BREASTSCREEN AOTEAROA

INDEPENDENT MONITORING REPORT:

TREATMENT OF WOMEN WITH BSA DETECTED CANCERS

(WOMEN SCREENED JULY 2005-JUNE 2007)

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EXECUTIVE SUMMARY

This report presents cross-sectional data for the 2 year period July 2005-June 2007 and trend data from programme inception to June 2007 for BreastScreen Aotearoa treatment indicators. Screening and assessment indicators are located in a companion report.[1] BreastScreen Aotearoa (BSA) has offered government funded biennial mammography screening for all NZ women aged 50-64 years since 1999. In July 2004 the target age group was extended to include women aged 45-49 years and 65-69 years. For the period covered in this report, a biennium of for these extended age groups has elapsed, and for this report data relating to women aged 50-69 years are presented. Trend data for key indicators are presented for women aged 50-64 years, however, a new times-series has also been established for this aggregated target age group of women aged 50-69 years. Significant numbers of 45-49 year old women were not screened until July 2005, and therefore these data are not included in this report. Some indicators in this report have 'expected' and 'desirable' targets. In the text of this Executive Summary quoted targets relate to 'expected' target values.

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

The restructure of BreastScreen Auckland & North (BSAN) continues to impact upon data for the current reporting period. BreastScreen Auckland & North (BSAN) has been re-structured into three Lead Providers: BreastScreen Auckland Limited (BSAL), BreastScreen Counties Manukau (BSCM), and BreastScreen Waitemata (BSWN). This occurred during the July to December (2005) reporting period, with BSCM beginning screens in September 2005.

1. Early detection of DCIS or invasive breast cancer

DCIS

The proportion of DCIS of all cancers (invasive and DCIS) for this age group over the biennium was 22.6% (target range 10-25%).

Invasive cancer detection rate

The BSA biennial invasive cancer detection for women aged 50-69 years was 7.4 per 1,000 women screened for initial screens (achieving the target of ≥ 6.1 per 1,000), and 4.2 per 1,000 for subsequent screens (achieving the target of ≥ 3.45 per 1,000). This represented 1,214 invasive cancers detected by BSA for the 2-year period. The overall proportion of node negative cancers (of all invasive cancers) was 71.8% for initial screens and 80.6% 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 27.9% for initial screens and 39.0% for subsequent screens. The corresponding detection rates per 10,000 women screened for invasive cancers ≤10mm were above the target at 20.5 for initial screens (target ≥ 15.2 per 10,000 screens) and 16.3 for subsequent screens (target ≥ 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 45.9% for initial screens and 58.3% for subsequent screens. The corresponding detection rates per 10,000 women screened for invasive cancers <15mm were above the target at 33.8 for initial screens (target >30.5 per 10,000 screens) and 24.4 for subsequent screens (target ≥ 17.3 per 10,000 screens).

2. Treatment

Target values were exceeded for DCIS cases and for invasive cases ≤ 20 mm having breast conserving surgery (BCS). The overall proportion of screen detected DCIS having BCS was 82.9%, and for invasive cancers having BCS was 75.7%, both of which were greater than the target value of >50%.

The overall proportion of invasive cancers having a surgical axillary procedure was 97.6%, which was on target (target value of 95%). The overall proportion of women who had surgery for DCIS, who did not have an axillary dissection, was 97.1%, which was also on target (target value 95%).

[1] Taylor R, Arnett K, Begg S. BreastScreen Aotearoa: Independent Monitoring Report: January-June, 2007. BreastScreen Aotearoa: Wellington 2007.

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

3. Provision of an appropriate and acceptable service

There is only one indicator in this section of the treatment report. The overall proportion of women offered first surgical treatment within 20 workings days was below the target value of 90%. The biennial estimate for women 50-69 years was 63.4%. Trend data for this indicator show a continued decrease relative to earlier periods of the programme.

4. 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:

- %Receiving timely surgical treatment within 20 days (5e)

BSA ADVISORY GROUP COMMENTS AND RECOMMENDATIONS

1. Data Completeness

The BSA Advisory Group notes that, despite 9 months to enter data on the treatment of women, BSAL has been unable reach the 90% threshold for data completion which is required. As a consequence their data has been excluded from the treatment tables (but included in the BSA totals). This is also the case for BSSL data for treatment for women aged 45-49 years.

As it is not possible to monitor without complete data the BSA Advisory Group recommend that BSAL and BSSL are able to provide complete data for future reports.

2. First Surgical Treatment

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

The BSA Advisory Group recommends that when this target (90%) is not met, exception reports should be provided to the NSU with the IMR response template.

3. Detection of Invasive Cancers < 15 mm

The NSU is asked to clarify the definitions for measurements used in Table 3c. 1. and 3c.2. This would normally be less than or equal to 15mm (to allow for rounding up) rather than less than 15 mm.

FOREWORD: BSA MONITORING PROCESS

Data are sent monthly from the eight BreastScreen Aotearoa Lead Providers (LPs) to the New Zealand Health Information Service of the Ministry of Health (NZHIS). The data are checked at NZHIS, amalgamated into a single file and sent to the National Screening Unit (NSU). The NSU runs further checks, encrypts the National Health Index (NHI) numbers and produces 6-monthly data extraction and tables of performance indicators by lead provider for the preceding 6 months and preceding 2 years of the reporting period.

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

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

This BSA Independent Monitoring Report was reviewed by the BSA Advisory Group on 27 April, 2009.

TECHNICAL NOTES FOR INTERPRETING THIS REPORT

Developments in presentation of age extension data

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

Changes to BSA Lead Providers

BreastScreen Auckland and North was split into 3 separate Lead Providers during the current 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

Trends in programme indicators

For the current reporting period a new time series has been established for women aged 50-69 years, which aggregates the first biennium of data for women aged 65-69 years with women aged 50-64 years. Given the large number of indicators and the fact that, for many indicators, large stochastic variations are evident over time (due to small underlying case numbers), trend data has been presented for: (1) key programme indicators relating to participation, referral to assessment, and cancer detection; and (2) for other indicators where noteworthy trends were evident.

Confidence Intervals (CI's)

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

Differences between observed and target values

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

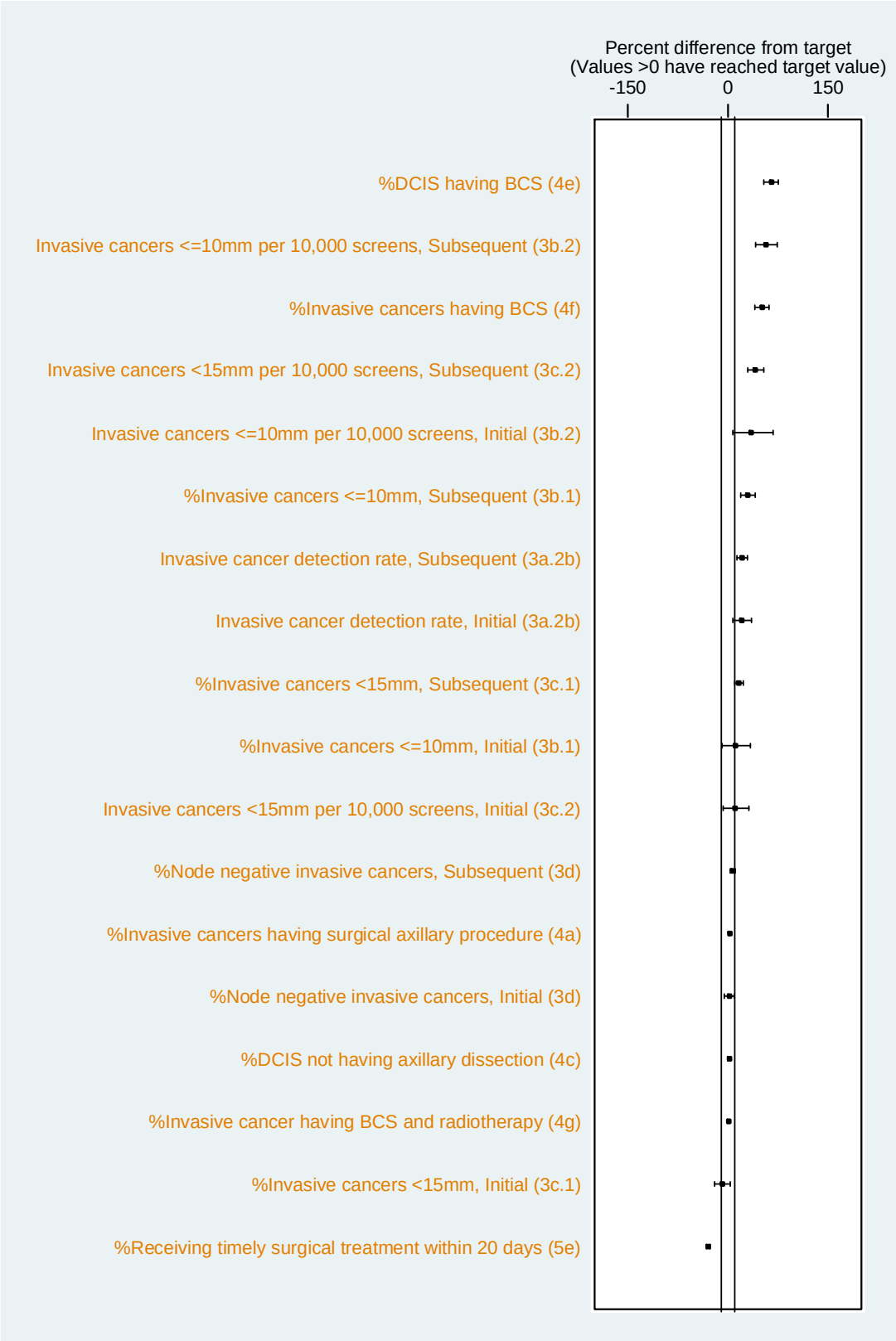
The magnitude of the difference between the observed value and the target value is important in the interpretation of each indicator. In this report, differences of ≥ 5% in magnitude that are statistically significantly different from the target value, based on 95% confidence intervals, are noted as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

