSL	29	55	52.7 (38.8-66.3)
BSHC	16	22	72.7 (49.8-89.3)
BSA Total	155	301	51.5 (45.7-57.3)
Group 4: Node negative, high risk, either ER or PR positive			
BSWN	11	91	12.1 (6.2-20.6)
BSCM	9	67	13.4 (6.3-24.0)
BSAL	5	46	10.9 (3.6-23.6)
BSM	24	116	20.7 (13.7-29.2)
BSCtoC	18	88	20.5 (12.6-30.4)
BSC	8	66	12.1 (5.4-22.5)
BSSL	15	132	11.4 (6.5-18.0)
BSHC	7	51	13.7 (5.7-26.3)
BSA Total	97	657	14.8 (12.1-17.7)

Exact binomial 95% Confidence Intervals presented
NB: 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)

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)
Group 1: Node positive, and ER or PR positive			
BSWN	13	13	100.0 (75.3-100.0)
BSCM	17	19	89.5 (66.9-98.7)
BSAL	8	9	88.9 (51.8-99.7)
BSM	12	13	92.3 (64.0-99.8)
BSCtoC	11	11	100.0 (71.5-100.0)
BSC	16	16	100.0 (79.4-100.0)
BSSL	15	16	93.8 (69.8-99.8)
BSHC	5	6	83.3 (35.9-99.6)
BSA Total	97	103	94.2 (87.8-97.8)
Group 2: Node negative, high risk, and ER or PR positive			
BSWN	14	19	73.7 (48.8-90.9)
BSCM	6	9	66.7 (29.9-92.5)
BSAL	9	14	64.3 (35.1-87.2)
BSM	16	16	100.0 (79.4-100.0)
BSCtoC	11	12	91.7 (61.5-99.8)
BSC	16	17	94.1 (71.3-99.9)
BSSL	15	27	55.6 (35.3-74.5)
BSHC	6	7	85.7 (42.1-99.6)
BSA Total	93	121	76.9 (68.3-84.0)
Group 3: Node negative, low risk and ER or PR positive			
BSWN	4	20	20.0 (5.7-43.7)
BSCM	1	7	14.3 (0.4-57.9)
BSAL	2	9	22.2 (2.8-60.0)
BSM	13	15	86.7 (59.5-98.3)
BSCtoC	3	7	42.9 (9.9-81.6)
BSC	9	12	75.0 (42.8-94.5)
BSSL	6	9	66.7 (29.9-92.5)
BSHC	0	5	0.0 (0.0-52.2)
BSA Total	38	84	45.2 (34.3-56.5)

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)

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)
Group 1: Node positive, and ER or PR positive			
BSWN	45	48	93.8 (82.8-98.7)
BSCM	28	32	87.5 (71.0-96.5)
BSAL	18	20	90.0 (68.3-98.8)
BSM	39	39	100.0 (91.0-100.0)
BSCtoC	42	44	95.5 (84.5-99.4)
BSC	40	41	97.6 (87.1-99.9)
BSSL	52	55	94.5 (84.9-98.9)
BSHC	22	22	100.0 (84.6-100.0)
BSA Total	286	301	95.0 (91.9-97.2)
Group 2: Node negative, high risk, and ER or PR positive			
BSWN	64	91	70.3 (59.8-79.5)
BSCM	40	67	59.7 (47.0-71.5)
BSAL	26	46	56.5 (41.1-71.1)
BSM	106	116	91.4 (84.7-95.8)
BSCtoC	68	88	77.3 (67.1-85.5)
BSC	55	66	83.3 (72.1-91.4)
BSSL	76	132	57.6 (48.7-66.1)
BSHC	26	51	51.0 (36.6-65.2)
BSA Total	461	657	70.2 (66.5-73.6)
Group 3: Node negative, low risk and ER or PR positive			
BSWN	19	92	20.7 (12.9-30.4)
BSCM	2	50	4.0 (0.5-13.7)
BSAL	7	42	16.7 (7.0-31.4)
BSM	58	62	93.5 (84.3-98.2)
BSCtoC	26	49	53.1 (38.3-67.5)
BSC	28	44	63.6 (47.8-77.6)
BSSL	28	64	43.8 (31.4-56.7)
BSHC	5	22	22.7 (7.8-45.4)
BSA Total	173	425	40.7 (36.0-45.5)

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

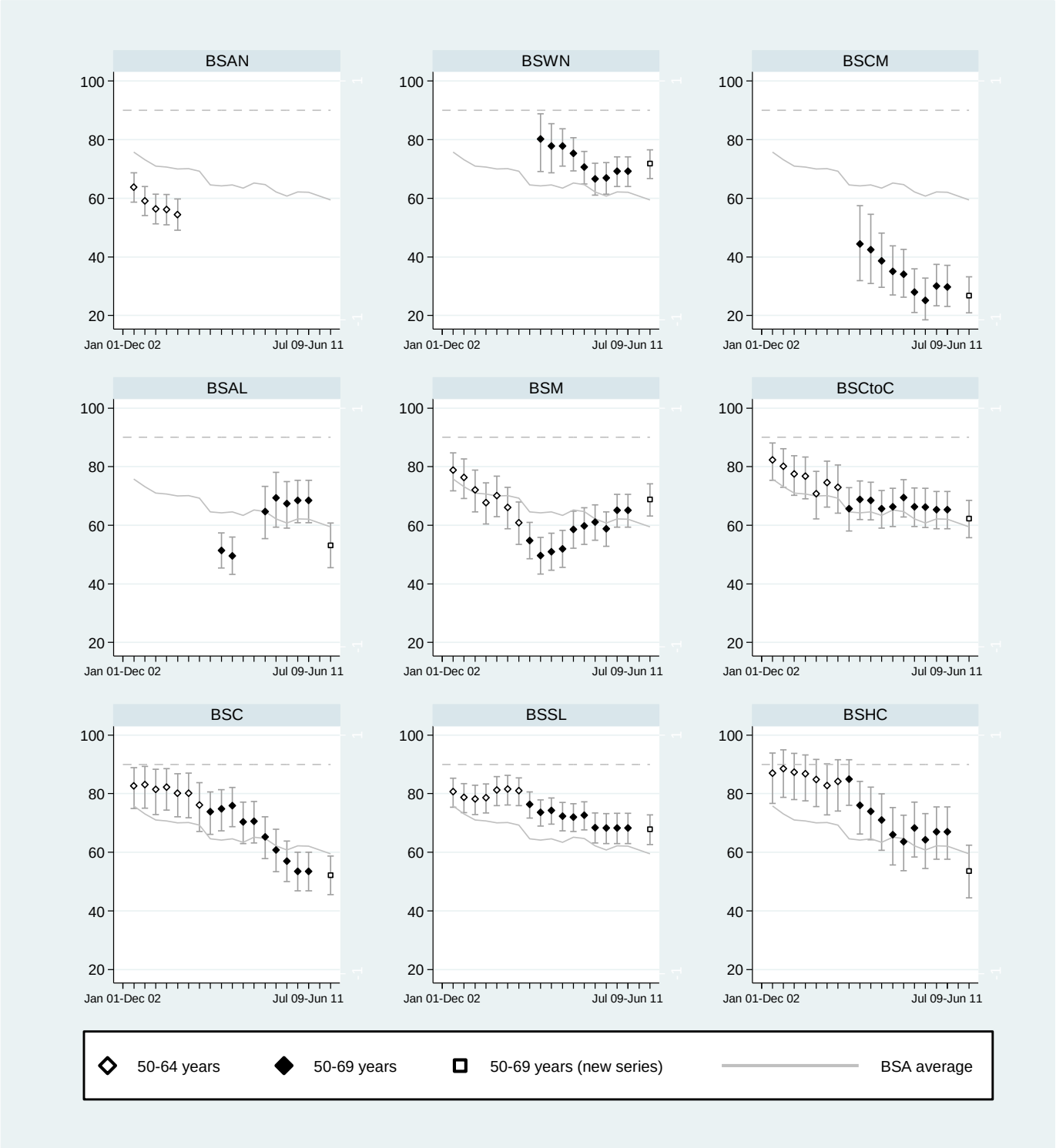
Target:

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
45-49 years						
BSWN	58	87	66.7 (55.7-76.4)			*14*
BSCM	12	49	24.5 (13.3-38.9)			*29*
BSAL	30	54	55.6 (41.4-69.1)			*18*
BSM	39	58	67.2 (53.7-79.0)			*16*
BSCtoC	36	50	72.0 (57.5-83.8)			*12*
BSC	42	67	62.7 (50.0-74.2)			*19*
BSSL	51	81	63.0 (51.5-73.4)			*17*
BSHC	19	29	65.5 (45.7-82.1)			*12.5*
BSA Total	287	475	60.4 (55.9-64.8)			*17*
50-69 years						
BSWN	245	341	71.8 (66.8-76.6)	×××	*	*15*
BSCM	57	213	26.8 (20.9-33.2)	×××	*	*26*
BSAL	93	175	53.1 (45.5-60.7)	×××	*	*19*
BSM	201	292	68.8 (63.2-74.1)	×××	*	*16*
BSCtoC	147	236	62.3 (55.8-68.5)	×××	*	*17*
BSC	122	234	52.1 (45.5-58.7)	×××	*	*20*
BSSL	232	342	67.8 (62.6-72.8)	×××	*	*14.5*
BSHC	68	127	53.5 (44.5-62.4)	×××	*	*18*
BSA Total	1,165	1,960	59.4 (57.2-61.6)	×××	*	*17*

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



Note: Data not reported for the period January 2009-December 2010; Data for the most recent period (Jul 2009 - Jun 2011) are based on revised data extraction protocols

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