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

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

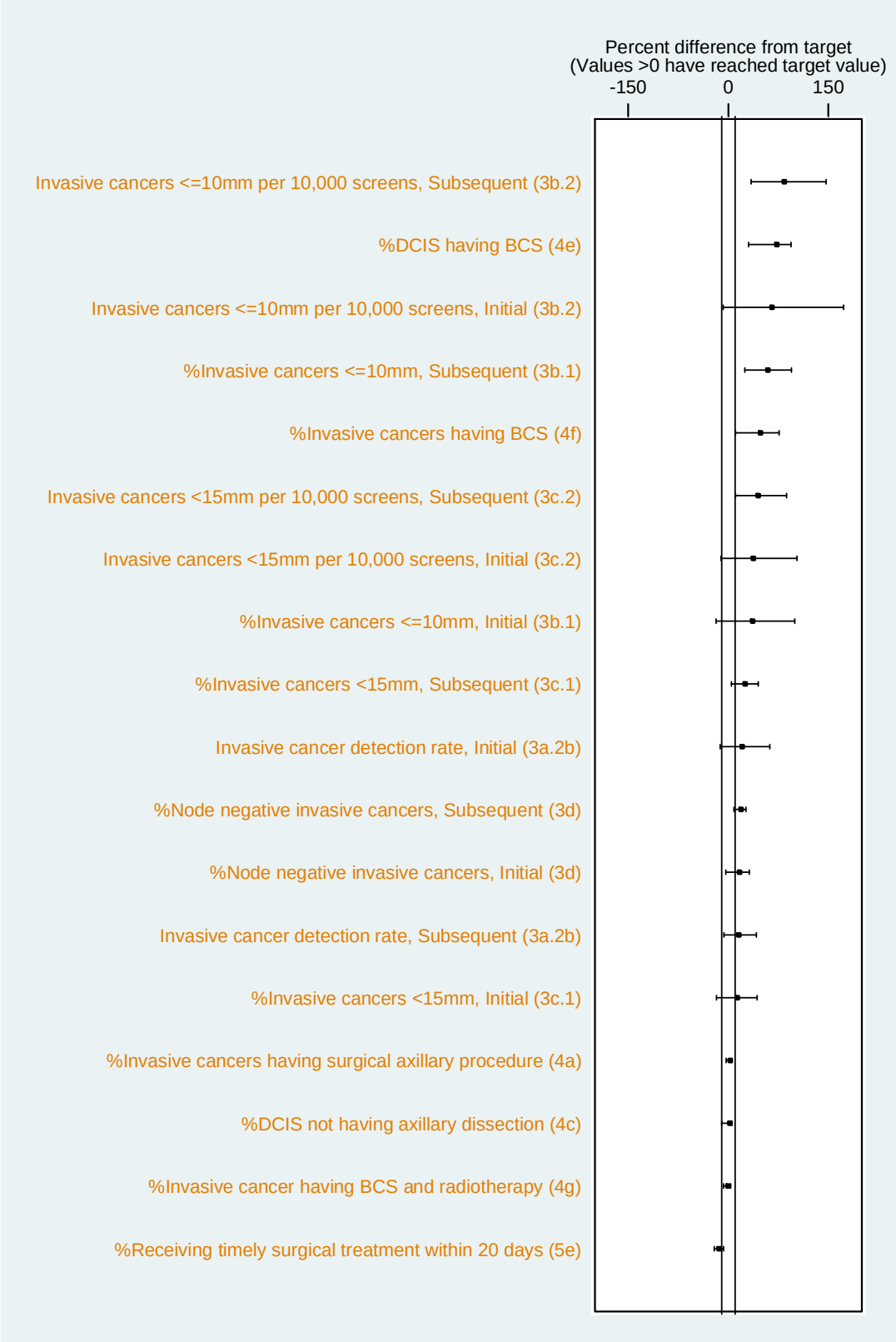
AT A GLANCE: BIENNIAL INDICATORS FOR WOMEN 50-69 YEARS

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



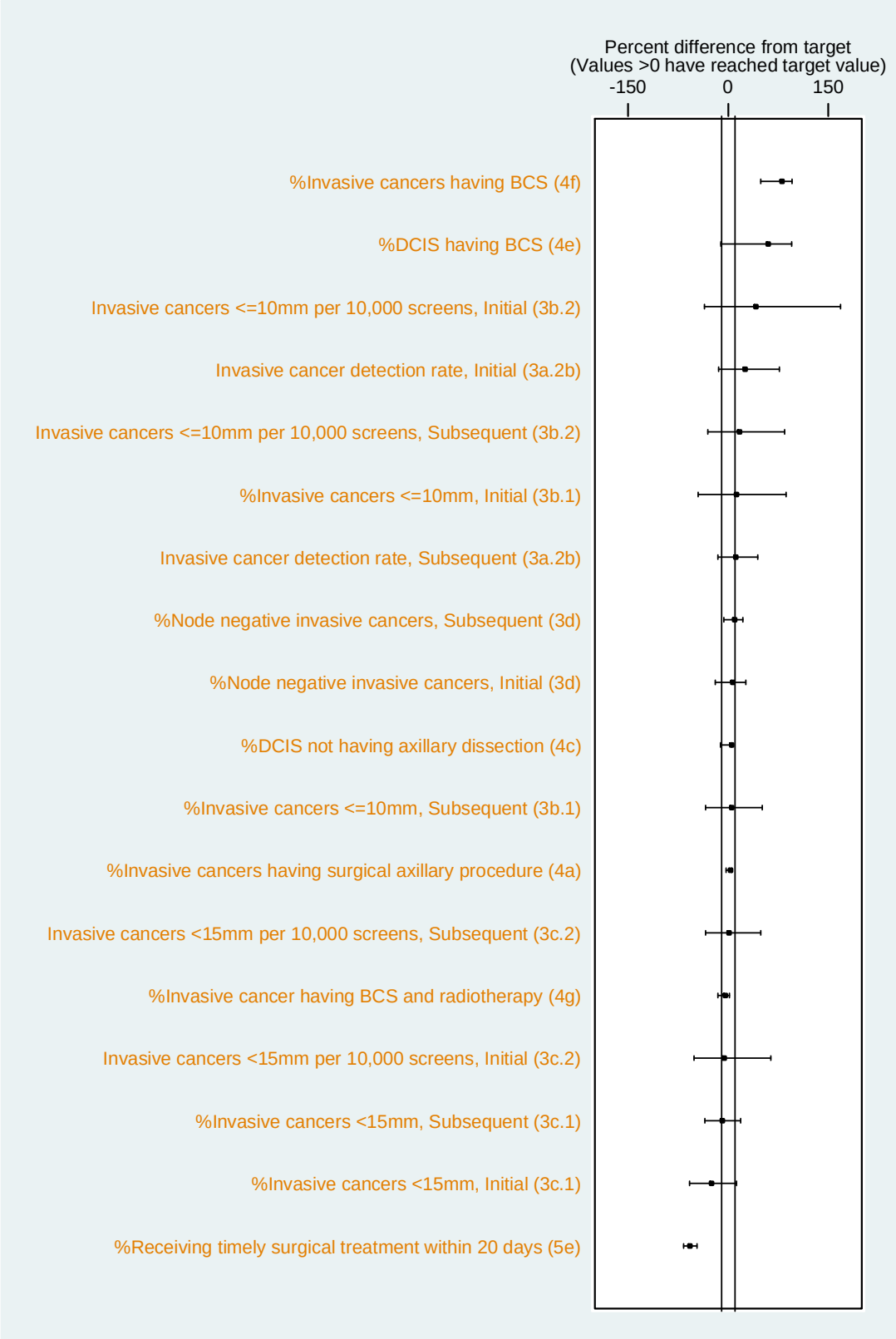
NB: The vertical line represent a ± 10% difference between the observed value and the target value

Figure 2: Biennial indicators 'on target', 'better than target', or 'worse than target' for BSWN as measured by percent difference between observed and target value (Table reference in brackets). Note: These data are for an incomplete biennium following re-distribution of BSAN areas.



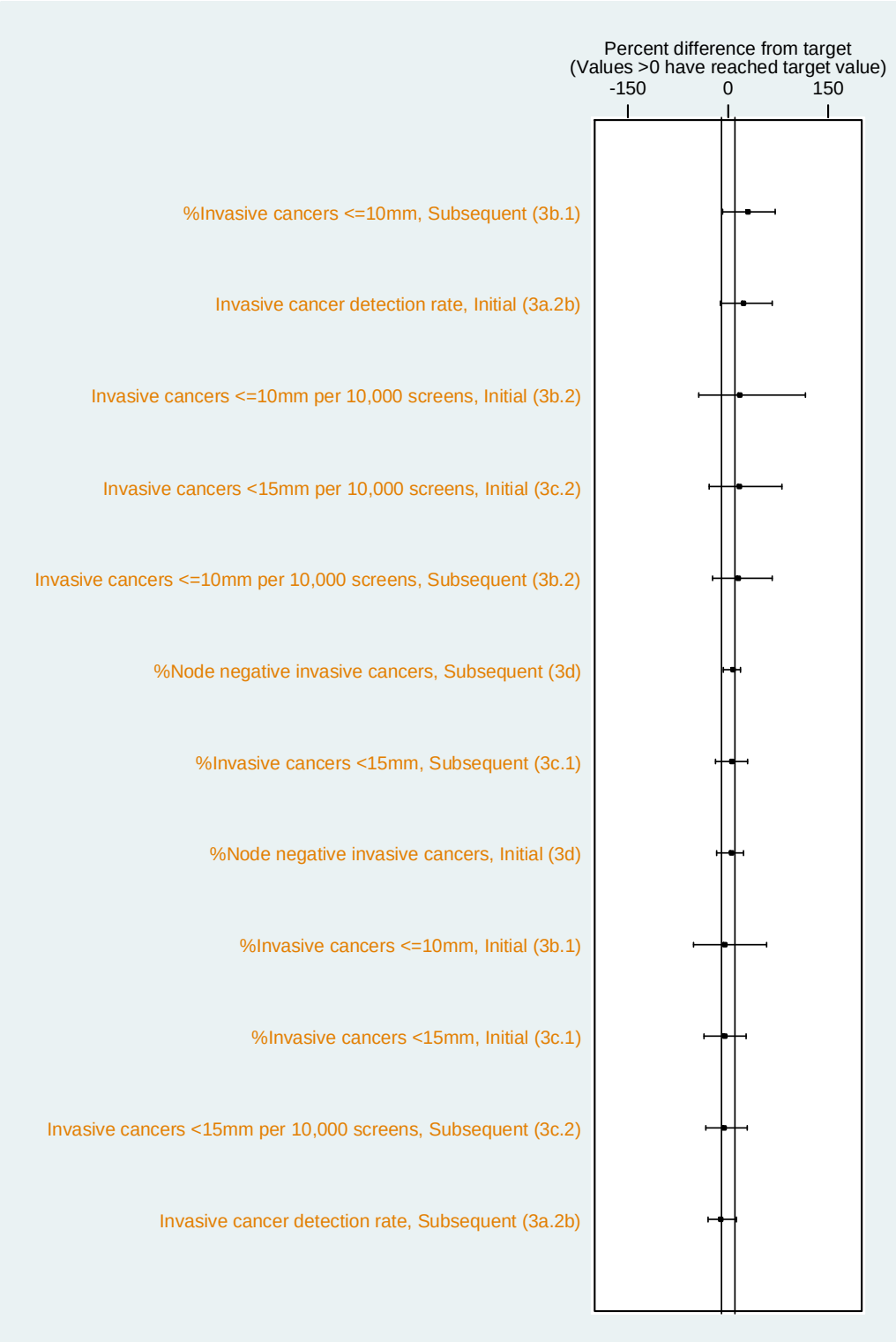
NB: The vertical line represent a ± 10% difference between the observed value and the target value

Figure 3: Biennial indicators 'on target', 'better than target', or 'worse than target' for BSCM as measured by percent difference between observed and target value (Table reference in brackets). Note: These data are for an incomplete biennium following re-distribution of BSAN areas.



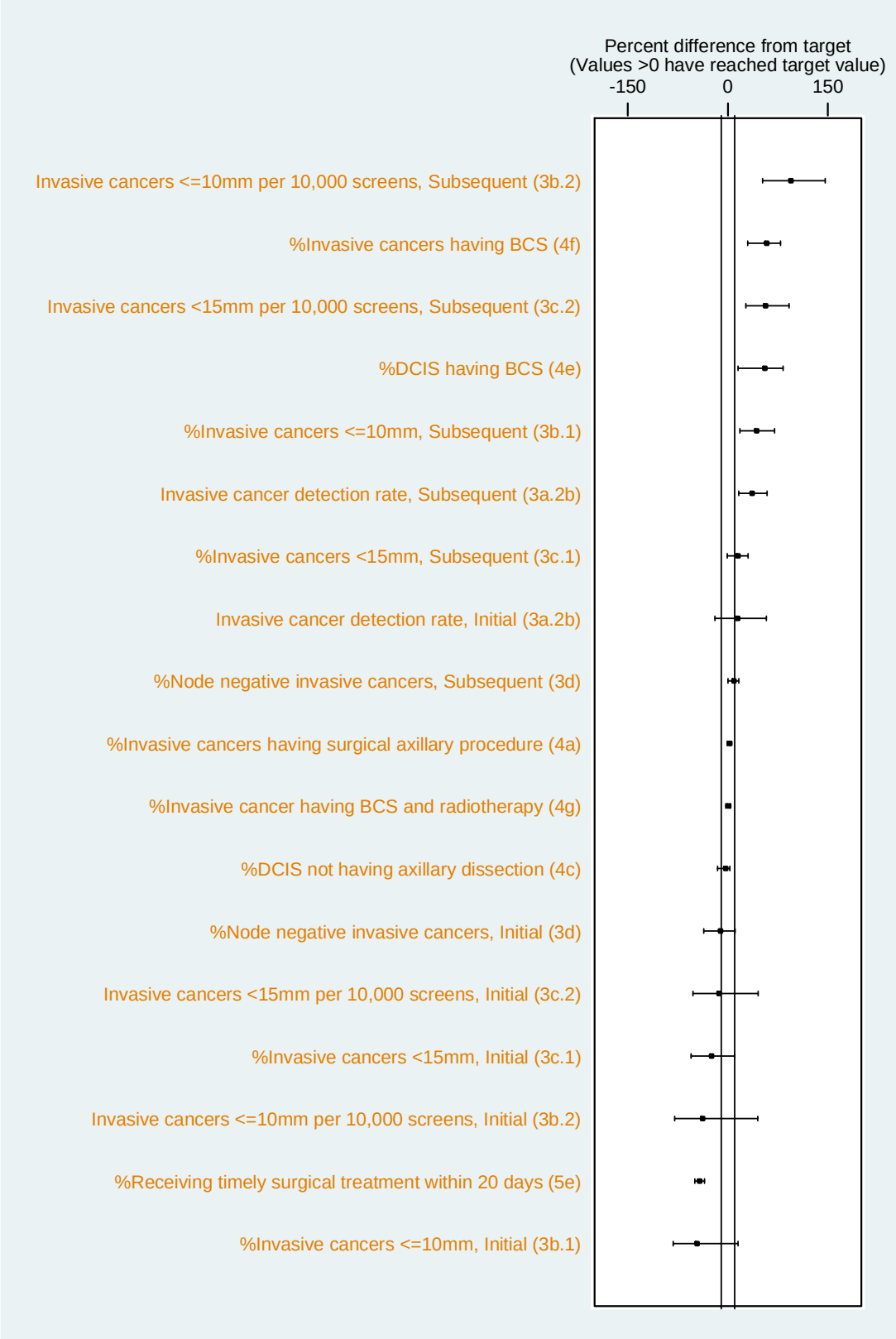
NB: The vertical line represent a ± 10% difference between the observed value and the target value

Figure 4: Biennial indicators 'on target', 'better than target', or 'worse than target' for BSAL as measured by percent difference between observed and target value (Table reference in brackets). Note: These data are for an incomplete biennium following re-distribution of BSAN areas.



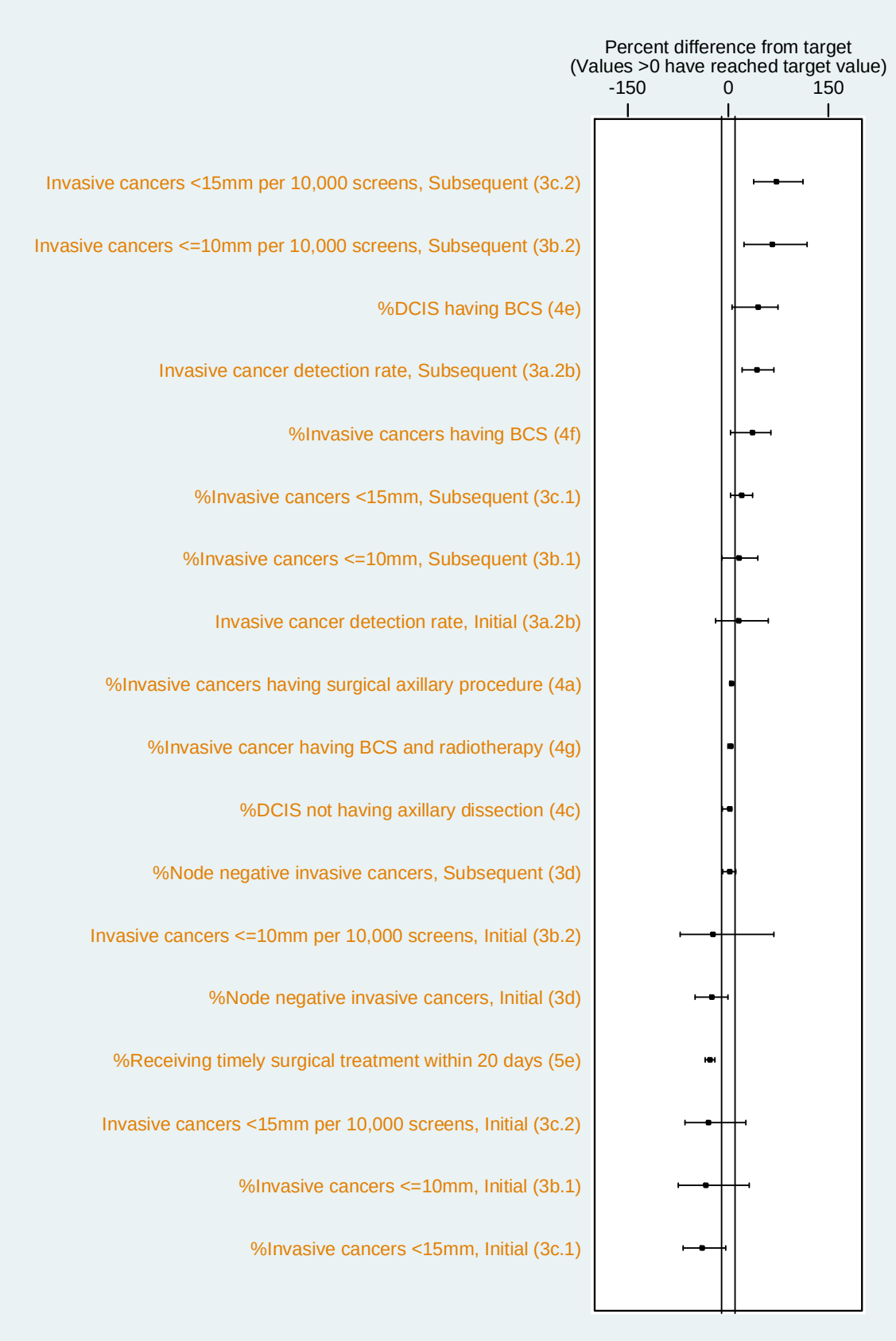
NB: The vertical line represent a ± 10% difference between the observed value and the target value
Note: Treatment inidcators 4a, 4b, 4c, 4d, 4e, 4f, 4g, 4h, 4i 4j, and 5e are not presented due to incomplete data.

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



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

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

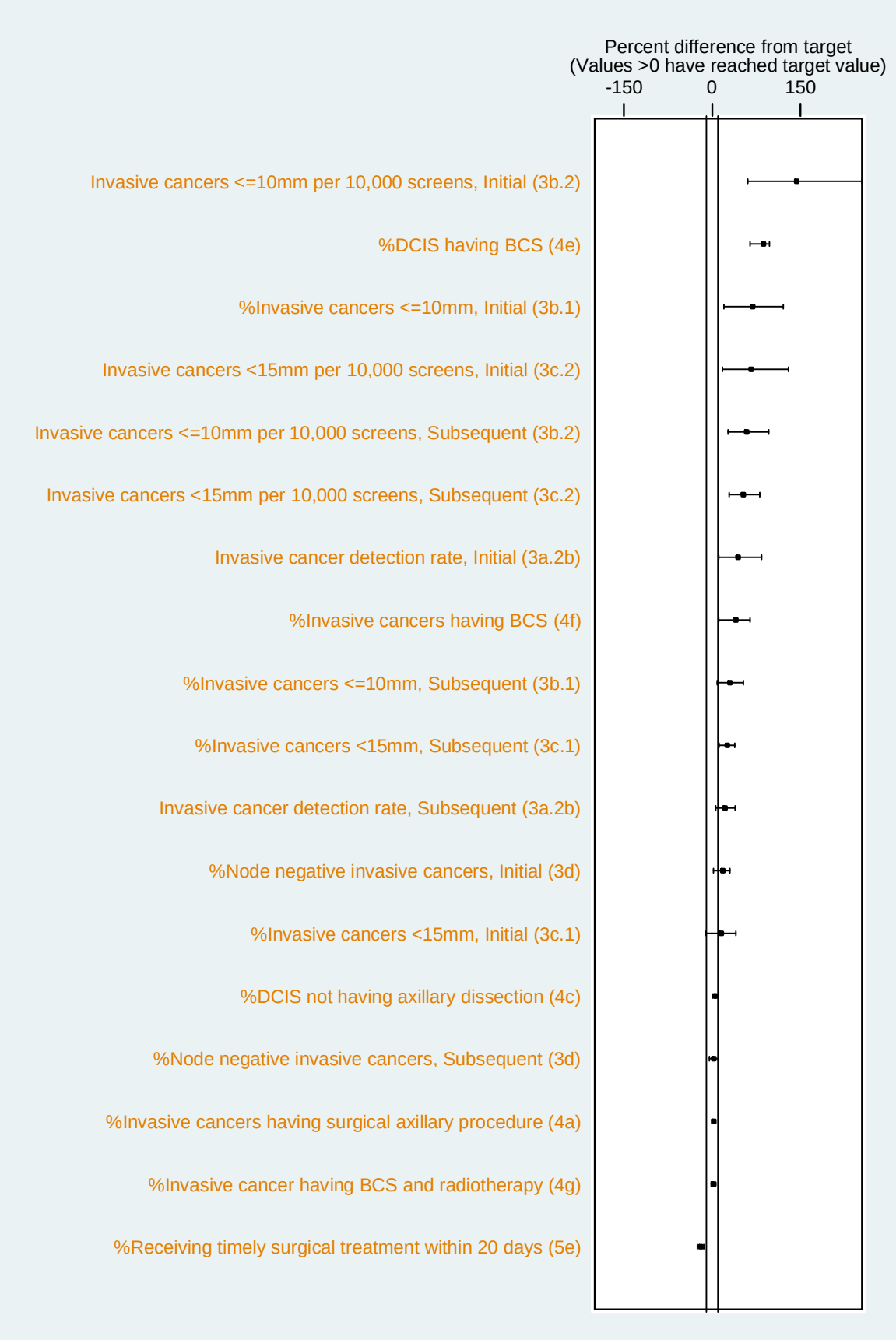


NB: The vertical line represent a ± 10% difference between the observed value and the target value

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

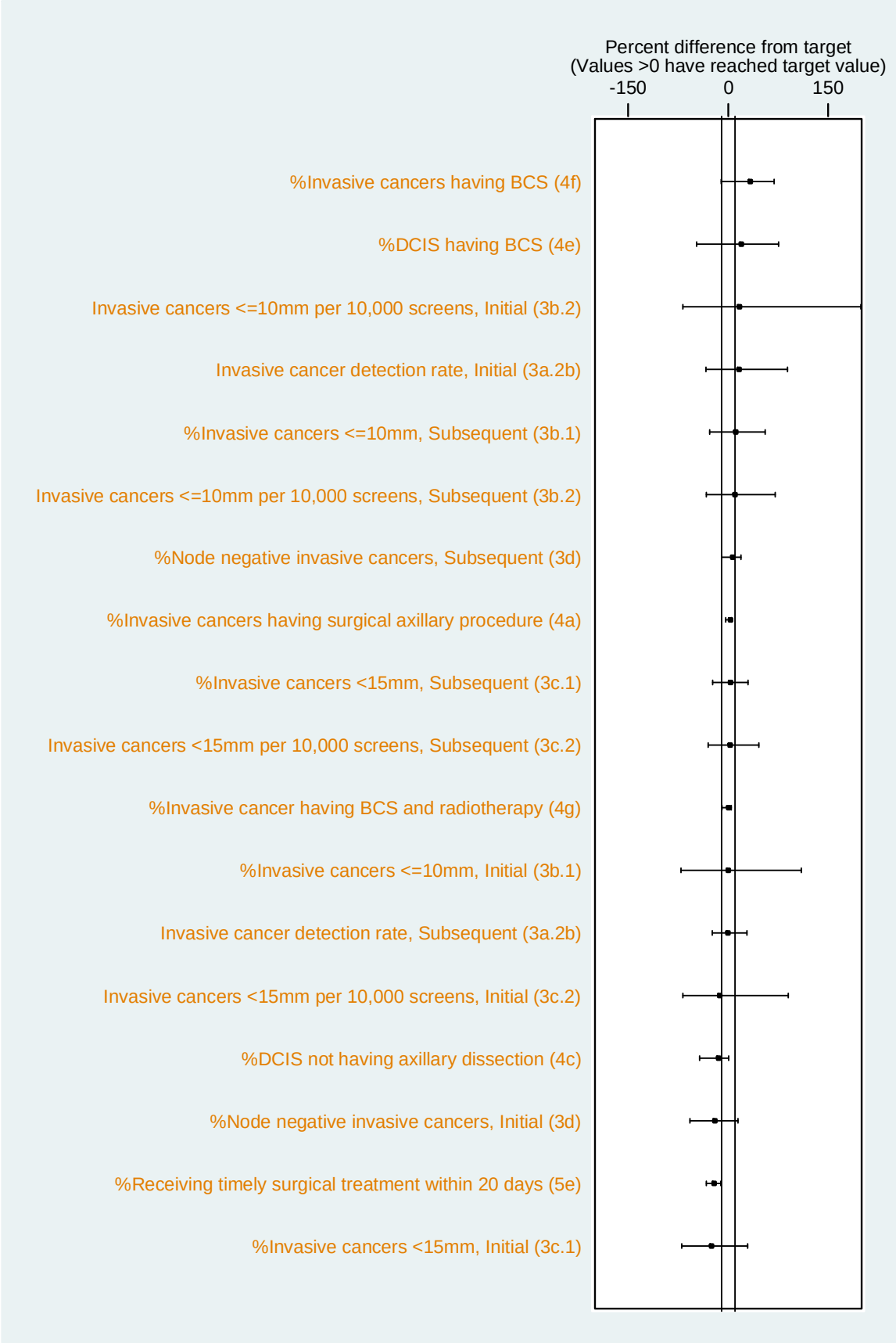
NB: The vertical line represent a ± 10% difference between the observed value and the target value

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



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

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



NB: The vertical line represent a ± 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
45-49 years						
BSWN	47	97.9	100.0	100.0	100.0	100.0
BSCM	21	95.2	100.0	100.0	100.0	100.0
BSAL	37	86.5	83.8	70.3	70.3	70.3
BSM	47	97.9	100.0	100.0	100.0	100.0
BSCtoC	34	100.0	100.0	100.0	100.0	100.0
BSC	33	100.0	100.0	100.0	100.0	100.0
BSSL	79	94.9	77.2	100.0	100.0	100.0
BSHC	13	100.0	100.0	100.0	100.0	100.0
BSA Total	311	96.1	92.3	96.5	96.5	96.5
50-69 years						
BSWN	189	94.2	97.9	99.5	98.9	99.5
BSCM	117	99.1	100.0	99.1	99.1	100.0
BSAL	183	90.2	85.8	82.0	82.0	82.0
BSM	266	96.6	99.6	100.0	100.0	100.0
BSCtoC	226	100.0	100.0	100.0	100.0	100.0
BSC	174	98.9	100.0	99.4	100.0	100.0
BSSL	371	98.4	94.9	99.5	99.7	99.7
BSHC	94	98.9	100.0	100.0	100.0	100.0
BSA Total	1,620	97.0	96.9	97.7	97.7	97.8

Note: Despite 9-months to enter data on treatment of women BSAL has been unable to reach the 90% threshold for data completion requirement. As a consequence their data has been excluded from the treatment tables, but included in BSA totals. This is also the case for BSSL data for surgical treatment data for women aged 45-49 years.

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*	BSAL	BSM	BSCtoC	BSC	BSSL	BSHC
1999 Jan-Jun	*Jun-04*	81.0	90.5	95.2	100.0	97.3	90.5
1999 Jul-Dec	*Dec-04*	75.2	100.0	100.0	100.0	100.0	100.0
2000 Jan-Jun	*Jun-05*	68.9	94.3	100.0	100.0	98.8	96.6
2000 Jul-Dec	*Dec-05*	70.4	100.0	96.6	96.3	98.7	100.0
2001 Jan-Jun	*Jun-06*	8.8	100.0	100.0	97.8	98.4	100.0
2001 Jul-Dec	*Dec-06*	0.9	92.1	100.0	97.5	89.7	94.4
2002 Jan-Jun	*Jun-07*	0.0	62.8	89.8	88.9	87.7	95.0
2002 Jul-Dec	*Dec-07*	0.0	34.1	93.3	81.8	66.7	78.3
2003 Jan-Jun	*Jun-08*	0.0	47.5	21.2	3.6	11.7	38.9
2003 Jul-Dec	*Dec-08*	0.0	40.5	9.1	4.4	6.3	5.6

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	34	7,679	4.4 (3.1-6.2)			0	440	0.0 (0.0-8.4)		
BSCM	12	3,462	3.5 (1.8-6.1)			2	150	13.3 (1.6-48.2)		
BSAL										
BSM	30	8,840	3.4 (2.3-4.8)			1	1,045	1.0 (0.0-5.3)		
BSCtoC	21	7,230	2.9 (1.8-4.4)			1	619	1.6 (0.0-9.0)		
BSC	22	6,215	3.5 (2.2-5.4)			4	548	7.3 (2.0-18.7)		
BSSL	46	21,660	2.1 (1.6-2.8)			0	181	0.0 (0.0-20.4)		
BSHC	11	3,583	3.1 (1.5-5.5)			2	572	3.5 (0.4-12.6)		
BSA Total	200	63,327	3.2 (2.7-3.6)			10	3,725	2.7 (1.3-4.9)		
50-69 years										
BSWN	44	5,965	7.4 (5.4-9.9)	✓	ns	94	23,493	4.0 (3.2-4.9)	✓	ns
BSCM	32	4,189	7.6 (5.2-10.8)	✓	ns	57	14,820	3.8 (2.9-5.0)	✓	ns
BSAL	42	5,602	7.5 (5.4-10.1)	✓	ns	72	23,399	3.1 (2.4-3.9)	✓	ns
BSM	37	5,294	7.0 (4.9-9.6)	✓	ns	165	35,049	4.7 (4.0-5.5)	✓✓✓	*
BSCtoC	36	5,100	7.1 (4.9-9.8)	✓	ns	146	29,562	4.9 (4.2-5.8)	✓✓✓	*
BSC	23	4,256	5.4 (3.4-8.1)	✓	ns	107	23,907	4.5 (3.7-5.4)	✓✓✓	*
BSSL	64	7,286	8.8 (6.8-11.2)	✓✓✓	*	219	52,144	4.2 (3.7-4.8)	✓✓✓	*
BSHC	16	2,253	7.1 (4.1-11.5)	✓	ns	60	17,441	3.4 (2.6-4.4)	✓	ns
BSA Total	294	39,945	7.4 (6.5-8.3)	✓✓✓	*	920	219,815	4.2 (3.9-4.5)	✓✓✓	*

Note: Due to re-configuration of BSAN into 3 providers, data for BSWN, BSAL and BSCM does not cover a full 24-month screening period. Where data are missing in the table above this reflects that the lead provider was unable to meet the 90% threshold data completion requirement (please refer to table 3a.3)

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	13	34	38.2 (22.2-56.4)			0	0			
BSCM	4	12	33.3 (9.9-65.1)			1	2			
BSAL										
BSM	7	30	23.3 (9.9-42.3)			0	1			
BSCtoC	9	21	42.9 (21.8-66.0)			0	1			
BSC	11	22	50.0 (28.2-71.8)			0	4			
BSSL	19	46	41.3 (27.0-56.8)			0	0			
BSHC	3	11	27.3 (6.0-61.0)			0	2			
BSA Total	73	200	36.5 (29.8-43.6)			1	10			
50-69 years										
BSWN	15	44	34.1 (20.5-49.9)	✓	ns	45	94	47.9 (37.5-58.4)	✓✓✓	*
BSCM	9	32	28.1 (13.7-46.7)	✓	ns	18	57	31.6 (19.9-45.2)	✓	ns
BSAL	10	42	23.8 (12.1-39.5)	✓	ns	28	72	38.9 (27.6-51.1)	✓	ns
BSM	5	37	13.5 (4.5-28.8)	✓	ns	71	165	43.0 (35.4-51.0)	✓✓✓	*
BSCtoC	6	36	16.7 (6.4-32.8)	✓	ns	51	146	34.9 (27.2-43.3)	✓	ns
BSC	6	23	26.1 (10.2-48.4)	✓	ns	40	107	37.4 (28.2-47.3)	✓	ns
BSSL	27	64	42.2 (29.9-55.2)	✓✓✓	*	86	220	39.1 (32.6-45.9)	✓✓✓	*
BSHC	4	16	25.0 (7.3-52.4)	✓	ns	20	60	33.3 (21.7-46.7)	✓	ns
BSA Total	82	294	27.9 (22.8-33.4)	✓	ns	359	921	39.0 (35.8-42.2)	✓✓✓	*

Note: Due to re-configuration of BSAN into 3 providers, data for BSWN, BSAL and BSCM does not cover a full 24-month screening period. Where data are missing in the table above this reflects that the lead provider was unable to meet the 90% threshold data completion requirement (please refer to table 3a.3)

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	13	7,679	16.9 (9.0-28.9)			0	440			
BSCM	4	3,462	11.6 (3.1-29.6)			1	150			
BSAL										
BSM	7	8,840	7.9 (3.2-16.3)			0	1,045			
BSCtoC	9	7,230	12.4 (5.7-23.6)			0	619			
BSC	11	6,215	17.7 (8.8-31.7)			0	548			
BSSL	19	21,660	8.8 (5.3-13.7)			0	181			
BSHC	3	3,583	8.4 (1.7-24.5)			0	572			
BSA Total	73	63,327	11.5 (9.0-14.5)			1	3,725			
50-69 years										
BSWN	15	5,965	25.1 (14.1-41.5)	✓	ns	45	23,493	19.2 (14.0-25.6)	✓✓✓	*
BSCM	9	4,189	21.5 (9.8-40.8)	✓	ns	18	14,820	12.1 (7.2-19.2)	✓	ns
BSAL	10	5,602	17.9 (8.6-32.8)	✓	ns	28	23,399	12.0 (8.0-17.3)	✓	ns
BSM	5	5,294	9.4 (3.1-22.0)	✓	ns	71	35,049	20.3 (15.8-25.6)	✓✓✓	*
BSCtoC	6	5,100	11.8 (4.3-25.6)	✓	ns	51	29,562	17.3 (12.8-22.7)	✓✓✓	*
BSC	6	4,256	14.1 (5.2-30.7)	✓	ns	40	23,907	16.7 (12.0-22.8)	✓✓✓	*
BSSL	27	7,286	37.1 (24.4-53.9)	✓✓✓	*	86	52,144	16.5 (13.2-20.4)	✓✓✓	*
BSHC	4	2,253	17.8 (4.8-45.5)	✓	ns	20	17,441	11.5 (7.0-17.7)	✓	ns
BSA Total	82	39,945	20.5 (16.3-25.5)	✓✓✓	*	359	219,815	16.3 (14.7-18.1)	✓✓✓	*

Note: Due to re-configuration of BSAN into 3 providers, data for BSWN, BSAL and BSCM does not cover a full 24-month screening period. Where data are missing in the table above this reflects that the lead provider was unable to meet the 90% threshold data completion requirement (please refer to table 3a.3)

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	15	34	44.1 (27.2-62.1)			0	0			
BSCM	6	12	50.0 (21.1-78.9)			1	2			
BSAL										
BSM	12	30	40.0 (22.7-59.4)			1	1			
BSCtoC	14	21	66.7 (43.0-85.4)			0	1			
BSC	15	22	68.2 (45.1-86.1)			3	4			
BSSL	22	46	47.8 (32.9-63.1)			0	0			
BSHC	4	11	36.4 (10.9-69.2)			0	2			
BSA Total	97	200	48.5 (41.4-55.7)			5	10			
50-69 years										
BSWN	25	44	56.8 (41.0-71.7)	✓	ns	59	94	62.8 (52.2-72.5)	✓✓✓	*
BSCM	12	32	37.5 (21.1-56.3)	✓	ns	26	57	45.6 (32.4-59.3)	✓	ns
BSAL	20	42	47.6 (32.0-63.6)	✓	ns	38	72	52.8 (40.7-64.7)	✓	ns
BSM	14	37	37.8 (22.5-55.2)	✓	ns	95	165	57.6 (49.7-65.2)	✓	ns
BSCtoC	11	36	30.6 (16.3-48.1)	×××	*	88	146	60.3 (51.9-68.3)	✓✓✓	*
BSC	10	23	43.5 (23.2-65.5)	✓	ns	62	107	57.9 (48.0-67.4)	✓	ns
BSSL	37	64	57.8 (44.8-70.1)	✓	ns	138	220	62.7 (56.0-69.1)	✓✓✓	*
BSHC	6	16	37.5 (15.2-64.6)	✓	ns	31	60	51.7 (38.4-64.8)	✓	ns
BSA Total	135	294	45.9 (40.1-51.8)	✓	ns	537	921	58.3 (55.0-61.5)	✓✓✓	*

Note: Due to re-configuration of BSAN into 3 providers, data for BSWN, BSAL and BSCM does not cover a full 24-month screening period. Where data are missing in the table above this reflects that the lead provider was unable to meet the 90% threshold data completion requirement (please refer to table 3a.3)
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	15	7,679	19.5 (10.9-32.2)			0	440			
BSCM	6	3,462	17.3 (6.4-37.7)			1	150			
BSAL										
BSM	12	8,840	13.6 (7.0-23.7)			1	1,045			
BSCtoC	14	7,230	19.4 (10.6-32.5)			0	619			
BSC	15	6,215	24.1 (13.5-39.8)			3	548			
BSSL	22	21,660	10.2 (6.4-15.4)			0	181			
BSHC	4	3,583	11.2 (3.0-28.6)			0	572			
BSA Total	97	63,327	15.3 (12.4-18.7)			5	3,725	13.4 (4.4-31.3)		
50-69 years										
BSWN	25	5,965	41.9 (27.1-61.9)	✓	ns	59	23,493	25.1 (19.1-32.4)	✓✓✓	*
BSCM	12	4,189	28.6 (14.8-50.0)	✓	ns	26	14,820	17.5 (11.5-25.7)	✓	ns
BSAL	20	5,602	35.7 (21.8-55.1)	✓	ns	38	23,399	16.2 (11.5-22.3)	✓	ns
BSM	14	5,294	26.4 (14.5-44.4)	✓	ns	95	35,049	27.1 (21.9-33.1)	✓✓✓	*
BSCtoC	11	5,100	21.6 (10.8-38.6)	✓	ns	88	29,562	29.8 (23.9-36.7)	✓✓✓	*
BSC	10	4,256	23.5 (11.3-43.2)	✓	ns	62	23,907	25.9 (19.9-33.2)	✓✓✓	*
BSSL	37	7,286	50.8 (35.8-70.0)	✓✓✓	*	138	52,144	26.5 (22.2-31.3)	✓✓✓	*
BSHC	6	2,253	26.6 (9.8-58.0)	✓	ns	31	17,441	17.8 (12.1-25.2)	✓	ns
BSA Total	135	39,945	33.8 (28.3-40.0)	✓	ns	537	219,815	24.4 (22.4-26.6)	✓✓✓	*

Note: Due to re-configuration of BSAN into 3 providers, data for BSWN, BSAL and BSCM does not cover a full 24-month screening period. Where data are missing in the table above this reflects that the lead provider was unable to meet the 90% threshold data completion requirement (please refer to table 3a.3)

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

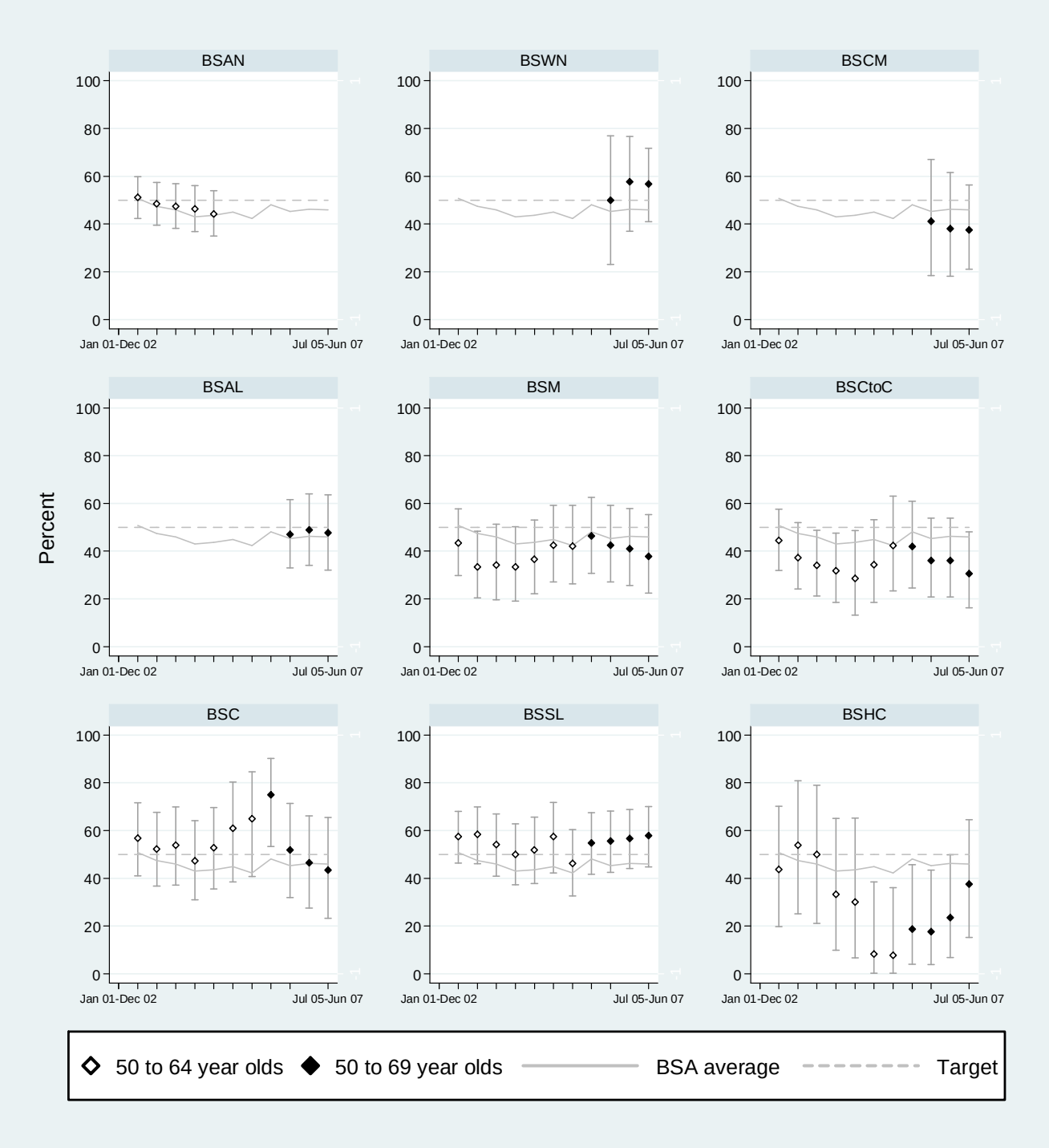


Figure 3c.1: Proportion invasive cancers < 15 mm, subsequent screens, 2 years

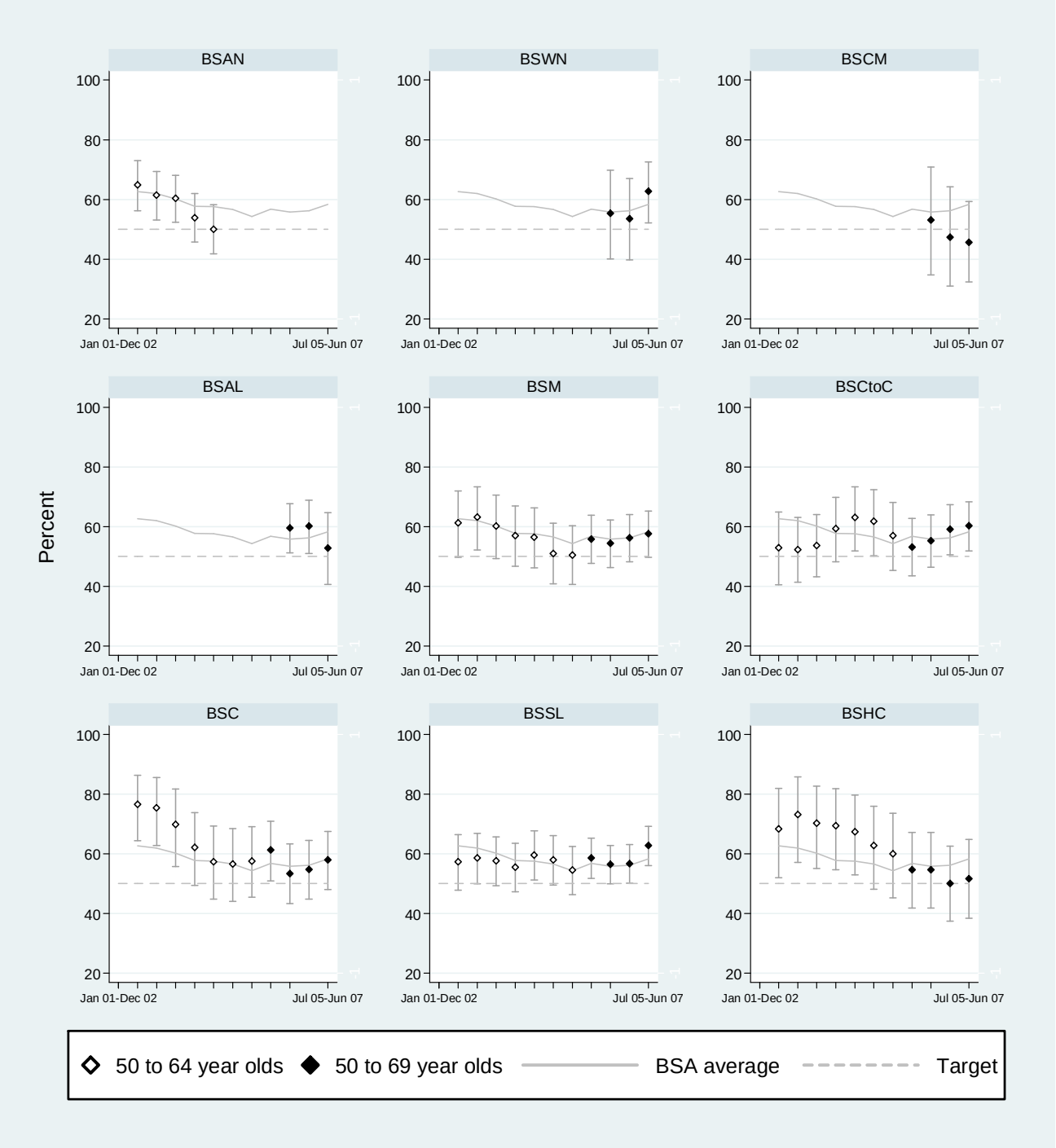


Figure 3c.2: Invasive cancers < 15 mm per 10,000 women screened, initial screens, 2 years

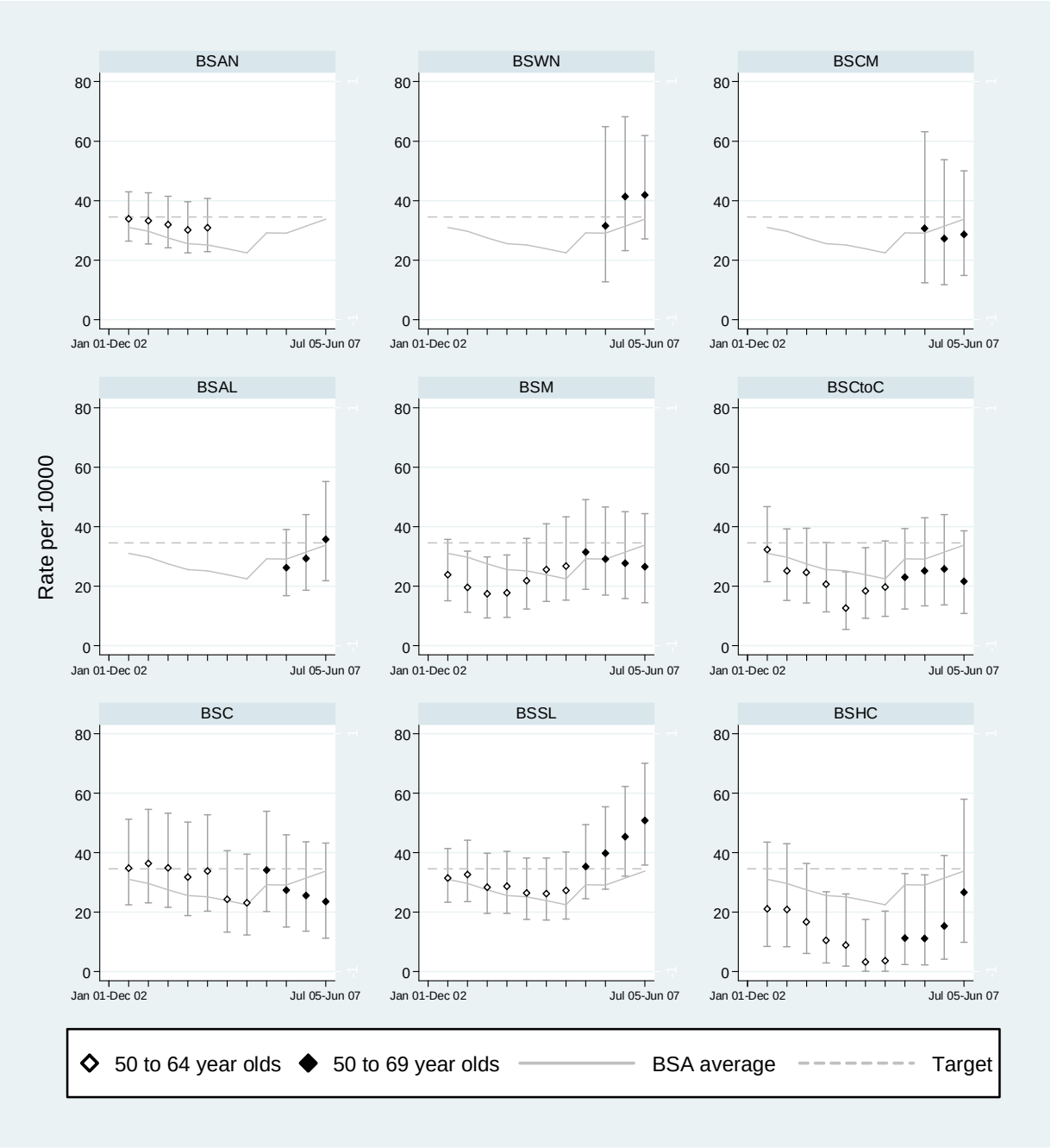
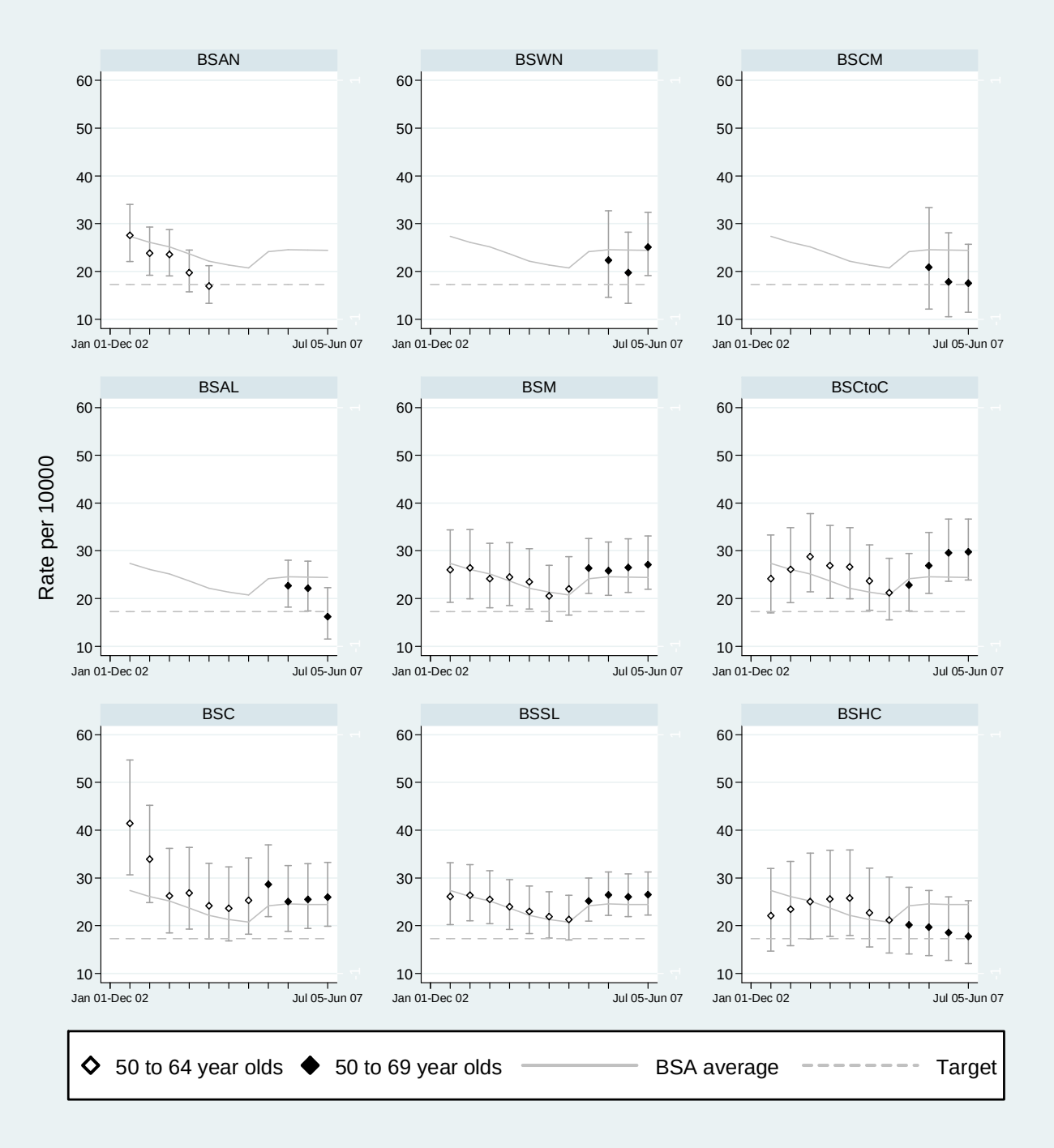


Figure 3c.2: Invasive cancers < 15 mm per 10,000 women screened, subsequent screens, 2 years



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)		
45-49 years										
BSWN	24	34	70.6 (52.5-84.9)			0	0			
BSCM	10	12	83.3 (51.6-97.9)			1	2			
BSAL										
BSM	18	30	60.0 (40.6-77.3)			1	1			
BSCtoC	13	21	61.9 (38.4-81.9)			0	1			
BSC	16	22	72.7 (49.8-89.3)			1	4			
BSSL	36	46	78.3 (63.6-89.1)			0	0			
BSHC	6	11	54.5 (23.4-83.3)			1	2			
BSA Total	138	200	69.0 (62.1-75.3)			4	10			
50-69 years										
BSWN	36	44	81.8 (67.3-91.8)	✓	ns	84	94	89.4 (81.3-94.8)	✓✓✓	*
BSCM	24	32	75.0 (56.6-88.5)	✓	ns	47	57	82.5 (70.1-91.3)	✓	ns
BSAL	31	42	73.8 (58.0-86.1)	✓	ns	58	72	80.6 (69.5-88.9)	✓	ns
BSM	23	37	62.2 (44.8-77.5)	✓	ns	135	165	81.8 (75.1-87.4)	✓✓	*
BSCtoC	19	36	52.8 (35.5-69.6)	×××	*	112	146	76.7 (69.0-83.3)	✓	ns
BSC	16	23	69.6 (47.1-86.8)	✓	ns	88	107	82.2 (73.7-89.0)	✓	ns
BSSL	53	64	82.8 (71.3-91.1)	✓✓✓	*	170	220	77.3 (71.2-82.6)	✓	ns
BSHC	9	16	56.3 (29.9-80.2)	✓	ns	48	60	80.0 (67.7-89.2)	✓	ns
BSA Total	211	294	71.8 (66.3-76.8)	✓	ns	742	921	80.6 (77.9-83.1)	✓✓	*

Note: Due to re-configuration of BSAN into 3 providers, data for BSWN, BSAL and BSCM does not cover a full 24-month screening period. Where data are missing in the table above this reflects that the lead provider was unable to meet the 90% threshold data completion requirement (please refer to table 3a.3)
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

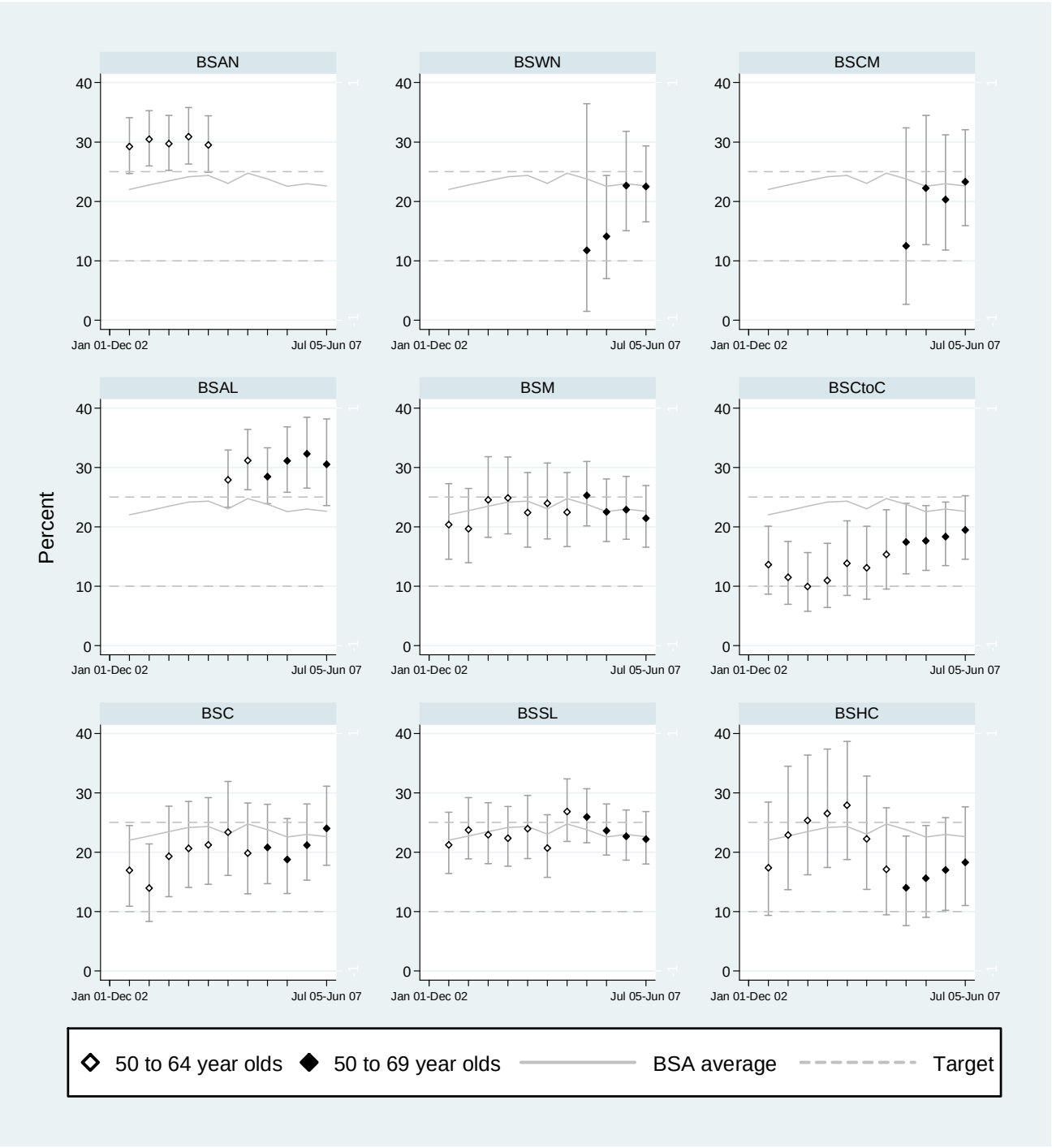
	DCIS	Total cancers	% (95%CI)
45-49 years			
BSWN	12	46	26.1 (14.3-41.1)
BSCM	6	20	30.0 (11.9-54.3)
BSAL			
BSM	15	46	32.6 (19.5-48.0)
BSCtoC	12	34	35.3 (19.7-53.5)
BSC	7	33	21.2 (9.0-38.9)
BSSL	29	75	38.7 (27.6-50.6)
BSHC	0	13	0.0 (0.0-24.7)
BSA Total	89	299	29.8 (24.6-35.3)
50-69 years			
BSWN	40	178	22.5 (16.6-29.3)
BSCM	27	116	23.3 (15.9-32.0)
BSAL	50	164	30.5 (23.5-38.1)
BSM	55	257	21.4 (16.5-26.9)
BSCtoC	44	226	19.5 (14.5-25.2)
BSC	41	171	24.0 (17.8-31.1)
BSSL	81	365	22.2 (18.0-26.8)
BSHC	17	93	18.3 (11.0-27.6)
BSA Total	355	1,570	22.6 (20.6-24.8)

Note: Due to re-configuration of BSAN into 3 providers, data for BSWN, BSAL and BSCM does not cover a full 24-month screening period. Where data are missing in the table above this reflects that the lead provider was unable to meet the 90% threshold data completion requirement (please refer to table 3a.3)

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

Exact Binomial 95% Confidence Intervals presented

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



4. TREATMENT

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

Description:

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

Target:

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

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

	Number having surgical axillary procedure for invasive cancers >1 mm	Number having an operation for invasive cancers >1 mm	% (95%CI)		
45-49 years					
BSWN	25	25	100.0 (86.3-100.0)		
BSCM	10	10	100.0 (69.2-100.0)		
BSAL					
BSM	26	26	100.0 (86.8-100.0)		
BSCtoC	16	17	94.1 (71.3-99.9)		
BSC	16	16	100.0 (79.4-100.0)		
BSSL					
BSHC	11	11	100.0 (71.5-100.0)		
BSA Total	141	144	97.9 (94.0-99.6)		
50-69 years					
BSWN	83	85	97.6 (91.8-99.7)	✓	ns
BSCM	67	68	98.5 (92.1-100.0)	✓	ns
BSAL					
BSM	146	149	98.0 (94.2-99.6)	✓	ns
BSCtoC	135	135	100.0 (97.3-100.0)	✓✓	*
BSC	86	89	96.6 (90.5-99.3)	✓	ns
BSSL	181	185	97.8 (94.6-99.4)	✓	ns
BSHC	60	61	98.4 (91.2-100.0)	✓	ns
BSA Total	822	842	97.6 (96.4-98.5)	✓	*

Note: Due to re-configuration of BSAN into 3 providers, data for BSWN, BSAL and BSCM does not cover a full 24-month screening period. Where data are missing in the table above this reflects that the lead provider was unable to meet the 90% threshold data completion requirement (please refer to table 3a.3)

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	30	34	88.2 (72.5-96.7)
BSCM	13	14	92.9 (66.1-99.8)
BSAL			
BSM	24	31	77.4 (58.9-90.4)
BSCtoC	16	22	72.7 (49.8-89.3)
BSC	17	26	65.4 (44.3-82.8)
BSSL			
BSHC	9	13	69.2 (38.6-90.9)
BSA Total	152	198	76.8 (70.3-82.5)
50-69 years			
BSWN	121	138	87.7 (81.0-92.7)
BSCM	84	88	95.5 (88.8-98.7)
BSAL			
BSM	172	201	85.6 (79.9-90.1)
BSCtoC	149	180	82.8 (76.5-88.0)
BSC	101	130	77.7 (69.6-84.5)
BSSL	235	270	87.0 (82.4-90.8)
BSHC	68	76	89.5 (80.3-95.3)
BSA Total	1022	1,188	86.0 (83.9-87.9)

Note: Due to re-configuration of BSAN into 3 providers, data for BSWN, BSAL and BSCM does not cover a full 24-month screening period. Where data are missing in the table above this reflects that the lead provider was unable to meet the 90% threshold data completion requirement (please refer to table 3a.3)

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	9	9			
BSCM	4	4			
BSAL					
BSM	9	9			
BSCtoC	11	11			
BSC	3	4			
BSSL					
BSHC	0	0			
BSA Total	64	65	98.5 (91.7-100.0)		
50-69 years					
BSWN	35	36	97.2 (85.5-99.9)	✓	ns
BSCM	21	21	100.0 (83.9-100.0)	✓	ns
BSAL					
BSM	45	49	91.8 (80.4-97.7)	✓	ns
BSCtoC	38	39	97.4 (86.5-99.9)	✓	ns
BSC	33	33	100.0 (89.4-100.0)	✓	ns
BSSL	75	75	100.0 (95.2-100.0)	✓✓	*
BSHC	13	16	81.3 (54.4-96.0)	✓	ns
BSA Total	303	312	97.1 (94.6-98.7)	✓	ns

Note: Due to re-configuration of BSAN into 3 providers, data for BSWN, BSAL and BSCM does not cover a full 24-month screening period. Where data are missing in the table above this reflects that the lead provider was unable to meet the 90% threshold data completion requirement (please refer to table 3a.3)

Exact Binomial 95% Confidence Intervals presented

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

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

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

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

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

Table 4c: Proportion of DCIS women not having axillary dissection, 2 years - detailed information for women having surgery for DCIS

	Type of axillary surgery performed					
	No Axillary Surgery	Sampling	Axillary Level 1, 2 or 3	Sentinel Node Surgery Only	Not Available / Unknown / Unsure	**Number having surgery for DCIS (less immediate reconstruction)**
45-49 years						
BSWN	5	0	0	4	0	**9**
BSCM	3	0	0	1	0	**4**
BSAL						
BSM	7	1	0	1	0	**9**
BSCtoC	9	0	0	2	0	**11**
BSC	2	1	1	0	0	**4**
BSSL						
BSHC	0	0	0	0	0	**0**
BSA Total	51	3	1	10	0	**65**
50-69 years						
BSWN	23	1	0	11	1	**36**
BSCM	8	0	0	13	0	**21**
BSAL						
BSM	40	2	4	3	0	**49**
BSCtoC	36	0	1	2	0	**39**
BSC	31	0	0	2	0	**33**
BSSL	65	7	0	3	0	**75**
BSHC	13	0	2	0	1	**16**
BSA Total	251	12	7	40	2	**312**

Note: Where data are missing in the table above this reflects that the lead provider was unable to meet the 90% threshold data completion requirement (please refer to table 3a.3)

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	4	4			
BSCM	3	5			
BSAL					
BSM	5	7			
BSCtoC	5	7			
BSC	1	2			
BSSL					
BSHC	0	0			
BSA Total	32	40	80.0 (64.4-90.9)		
50-69 years					
BSWN	19	22	86.4 (65.1-97.1)	✓✓✓	*
BSCM	8	10	80.0 (44.4-97.5)	✓	ns
BSAL					
BSM	21	27	77.8 (57.7-91.4)	✓✓✓	*
BSCtoC	21	29	72.4 (52.8-87.3)	✓✓✓	*
BSC	24	30	80.0 (61.4-92.3)	✓✓✓	*
BSSL	43	46	93.5 (82.1-98.6)	✓✓✓	*
BSHC	6	10	60.0 (26.2-87.8)	✓	ns
BSA Total	165	199	82.9 (77.0-87.9)	✓✓✓	*

Note: Due to re-configuration of BSAN into 3 providers, data for BSWN, BSAL and BSCM does not cover a full 24-month screening period. Where data are missing in the table above this reflects that the lead provider was unable to meet the 90% threshold data completion requirement (please refer to table 3a.3)

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	1	1			
BSAL					
BSM	0	1			
BSCtoC	4	4			
BSC	1	3			
BSSL					
BSHC	0	4			
BSA Total	18	29	62.1 (42.3-79.3)		
50-69 years					
BSWN	23	31	74.2 (55.4-88.1)	✓✓✓	*
BSCM	28	31	90.3 (74.2-98.0)	✓✓✓	*
BSAL					
BSM	38	48	79.2 (65.0-89.5)	✓✓✓	*
BSCtoC	28	41	68.3 (51.9-81.9)	✓✓✓	*
BSC	26	29	89.7 (72.6-97.8)	✓✓✓	*
BSSL	35	50	70.0 (55.4-82.1)	✓✓✓	*
BSHC	16	24	66.7 (44.7-84.4)	✓	ns
BSA Total	206	272	75.7 (70.2-80.7)	✓✓✓	*

Note: Due to re-configuration of BSAN into 3 providers, data for BSWN, BSAL and BSCM does not cover a full 24-month screening period. Where data are missing in the table above this reflects that the lead provider was unable to meet the 90% threshold data completion requirement (please refer to table 3a.3)

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	27	29	93.1 (77.2-99.2)		
BSCM	5	5	100.0 (47.8-100.0)		
BSAL					
BSM	19	19	100.0 (82.4-100.0)		
BSCtoC	10	11	90.9 (58.7-99.8)		
BSC	11	12	91.7 (61.5-99.8)		
BSSL					
BSHC	5	5	100.0 (47.8-100.0)		
BSA Total	107	116	92.2 (85.8-96.4)		
50-69 years					
BSWN	93	98	94.9 (88.5-98.3)	✓	ns
BSCM	50	55	90.9 (80.0-97.0)	✓	ns
BSAL					
BSM	134	139	96.4 (91.8-98.8)	✓	ns
BSCtoC	104	105	99.0 (94.8-100.0)	✓	ns
BSC	81	83	97.6 (91.6-99.7)	✓	ns
BSSL	153	157	97.5 (93.6-99.3)	✓	ns
BSHC	47	49	95.9 (86.0-99.5)	✓	ns
BSA Total	725	755	96.0 (94.4-97.3)	✓	ns

Note: Due to re-configuration of BSAN into 3 providers, data for BSWN, BSAL and BSCM does not cover a full 24-month screening period. Where data are missing in the table above this reflects that the lead provider was unable to meet the 90% threshold data completion requirement (please refer to table 3a.3)

Exact Binomial 95% Confidence Intervals presented

* Statistically different from target value, ns Not significant

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

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

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

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

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

4.h. Proportion of women with DCIS having radiotherapy

Description:

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

Target:

No target

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

	DCIS having BCS who radiotherapy	DCIS having BCS	% (95%CI)
45-49 years			
BSWN	6	9	
BSCM	2	3	
BSAL			
BSM	4	6	
BSCtoC	2	7	
BSC	1	2	
BSSL			
BSHC	0	0	
BSA Total	31	51	60.8 (46.1-74.2)
50-69 years			
BSWN	19	27	70.4 (49.8-86.2)
BSCM	8	12	66.7 (34.9-90.1)
BSAL			
BSM	31	36	86.1 (70.5-95.3)
BSCtoC	8	25	32.0 (14.9-53.5)
BSC	6	28	21.4 (8.3-41.0)
BSSL	38	53	71.7 (57.7-83.2)
BSHC	5	9	55.6 (21.2-86.3)
BSA Total	136	233	58.4 (51.8-64.8)

Note: Due to re-configuration of BSAN into 3 providers, data for BSWN, BSAL and BSCM does not cover a full 24-month screening period. Where data are missing in the table above this reflects that the lead provider was unable to meet the 90% threshold data completion requirement (please refer to table 3a.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	0	0	
BSAL			
BSM	2	2	
BSCtoC	0	0	
BSC	0	0	
BSSL	1	1	
BSHC	1	1	
BSA Total	6	6	
Group 2: Node negative, high risk, and ER and PR negative			
BSWN	0	1	
BSCM	0	0	
BSAL			
BSM	0	0	
BSCtoC	1	1	
BSC	0	0	
BSSL	1	1	
BSHC	0	0	
BSA Total	3	5	
Group 3: Node positive, either ER or PR positive			
BSWN	5	9	55.6 (21.2-86.3)
BSCM	3	3	100.0 (29.2-100.0)
BSAL			
BSM	10	11	90.9 (58.7-99.8)
BSCtoC	8	9	88.9 (51.8-99.7)
BSC	6	9	66.7 (29.9-92.5)
BSSL	9	9	100.0 (66.4-100.0)
BSHC	5	5	100.0 (47.8-100.0)
BSA Total	51	63	81.0 (69.1-89.8)
Group 4: Node negative, high risk, either ER or PR positive			
BSWN	1	11	9.1 (0.2-41.3)
BSCM	1	7	14.3 (0.4-57.9)
BSAL			
BSM	4	14	28.6 (8.4-58.1)
BSCtoC	2	6	33.3 (4.3-77.7)
BSC	2	7	28.6 (3.7-71.0)
BSSL	3	17	17.6 (3.8-43.4)
BSHC	3	3	100.0 (29.2-100.0)
BSA Total	16	72	22.2 (13.3-33.6)

Note: Due to re-configuration of BSAN into 3 providers, data for BSWN, BSAL and BSCM does not cover a full 24-month screening period. Where data are missing in the table above this reflects that the lead provider was unable to meet the 90% threshold data completion requirement (please refer to table 3a.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	1	1	
BSCM	6	6	100.0 (54.1-100.0)
BSAL			
BSM	7	7	100.0 (59.0-100.0)
BSCtoC	5	6	83.3 (35.9-99.6)
BSC	7	7	100.0 (59.0-100.0)
BSSL	6	7	85.7 (42.1-99.6)
BSHC	2	2	100.0 (15.8-100.0)
BSA Total	35	39	89.7 (75.8-97.1)
Group 2: Node negative, high risk, and ER and PR negative			
BSWN	13	15	86.7 (59.5-98.3)
BSCM	1	6	16.7 (0.4-64.1)
BSAL			
BSM	6	11	54.5 (23.4-83.3)
BSCtoC	3	11	27.3 (6.0-61.0)
BSC	7	15	46.7 (21.3-73.4)
BSSL	8	22	36.4 (17.2-59.3)
BSHC	7	13	53.8 (25.1-80.8)
BSA Total	47	99	47.5 (37.3-57.8)
Group 3: Node positive, either ER or PR positive			
BSWN	6	17	35.3 (14.2-61.7)
BSCM	7	12	58.3 (27.7-84.8)
BSAL			
BSM	24	37	64.9 (47.5-79.8)
BSCtoC	18	45	40.0 (25.7-55.7)
BSC	12	19	63.2 (38.4-83.7)
BSSL	27	54	50.0 (36.1-63.9)
BSHC	12	17	70.6 (44.0-89.7)
BSA Total	115	223	51.6 (44.8-58.3)
Group 4: Node negative, high risk, either ER or PR positive			
BSWN	1	43	2.3 (0.1-12.3)
BSCM	3	34	8.8 (1.9-23.7)
BSAL			
BSM	6	84	7.1 (2.7-14.9)
BSCtoC	4	72	5.6 (1.5-13.6)
BSC	1	40	2.5 (0.1-13.2)
BSSL	7	125	5.6 (2.3-11.2)
BSHC	5	24	20.8 (7.1-42.2)
BSA Total	29	466	6.2 (4.2-8.8)

Note: Due to re-configuration of BSAN into 3 providers, data for BSWN, BSAL and BSCM does not cover a full 24-month screening period. Where data are missing in the table above this reflects that the lead provider was unable to meet the 90% threshold data completion requirement (please refer to table 3a.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)

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	8	9	88.9 (51.8-99.7)
BSCM	3	3	100.0 (29.2-100.0)
BSAL			
BSM	11	11	100.0 (71.5-100.0)
BSCtoC	7	9	77.8 (40.0-97.2)
BSC	9	9	100.0 (66.4-100.0)
BSSL			
BSHC	5	5	100.0 (47.8-100.0)
BSA Total	48	54	88.9 (77.4-95.8)
Group 2: Node negative, high risk, and ER or PR positive			
BSWN	9	11	81.8 (48.2-97.7)
BSCM	2	7	28.6 (3.7-71.0)
BSAL			
BSM	10	14	71.4 (41.9-91.6)
BSCtoC	5	6	83.3 (35.9-99.6)
BSC	4	7	57.1 (18.4-90.1)
BSSL			
BSHC	3	3	100.0 (29.2-100.0)
BSA Total	38	55	69.1 (55.2-80.9)
Group 3: Node negative, low risk and ER or PR positive			
BSWN	11	22	50.0 (28.2-71.8)
BSCM	3	11	27.3 (6.0-61.0)
BSAL			
BSM	12	18	66.7 (41.0-86.7)
BSCtoC	8	11	72.7 (39.0-94.0)
BSC	12	17	70.6 (44.0-89.7)
BSSL			
BSHC	6	7	85.7 (42.1-99.6)
BSA Total	57	98	58.2 (47.8-68.1)

Note: Due to re-configuration of BSAN into 3 providers, data for BSWN, BSAL and BSCM does not cover a full 24-month screening period. Data for BSSL is not included in this table due to a known extract data issue with one data field which is currently being resolved. Data for BSAL is missing the table above because BSAL was unable to meet the 90% threshold data completion requirement (please refer to table 3a.3).
Exact binomial 95% Confidence Intervals presented
NB: A low risk tumour is one that has a pathological tumour size < 2cm and is grade 1 (histologic and/or nuclear grade). A high risk tumour is one that has either a pathological tumour size ≥ 2cm and/or is grade 2-3 (histologic and/or nuclear grade)

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

	Invasive Cancers, having endocrine therapy	Invasive cancers	% (95%CI)
Group 1: Node positive, and ER or PR positive			
BSWN	17	17	100.0 (80.5-100.0)
BSCM	11	12	91.7 (61.5-99.8)
BSAL			
BSM	37	37	100.0 (90.5-100.0)
BSCtoC	37	45	82.2 (67.9-92.0)
BSC	18	19	94.7 (74.0-99.9)
BSSL			
BSHC	17	17	100.0 (80.5-100.0)
BSA Total	155	169	91.7 (86.5-95.4)
Group 2: Node negative, high risk, and ER or PR positive			
BSWN	34	43	79.1 (64.0-90.0)
BSCM	19	34	55.9 (37.9-72.8)
BSAL			
BSM	79	84	94.0 (86.7-98.0)
BSCtoC	51	72	70.8 (58.9-81.0)
BSC	34	40	85.0 (70.2-94.3)
BSSL			
BSHC	18	24	75.0 (53.3-90.2)
BSA Total	270	341	79.2 (74.5-83.4)
Group 3: Node negative, low risk and ER or PR positive			
BSWN	44	101	43.6 (33.7-53.8)
BSCM	19	59	32.2 (20.6-45.6)
BSAL			
BSM	132	143	92.3 (86.7-96.1)
BSCtoC	72	113	63.7 (54.1-72.6)
BSC	67	86	77.9 (67.7-86.1)
BSSL			
BSHC	25	43	58.1 (42.1-73.0)
BSA Total	401	618	64.9 (61.0-68.7)

Note: Due to re-configuration of BSAN into 3 providers, data for BSWN, BSAL and BSCM does not cover a full 24-month screening period. Data for BSSL is not included in this table due to a known extract data issue with one data field which is currently being resolved. Data for BSAL is missing the table above because BSAL was unable to meet the 90% threshold data completion requirement (please refer to table 3a.3)
Exact binomial 95% Confidence Intervals presented
NB: A low risk tumour is one that has a pathological tumour size < 2cm and is grade 1 (histologic and/or nuclear grade). A high risk tumour is one that has either a pathological tumour size ≥ 2cm and/or is grade 2-3 (histologic and/or nuclear grade)

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)		
45-49 years					
BSWN	32	46	69.6 (54.2-82.3)		
BSCM	3	20	15.0 (3.2-37.9)		
BSAL					
BSM	24	46	52.2 (36.9-67.1)		
BSCtoC	25	34	73.5 (55.6-87.1)		
BSC	24	33	72.7 (54.5-86.7)		
BSSL	44	57	77.2 (64.2-87.3)		
BSHC	9	13	69.2 (38.6-90.9)		
BSA Total	181	279	64.9 (59.0-70.5)		
50-69 years					
BSWN	137	176	77.8 (71.0-83.7)	×××	*
BSCM	44	114	38.6 (29.6-48.2)	×××	*
BSAL					
BSM	132	254	52.0 (45.6-58.3)	×××	*
BSCtoC	147	224	65.6 (59.0-71.8)	×××	*
BSC	121	172	70.3 (62.9-77.1)	×××	*
BSSL	251	347	72.3 (67.3-77.0)	×××	*
BSHC	66	93	71.0 (60.6-79.9)	×××	*
BSA Total	973	1,534	63.4 (61.0-65.8)	×××	*

Note: Due to re-configuration of BSAN into 3 providers, data for BSWN, BSAL and BSCM does not cover a full 24-month screening period. Where data are missing in the table above this reflects that the lead provider was unable to meet the 90% threshold data completion requirement (please refer to table 3a.3).

Exact Binomial 95% Confidence Intervals presented

* Statistically different from target value, ns Not significant

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

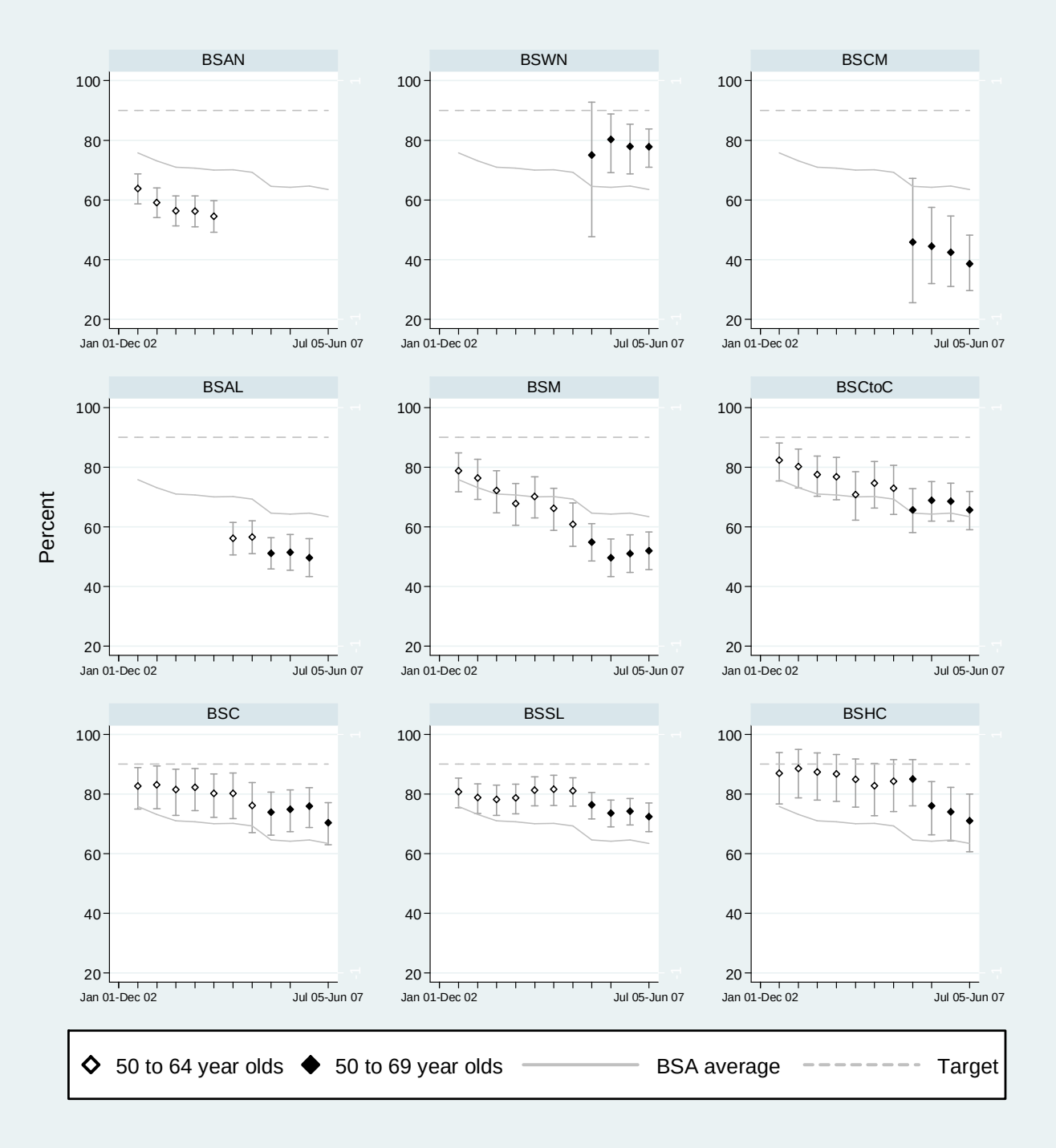
✓✓ Difference of 5-9% magnitude better than target value and statistically significant

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

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

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

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



APPENDIX A: GLOSSARY OF TERMS

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

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

Asymptomatic
Women who do not have symptoms of breast cancer

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

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

Benign biopsy weight
The weight of the open biopsy specimen presented to the pathologist

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

BSA
BreastScreen Aotearoa

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

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

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

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

High risk invasive breast cancer
Having at least one of the following features:

a. pT>2cm (pathological tumour size

and/or

b. Grade 2-3 (histologic and/or nuclear grade)

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

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

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

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

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

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

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

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

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

APPENDIX B: Map of BSA Lead Provider Regions